



NATIONAL INSTITUTE OF FASHION TECHNOLOGY
KANGRA

Book of Abstracts



ICON
2023

INTERNATIONAL
CONFERENCE
ON SUSTAINABLE
DESIGN PRACTICES

25th-27th NOVEMBER 2023

Disclaimer

This book contains abstracts shortlisted for the conference.

This is an exhaustive list from which the presentations have been selected for oral and poster presentations.

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KANGRA



ABOUT THE INSTITUTE

Situated in the picturesque Kangra valley, overlooking the beautiful Dhauladhar Himalayan Ranges, the Kangra Centre started its journey in 2009, tracing the vision of NIFT. The centre was inaugurated by the Hon'ble Minister of Textiles, Mr. Shankar Singh Waghela, and Hon'ble Chief Minister of Himachal Pradesh, Prof. Prem Kumar Dhumal on 5th August 2009, and has started playing an important role in contributing to various segments of the textile, apparel, lifestyle accessories, and fashion communication industries. Having more than 1200 graduates with high merits and successful placements, NIFT Kangra has provided a firm foundation for academics and overall learning.



ABOUT CONFERENCE

The conference aims to bring together experts from Design, Fashion, Technology, Management, and other allied fields to present their research work, papers, and design applications to identify different sustainable design practices. It will be an excellent opportunity for students, scholars, and academicians to interact with renowned National and international experts. The Conference's themes & sub-themes aim to cover and address as many domains related to sustainable practices in design, technology, management, and other allied areas.

रचना शाह, भा.प्र.से.
सचिव
Rachna Shah, IAS
Secretary



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GOVERNMENT OF INDIA
MINISTRY OF TEXTILES
UDYOG BHAWAN, NEW DELHI - 110 011



MESSAGE

21 November 2023

I congratulate NIFT Kangra for hosting the International Conference on Sustainable Design Practices (ICON 2023) from November 25th to 27th, 2023. I believe this Conference will provide a pivotal platform for exchange of ideas and contribute to the ongoing discourse on sustainable design. It will help in nurturing a community of scholars, practitioners, researchers, and corporate leaders.

This Book of Abstracts comprises works unveiled during the Conference, and encompasses a diverse range of subjects relating to innovative and sustainable practices. My sincere appreciation goes to all the contributors, reviewers and organizers of the Conference. I extend my best wishes for the success of the Conference.

Rachna
(Rachna Shah)
Chairman, BOG-NIFT

रोहित कंसल
अपर सचिव
Rohit Kansal
Additional Secretary



भारत सरकार
वस्त्र मंत्रालय
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GOVERNMENT OF INDIA
MINISTRY OF TEXTILES
UDYOG BHAWAN, NEW DELHI - 110 011

MESSAGE

It gives me immense pleasure to note that NIFT, Kangra is organizing an International Conference on Sustainable Design practices (ICON 2023) from November 25th to 27th, 2023. I understand that this conference aims to create a platform for academicians, corporate leaders, practitioners, and research scholars to exchange ideas on design practices across various industries.

In this connection, a publication containing abstracts is also being released. This collection of abstracts represents an array of ideas dedicated to creating a more sustainable future. The commitment and enthusiasm of the participants are evident in the breadth and depth of topics covered. From sustainable business models to eco-friendly product design, these abstracts showcase their commitment to a greener and more sustainable world.

I would like to extend my compliments to all the authors, reviewers, and organizers who have contributed to this conference. Their contributions are instrumental in advancing the cause of sustainable design.

I encourage all participants to engage, discuss, and collaborate during the conference to further enrich our understanding and drive change in sustainable design practices, and to keep alive these synergies formed for future work as well.

I offer my best wishes for the success of the conference.

Sd/-
(Rohit Kansal)
Director General
NIFT



राष्ट्रीय फैशन प्रौद्योगिकी संस्थान
सांविधिक संस्थान निफ्ट अधिनियम 2006, द्वारा शासित और
नम्र मंत्रालय, भारत सरकार द्वारा स्थापित
NATIONAL INSTITUTE OF FASHION TECHNOLOGY
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set up by the Ministry of Textiles, Government of India




From the Desk of Dean (Academics)

The National Institute of Fashion Technology (NIFT) Kangra has been consistently rising in the world of fashion and design education. It has continuously provided quality education in the fields of design, management, and technology, nurturing a generation of committed and knowledgeable professionals. While NIFT Kangra has maintained its position as a leader in fashion education, it has also remained adaptive in the face of rapid technological changes and has acknowledged industry best practices.

I take immense pride in congratulating the participants and NIFT Kangra on their remarkable journey of hosting the second International Conference on 'Sustainable Design Practices'. Through this conference, NIFT has an opportunity to promote cross-cultural exchange with people from various backgrounds, facilitating a broader perspective on research topics related to different sustainable practices.

I have no doubt that each participant will not only represent themselves admirably but also uphold the values and reputation of their institution and stimulate intellectual discussions. May this conference be a testament to the advancement of knowledge, fostering collaboration, and the promotion of professional development that makes a conference successful.

Best wishes


Prof. Dr. Sudha Dhingra
Dean (Academics)

प्रो. लक्ष्मीधर बेहेरा, निदेशक
Prof. Laxmidhar Behera, Director



23rd November 2023

Message

It is with great pleasure and enthusiasm that I extend my warmest greetings to all attendees of the International Conference on Sustainable Design Practices, hosted by NIFT Kangra. This collaborative endeavour between NIFT Kangra and various stakeholders embodies the essence of innovation and conscientious design thinking.

The convergence of creative expression and sustainable practices in design is pivotal in today's world. The commitment showcased by NIFT Kangra in fostering discussions and initiatives towards sustainability resonates deeply with our collective responsibility to safeguard our planet.

It is heartening to witness the convergence of Indian ethos with sustainable innovation in design—a vital step towards a harmonious future. Your dedication to weaving together traditional wisdom and modern sustainability principles is commendable and holds the key to a more responsible and balanced world. Together, let us embrace the richness of Indian thought and its seamless integration into sustainable design practices for a brighter, eco-conscious world.

I am confident that this conference will serve as a platform for insightful discussions, fostering new ideas, and cultivating meaningful collaborations that transcend boundaries and pave the way for a more sustainable tomorrow.

Best wishes for a successful and enriching conference.

Prof. Laxmidhar Behera



SCALING THE HEIGHTS

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Dear Esteemed Participants,

It is with immense pleasure and honor that I extend my warmest greetings to all attendees of the International Conference on Sustainable Design Practices hosted by NIFT Kangra. As the former Director of this esteemed institution, it brings me great joy to witness the convergence of innovative minds and thought leaders in the realm of sustainable design.

The theme of this conference, focusing on sustainable design practices, resonates deeply with the ethos that NIFT Kangra upholds. The pursuit of sustainability in design is not merely a trend but an imperative for our times. It calls for a conscientious approach to creativity, one that harmonizes human needs with environmental stewardship.

Throughout my tenure at NIFT Kangra, I have witnessed the unwavering commitment of this institution to foster a culture of sustainability, where students and faculty alike are encouraged to explore innovative and eco-conscious design solutions. The strides made in integrating sustainability into our curriculum and research initiatives have been commendable.

This gathering of scholarly minds and practitioners from diverse backgrounds is a testament to our collective dedication towards a more sustainable future. I am confident that the exchange of ideas, experiences, and insights during this conference will serve as a catalyst for transformative change in the field of design.

I urge each participant to actively engage in discussions, share your experiences, and collaborate to unearth novel approaches that prioritize sustainability in design practices. Let us seize this opportunity to inspire, learn, and propel the discourse on sustainable design to greater heights.

I extend my best wishes for a fruitful and enriching conference experience. May your deliberations here pave the way for innovative and impactful sustainable design practices that transcend boundaries and contribute to a better world.

Warm regards,

Aakash



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setup by the Ministry of Textiles, Government of India



Esteemed Participants and Distinguished Guests,

Welcome to the International Conference on Sustainable Design Practices at NIFT Kangra. It is a privilege to convene brilliant minds and passionate innovators from around the world in our pursuit of sustainable and ethical design solutions.

At NIFT Kangra, we believe in the power of design to shape a better future. This conference stands as a testament to our commitment to intertwine creativity with sustainability, honouring our cultural heritage while embracing global responsibility.

We are at a crucial juncture where creative excellence must walk hand in hand with environmental stewardship. This gathering is an opportunity to explore, learn, and collaborate towards crafting designs that not only captivate but also preserve our planet's resources.

May this platform be a catalyst for thought-provoking discussions, forging meaningful connections, and nurturing a collective resolve to integrate sustainability seamlessly into our design ethos.

I extend my deepest gratitude to all participants, speakers, and collaborators for your dedication to shaping a world where design, management and technology are not just beautiful but also sustainable.

Warm Regards

Rahul Chandra
Campus Director
NIFT Kangra

डिजाइन प्रबंधन और प्रौद्योगिकी का सर्वश्रेष्ठ संस्थान
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National Institute of Fashion Technology

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Dear Esteemed Participants,

It is my pleasure and honour to welcome you all to the International Conference on Sustainable Design Practices hosted by the National Institute of Fashion Technology Kangra. As the Conference Chair, I am thrilled to witness the convergence of brilliant minds and innovative ideas aimed at reshaping the academic landscape towards sustainability. This conference stands as a testament to our collective commitment to address one of the most pressing challenges of our time – the imperative shift towards sustainable practices in design.

NIFT Kangra, renowned for its dedication to excellence and innovation in fashion education, serves as an ideal platform to foster discussions, collaborations, and advancements in sustainable design practices. Our aim is not only to explore the latest trends and techniques but also to delve deeper into ethical frameworks, environmental impact, and societal implications inherent in our design choices.

Throughout the course of this conference, we have the unique opportunity to engage in insightful dialogues, learn from each other and chart a course towards a more sustainable future for the design industry. We'll explore how sustainable design can transcend boundaries, incorporating diverse perspectives, cultures, and traditions while being rooted in ethical values. Our discussions and deliberations here will not just remain within the confines of these walls but will hopefully resonate far beyond.

I urge each one of you to actively participate, share your expertise, and embrace the spirit of collaboration. Let us leverage this platform to ignite new ideas, challenge existing paradigms, and collectively pave the way for a more sustainable design ecosystem. As we embark on this journey together, let us keep in mind that every step we take towards sustainability in design, no matter how small, contributes to a larger, impactful change. Our collective actions and initiatives born out of this conference can catalyse transformative shifts in the design landscape.

I extend my deepest gratitude to all the participants, speakers, sponsors, and organisers whose contributions have made this conference possible. Your dedication and enthusiasm are the driving forces behind our endeavours. May this conference be a beacon of inspiration and a catalyst for positive change in the world of design.

Warm Regards

D.K. Rangra

Joint Director

Conference Chair, ICON 2023

NIFT Kangra

डिजाइन प्रबंधन और प्रौद्योगिकी का सर्वश्रेष्ठ संस्थान

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Study of Musculoskeletal Disorder and Working Conditions Among Wooden Block Making Artisans in Pethapur

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The current study had the aim of assessing the presence of musculoskeletal disorders (MSDs) and the working conditions within the community of wooden block-making artisans. Work-related musculoskeletal disorders (WMSDs) have become a significant health challenge for laborers across both developed and developing nations. Musculoskeletal disorders (MSDs) encompass painful conditions frequently triggered by the repetitive strain on muscles, joints, nerves, tendons, and soft tissues throughout the body.

The study was conducted with the wooden block-making artisans of a small village, Pethapur, in Gujarat, to determine the significant factors associated with musculoskeletal disorders. The famous wooden blocks of Pethapur, Gandhinagar, have secured Geographical Indication. The wooden blocks are unique even today; they are made in a completely manual process. A bow-like instrument operates the drills to make holes in the seasoned block piece, after which the artisans create intricate patterns with the help of chisels. Based on the intricacy of the design, each block takes about two to seven days to make. Male workers mainly practice this craft. The main buyers of these blocks are the Kutch block printers, who require blocks with various intricate designs.

A survey was conducted among artisans in Pethapur village to evaluate the symptoms related to Musculoskeletal Disorders (MSD). A comprehensive questionnaire was formulated, encompassing various aspects such as the age, height, weight, Body Mass Index (BMI), and factors linked to musculoskeletal disorders concerning their present job details and working conditions. The Rapid Entire Body Assessment (REBA) approach was utilized to analyze the artisans' postures. This assessment entailed observing the posture of 15 artisans. During the REBA assessment, an assigned score was attributed to each of the subsequent body regions: wrists, forearms, elbows, shoulders, neck, trunk, back, legs, and knees. After the data was collected and scoring was applied to each region,

the data was consolidated using tables within the form. This consolidation incorporated variables representing risk factors, ultimately culminating in a single score that indicated the degree of risk associated with Musculoskeletal Disorders (MSD).

The REBA assessment study revealed the symptoms of musculoskeletal disorders (MSDs) in workers. To reduce the risk of musculoskeletal disorders, an improved workplace was proposed based on the anthropometric data of the artisans. This sitting posture has been consistent since the inception of their work. Sitting on the floor promotes a neutral spine and encourages an upright posture. Although this posture is generally sustainable, it poses challenges, particularly for older artisans who already suffer from knee and joint pain issues. For these artisans, an 8-hour workday in a seated position is strenuous. To address this issue, a proposed workstation design aims to reduce fatigue. Anthropometric data, including height, weight, sitting posture, knee height, eye height, and elbow height, were gathered using anthropometric instruments. Using the collected data, an ergonomic chair and table were designed for the artisans. The design process was facilitated using Solidworks software.

According to the International Labour Organisation (ILO), approximately 160 million cases of work-related illness are documented worldwide each year, with a significant proportion attributed to musculoskeletal disorders. In previous research by Nag et al. , an exploration was conducted into work stressors among male and female weavers (N=516) engaged in powerloom and handloom weaving. This study also aimed to establish a link between work stressors and the prevalence of work-related musculoskeletal disorders (MSDs). In a different study, Maity et al. evaluated musculoskeletal disorders (MSDs) and postural stress experienced by female craftworkers. They employed Electromyography (EMG) to measure the activity of shoulder and back muscles using the BIOPAC system. The outcomes suggested that sitting on the floor with legs folded led to comparatively lower prevalence of MSDs, BPD rating, and joint angle deviation as opposed to squatting or sitting with legs stretched on the floor. Another investigation centered on the working conditions of pottery manufacturers revealed a significant 38.5% occurrence of musculoskeletal pain . In a separate endeavor, Lahmi et al. examined the prevalence of MSD symptoms, identified noteworthy factors associated with these symptoms, and further devised guidelines for the design of workstations within the Iranian hand-woven carpet industry.

To Study Consumer Buying Behavior For Sustainable Apparel Through E-Commerce Platforms

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Every fashion house, including couture wear, mass-producing retail brands, and smaller home-grown brands, is constantly working to develop clothing that has a lower environmental impact by taking into account the people who make the clothes in the current environment. However, simply incorporating all viable sustainable practices into a brand is insufficient. The consumers that these brands target play a big part. For a brand to preach sustainability, it is important to know that the key to encouraging consumers to buy products with smaller environmental footprints is understanding how they classify a consumer good as eco-friendly.

In addition to the well-known brands with flagship stores, a sizable number of cloud brands are emerging through online stores, are sustainable as compared to the mega players of the industry. Due to the consumers' hands-on experience, opening stores can help in positioning of brand as sustainable; however, it's surprising to see how well-liked and important smaller brands that only sell online (either by launching their own websites or selling through other marketplaces or social media) are doing which is why understanding consumer buying behaviour online has become more crucial for businesses. In actuality, compared to other well-known and established brands, the consumer base for such brands is more genuine.

Therefore, the focus of this research is to identify what motivates the target audience to shop for sustainable products online and identify trends in consumer purchasing behaviour. The research will be primarily based on integrating theoretical information which will be substantiated by interviewing brand owners and collecting responses from a number of people who actively shop for sustainable apparel online.

Weaving Sustainability: Empowering Culture and Conservation Through Salawas Handloom Durries

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Handloom fabrics intertwine cultural heritage and sustainability, offering a compelling alternative to mass-produced textiles. This research dives into the world of Salawas handloom durries, probing sustainable design methods that seamlessly blend ecological consciousness, cultural preservation, and economic empowerment. Originating from Rajasthan's Jodhpur district, these durries are intricate handwoven rugs originating from the village of Salawas. Serving as versatile pieces, they grace floors, beds, and walls with their flat-woven charm.

This study delves deep into the Ecological, Cultural, and Economic Dimensions of Sustainable Handloom Design. Collaborating harmoniously with artisans, designers honour and extend the legacy of weaving communities by interweaving timeless patterns and motifs with contemporary sensibilities. Central to this approach is the local sourcing of materials, lending robust support to regional economies while diminishing the carbon footprint tied to transportation. This, aligned with sustainable principles, nurtures ecological integrity.

The craftsmanship and utilization of superior materials that are intrinsic to handloom fabrics enhance their durability. The design process thrives through Community Collaboration, where local insights breathe life into creations, fostering cultural esteem and aligning designs with community preferences. Educating consumers about the value of handloom textiles fosters appreciation for the artisanal craft and its positive ecological impact, incentivizing investments in sustainable products. By embracing Circular Design Principles, handloom textiles are woven into the fabric of circular economies, extending their lifespan through repair, repurposing, and recycling. Facilitating Market Access and Fair Trade practices establishes equitable connections between artisans and broader markets, further buttressing local economies and enhancing the overall sustainability of the handloom sector. In summary, sustainable design practices for handloom fabrics impeccably meld

tradition and innovation, yielding textiles that not only honour cultural heritage but also tread lightly on the environment and foster economic prosperity. The confluence of locally sourced materials, artisan empowerment, and environmental consciousness casts designers as custodians of a sustainable path forward for the handloom industry.

The research problem at the heart of this endeavour revolves around deciphering effective sustainable design approaches within the realm of Salawas handloom durries. It seeks to navigate the intricacies of seamlessly integrating ecological concerns, safeguarding cultural legacy, and fostering economic upliftment within the framework of handloom fabric production. The study sets out to unveil strategies encompassing local material sourcing, resource optimization, artisan engagement, circular design paradigms, and enhanced market access, culminating in a harmonious and sustainable handloom sector.

Capsule Wardrobe - A Sustainable Approach to Fashion Consumption

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In today's era, environmental awareness is a huge factor in the fashion industry. There is a lot of pressure even from the consumers for the industry to adopt sustainable practices. The concept of a capsule wardrobe has emerged as a very promising approach to promote sustainability by encouraging minimalism and mindful consumption of fashion. This research digs deep into the adoption of a capsule wardrobe as a sustainable fashion solution, exploring its impact, benefits and challenges as well as consumer perceptions and preferences towards this innovative concept.

The primary objective of this study is to examine the effectiveness of a capsule wardrobe in fostering sustainable fashion consumption. By adopting a qualitative and quantitative research methodology, data was collected from diverse sources, including interviews, surveys, and case studies. The analysis sheds light on the positive impact of a capsule wardrobe on promoting sustainability, as it encourages individuals to make thoughtful and intentional wardrobe choices, reducing the environmental footprint through decreased clothing waste and reduced demand for fast fashion.

The study gives away various benefits associated with the adoption of a capsule wardrobe. Participants reported feeling liberated and empowered as they decluttered and simplified their clothes, which led to better decision-making abilities and greater self-expressionism. The mindful consumption encouraged by the capsule wardrobe approach resulted in a shift towards more conscious decision-making and responsible consumer behaviour, resulting in an overall improvement in personal well-being and satisfaction.

However, the study reveals some limitations associated with the use of a capsule wardrobe. Participants discussed the challenges of switching from traditional clothes to a more minimalist lifestyle. Furthermore, the restricted availability of sustainable fashion options and societal constraints made it difficult for some people to completely embrace the concept.

Through extensive analysis, this study highlights the significant potential of a capsule wardrobe in the pursuit of sustainable fashion practices. It provides valuable awareness for individuals and fashion brands to understand the positive implications of adopting this approach of sustainable fashion to fight against environmental degradation and overconsumption. The findings highlight the importance of a capsule wardrobe as a vital participant in the battle for sustainable fashion consumption, providing a transformative pathway to a more sustainable and ecologically friendly future.

A Study : The Problem and Prospects About the Growth on Production Hand- loom Industry in Pilkhuwa

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In pilkhuwa area by this paper. A these is a complete detailed information is provide related to textile industry which will come to the force .this will provide opportunities for the new studies to the coming generation , the business class is totally dependent on the textile industry of pilkhuwa and people related to this industry will also have benefit . In pilkhuwa , these are several method related to textile such as weaving, printing, dying, and also block printing work .the economical & social situation in pilkhuwa is also improving at this time and initiatives & measures are being taken towards modernization . In future, the detailed information is provided by the trade & artisans related to their business problems. The problems of trades & artisans will be revealed by the research paper.

Exploring *Hylocereus Polyrhizus* (Dragon Fruit) Wastage as a Natural Colorant for Eco-Friendly Dyeing of Wool Fabric: Extraction, Absorption, and Fastness Analysis

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The use of synthetic dyes in textile industries has been a significant contributor to environmental pollution. The discharge of these dyes into water bodies poses a considerable threat to aquatic ecosystems. In response to this concern, there has been a growing trend towards utilizing natural colourants for textile dyeing due to increased consumer awareness about environmental sustainability.

Hylocereus polyrhizus, commonly known as Dragon Fruit, offers a promising source of natural colourant in the form of Betacyanin. This research aims to explore the feasibility of using the wastage of *Hylocereus polyrhizus* as a substitute for synthetic dyes in dyeing wool fabric. The primary objectives of this research are to extract Betacyanin-based dye from the wastage of *Hylocereus polyrhizus* (Dragon Fruit) juice, to assess the absorption and fastness properties of the extracted natural dye on wool fabric, to investigate the impact of different mordants and dyeing temperatures on the colour retention and stability of the dyed wool fabric and to identify the optimal combination of dyeing parameters to achieve the best color fastness on wool fabric.

The expected outcome is the identification of the effective extraction method for Betacyanin-based dye from Dragon Fruit wastage. Evaluation of the absorption and color fastness properties of the natural dye on wool fabric. Determination of the impact of different mordants and dyeing temperatures on color stability. The utilization of *Hylocereus polyrhizus* wastage as a natural colorant has the potential to reduce the environmental impact of textile dyeing. The findings will provide valuable insights for textile industries aiming to adopt eco-friendly dyeing processes, by utilizing *Hylocereus polyrhizus* wastage. The investigation into the absorption and fastness properties of the natural dye on wool fabric, along with the optimization of dyeing parameters, will offer practical solutions for sustainable textile coloration.

Gota Patti Craftsmanship from Nayala, Jaipur: A Comprehensive Research Study

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The exquisite Gota Patti work tradition from Nayala, Jaipur, honors the vibrant rich historical culture and expert craftsmanship. Gota Patti is a type of surface embellishment work on base textiles for pattern ornamentation that is done in Nayla village and the surrounding area. Georgette, chiffon, crepe, and other textiles are used as the foundation for gota patti work. Gota is a gold or silver metallic ribbon band. Through a thorough investigation of the processes, techniques, present state of the crafts, their socioeconomic circumstances, and interactions with the artisans, Gota Patti Cluster Intervention explore more about the craft and the artisans. The design and motif were inspired by birds, humans, and other natural things. Popular patterns right now include paisley, checkerboard, geometric, and more. Gotta Patti's contemporary development in terms of style and design.

To increase understanding of the current situation of the gota patti handicraft sector and the need for innovation in order to survive in the trend-driven global market. Often, designs act as the distinguishing quality that positions products in the appropriate position on the worldwide market. By fusing historical descriptions, cultural appreciation, craftsmanship insights, economic analysis, and current relevance, this fine skill is protected and gratified, assuring its survival for future generations. Also need to look more closely at how technology, art, and craft may be combined in order to diversify the conventional approach to new products and create new requirements for consumers.

This study focuses on new options for Gota Patti artisans, worldwide influence, and product diversification employing traditional design, colours and motifs.

To Understand Consumer Attitudes and Preferences Towards Virtual Try-ons in The Makeup Industry

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Virtual try-on technology has revolutionized the makeup industry, providing consumers with the unique opportunity to virtually test cosmetic products without physical contact. This paper delves into the profound effects of virtual trials on consumer behaviour within the makeup industry.

The study adopts a comprehensive mixed-methods approach, encompassing both qualitative and quantitative research methodologies. Also, the primary data has been collected from interviews with makeup artists and industry experts to understand the market of makeup industry, consumer attitudes, perception and an emotional response towards virtual try-on makeup experience.

The secondary data has been collected from books, journals, research papers, that are associated with virtual try-on technology, also various case studies have been analysed to gain valuable insights to understand critical factors influencing adoption virtual try-on technology in the makeup industry.

The paper concludes by outlining implications for makeup brands, marketers, and developers to optimize virtual trial experiences and effectively leverage customer insights. Understanding the intricate dynamics of consumer behaviour in the context of virtual trials allows businesses to adapt their strategies, capitalizing on the technology's transformative potential and fostering deeper customer engagement and loyalty in the ever-evolving makeup industry.

A Sustainable Approach to Dye the Cotton Fabric with Reactive Dyes in the Presence of Banana Sap Solution

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The textile chemical processing industry stands as a major contributor to environmental pollution. To mitigate this issue, an innovative approach involves incorporating bio-based substances into the dyeing process. Banana pseudostem sap (BPS) solution, known for its exceptional cotton-staining qualities that necessitate extensive washing for removal, serves as the focal point of this study. The objective is to employ BPS to treat cotton fabric, subsequently assessing its suitability for dyeing with reactive colors while minimizing the use of salt and other chemicals to reduce effluent discharge. Freshly extracted and purified banana sap is applied to pre-treated cotton fabric using a padding mangle at 100% expression. The physical properties, morphology, low-stress mechanical properties, and color characteristics of both untreated and treated cotton fabrics are scrutinized to determine the suitability of sap-treated cotton for subsequent reactive dyeing. The treatment results in an increase in the bending modulus and crease recovery angle of the cotton fabric but a decrease in tear strength. Scanning electron microscopy (SEM) confirms the presence of sap on the fabric's surface. Low-stress mechanical tests reveal an overall improvement in the fabric's hand feel after treatment. Spectrophotometric analysis of the color indices indicates no significant difference before and after treatment.

Empathy Towards Nonhumans in Popular Media as an Insight into Sustainable Thinking - A Case Study of Ghibli Movies

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Sustainability or sustainable thinking are principles to which empathy is an inherent feature. Today's world aspires to increase sustainable practices and revolutionise industries to become more environmentally friendly because we are empathising with the future troubles of the generations to come and of the animal kingdom that lives on this planet along with humanity. However, the key reasons to pursue sustainable practices are more anthropocentric than eco-centric. It becomes essential to understand that sustainable thinking can become the default only if empathy can be instilled in future generations. A pertinent source of mental influence on the perceptions and opinions of the masses comes from popular media like movies and television. Due to their influence over the mass human psyche, it becomes crucial to study how the media portrays empathy.

Understanding that empathy towards the entirety of the environment is a prerequisite to sustainable thinking, this paper tries to observe popular media for depictions of empathy/apathy of the human protagonist with nonhuman characters. Although this paper is part of ongoing research focusing on many different media pieces, this particular study concerns itself with the ten most popular animated movies produced by Studio Ghibli. The literature on the empathy tests shows that their validity is questionable, and although some scales have been developed with adequate validity, they are all based on self-reportage, which cannot be applied to research like this. Therefore, this study looks at interactions between human protagonists and nonhuman characters within these movies and tries to analyse their exchange to gauge instances of empathy through thematic analysis.

Sustainable Product Design Using Non-Woven Technologies

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As stated in the Textile Industry Waste Management Market Analysis Report for the period 2023–2027 by Technavio, the Textile Industry Waste Management Market is estimated to exhibit a Compound Annual Growth Rate (CAGR) of 12% from year 2022 to 2027. Projections suggest a substantial market expansion of around USD 2.07 billion increase. This projected growth is influenced by a variety of factors, including increased environmental consciousness, regulatory frameworks governing waste management, and growing consumer demand for textile products characterized by eco-friendliness and recyclability.

However, the growth trajectory faces significant challenges, the major among them being the absence of sophisticated methodologies and technologies for the disposal of textile waste. In response, this research introduces an innovative approach to recycling and repurposing discarded fabrics, utilizing non-woven techniques encompassing processes such as cutting, fraying, spike air laying, and heat-pressing compression molding. The outcome is a lightweight and structurally rigid non-woven composite material, that could be used to create a variety of products depending on the purpose and requirement. A salient feature of this methodology is its chemical-free nature, alongside requiring no water usage throughout the entire process. Further setting this approach apart is its short processing duration, in comparison with other popular industry practices for fabric recycling.

Several testing and characterizations, encompassing parameters such as surface mass, bending, traction, and microscopic analysis, have been performed on the resultant composite material. The outcome of this innovative technique has a dual impact: resource conservation and novel product creation technique, simultaneously contributing to waste reduction objectives.

Nanoscience and Nanotechnology for Textile Industry

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Nanoscience deals with the matter at small scale in dimension 1-100 nm. Technology driven from nanoscience already doing wonders in many spheres and textile industry is also benefited from this manipulation and miniaturization. Highly porous fibers which can be synthesized by various methods like centrifugal spinning, electrospinning, melt blowing, drawing, template synthesis, phase separation etc. has shown many advantages in textile industry like to make protective clothing for military, chemical, and medical professionals, tissue engineering, thermal resistant products, biomedical products, filtration up to nanometre scale, and breathable sportswear. Conventional textile techniques/product cannot produce such small fiber diameter however other nanotechnology technique can do and help to obtain fiber size very small in range 1- 100 nm. High surface to volume ratio with good strength and tunable porosity results various applications of such fiber textile materials like tunable breathing masks, breathable medical products, softness, durability, water repellent odorless textile and footwear, textile with ability to protect from virus, UV protection, special swimsuit which repel water, sporting goods, self cleaning fabric, flame retardant textiles, tunable fibers for filtration and masking and many more. In this presentation, various methods for manufacturing nanofibers and then the application in textile related industry will be discussed.

Jackfruit Seed Starch: A Sustainable Resource for Textile Innovation

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Artocarpus Heterophyllus, commonly referred to as jackfruit, is an intrinsic component of the Indian dietary landscape, with origins spanning Malaysia, central and eastern Africa, South-Eastern Asia, The Caribbean, Florida, Brazil, Australia, Puerto Rico, and numerous Pacific islands. Known as Panas or Phanas in the Indian subcontinent, jackfruit is a repository of essential compounds, including proteins, calcium, iron, and thiamine, alongside an array of phytochemicals such as carotenoids, flavonoids, volatile acids, sterols, and tannins.

Beyond its role as a dietary staple, jackfruit boasts a multifaceted pharmacological profile, encompassing antioxidant, anti-inflammatory, anti-microbial, anti-osteoporotic, and anti-cancer properties. This fruit, however, generates a substantial volume of waste, contributing to water pollution, noxious odours, and greenhouse gas emissions when discarded in landfills. Yet, its untapped potential for diverse applications awaits exploration.

Promising avenues include harnessing jackfruit waste for applications in food and material engineering, biohydrogen generation, and medicinal use. One particularly intriguing prospect involves the extraction of starch from jackfruit seeds for textile applications, a domain ripe for feasibility, viability, and desirability assessment. This underscores the manifold prospects for optimising the utilisation of jackfruit, not only as a nutritional resource but also as a valuable asset in sustainable textile manufacturing in the field of printing.

Repurpose, Redesign, and Reutilize - A Pilot Study on Sustainable Management of Furniture Waste in the Selected Educational Institution

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In today's world, waste management has become a crucial concern due to its unimaginable impact on the environment and thus gained a lot of popularity in some major topics like plastic waste management, water waste management, solid waste management, and so on. However, furniture waste management is still finding its path to come to light. Furniture waste management follows only traditional methods like dumping to landfills, burning, and open and closed storage which leads to health hazards and land occupancy. This makes the furniture waste a liability to the economy and environment. These problems lead to sustainable and innovative solutions. Because of the large infrastructure and student population, educational institutions generate high furniture waste. This research paper aims to sustainably manage furniture waste in selected educational institution through the application of the 3Rs – Repurpose, Redesign, and Reutilize as educational institution can play an influential role in promoting sustainable practices amongst students, staff members, educators, parents, and the wider community. The objectives are to quantify furniture waste, assess problems faced by educational institution in furniture waste management, propose solutions by developing useful items from furniture waste, and assess the effectiveness of the solution. This study is action-oriented research that involves purposive sampling and uses observation sheet, interview schedule, and content analysis as tools. The findings highlight the huge quantity and types of furniture waste generated and problems faced by educational institution and the result demonstrates that using the 3Rs is a practical and sustainable approach to reduce furniture waste in educational institution. The study's aim is to contribute to the development of innovative and sustainable furniture waste management practices that can be applied not only to educational institutions but beyond.

From Soft Systems to Soft Machines (Bio-Design)

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The necessary modification of open systems thinking to accommodate soft systems (including a phenomenological range from soft infrastructures to software) and extend this into recent work on soft robotics.

The works of creative robotics, specifically those unique art-science hybrids that swerve from the pervasive linear production models of positivism, capitalist realism, and automated techno-science inherited from the 20thC.

This research-in-progress defines an emergent area of research in design, theory, ecologies, cognition, and robotics - by drawing from diverse overlapping and entangled intellectual projects and tactical design projects for consideration. As such this foresight work is a dense and complex program for future interdisciplinary research, which backcasts to the origins of the digital age and forecasts into a sustainable future reconsidered as a revolutionary biomechanical transformation.

The starting point is an early visionary essay by architectural theorist Sanford Kwinter called "Soft Systems" (1993). We also consider the expanded definition of soft systems in light of the then contemporaneous writings of MIT mathematician and science fiction writer Rudy Rucker who distinguished software from hardware and wetware (biological agents in computation and cybernetics). To this we add some insights about cultural soft systems from Nick Land's early work on cybernetics in culture.

To engage the chaos of the present, we then pursue the necessary modifications to contemporary open systems thinking ranging across landscape urbanism to soft infrastructures to circular economies to self-organizing bio-design. This range of demonstrations spanning across diverse design theories / design practices is an opening to accommodate the earlier soft systems model (and self-organizing systems) into

a dynamic open systems model. This new complex is the basis of new hybrid design practices ranging across smart textiles to ambient environments. In this imagined reformatting of design education for future design practices we can achieve an intensification of interdependent sustainable feedback ecologies (defined by Bateson and Guattari as mental ecologies with social ecologies with environmental ecologies).

The Remodelling & Creative Regeneration of the Craft Cluster: A Projection for the future of ‘Chikankari’ Artisans in Uttar Pradesh

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As India celebrates its 75th year of independence, its many states are working together to make the ideal of “One India” a reality by providing sustainable businesses that measure new horizons and fresh beginnings in a post-pandemic world. The aim of this study is to analyse the impact that COVID-19 has had on artisans working in skilled clusters, with a particular emphasis on Uttar Pradesh and Chikankari. In addition, it proposes actions and methods for strengthening the handicrafts cluster, with the goals of reviving this exquisite embroidery and preparing artists to become business owners. A self-administered questionnaire based on an interview style was devised for a sample of 100 artisans who were indiscriminately shortlisted from the six Chikankari clusters in Lucknow City. These clusters include Chowk, Khadara, Daliganj, Aminabad, Bijnaur, and Sarojini Nagar. The framework of the interview was based on a 5-point Likert scale questionnaire. Chikankari embroidery was the focus of questions that addressed subjects relating to its design, technology, trends, and fashion features. The data collected assisted in the derivation of several important findings and proposals for the expansion and improvement of the art form.

Comprehensive Analysis of Body Shapes in the Indian Female Population: A National and Regional Study

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India, the world's most populous nation, boasts a diverse populace characterized by a rich tapestry of ethnicities, lifestyles, dietary preferences, and cultural traditions. It is widely acknowledged that individuals' body dimensions undergo alterations corresponding to geographical variations within nations and across international borders. Nevertheless, a comprehensive, scientifically rigorous, pan-India study representative of the entire Indian population has hitherto been absent in the realm of exploring body shapes. Currently, India relies on anthropometric data sourced from foreign nations to develop products, resulting in a formidable challenge for Indian consumers in their quest for products tailored to their specific bodily attributes. The garment industry, in particular, grapples with this issue, where Indian consumers must often compromise on the fit of clothing due to the absence of comprehensive databases pertaining to Indian body shapes and sizes. Recent reports underscore the gravity of this situation, revealing that garment returns account for a substantial 20% to 40% of sales, a trend exacerbated by the burgeoning e-commerce sector. Consequently, this engenders significant financial losses for manufacturers and disrupts the efficiency of the entire apparel supply chain.

In response to this pressing need, a nationwide anthropometric survey was meticulously conducted, leveraging state-of-the-art 3D whole-body scanning technology. This extensive study encompassed a cohort exceeding 26,000 subjects (male:13279 and female: 13045), aged 15 years and above, meticulously selected to represent all states across India's six distinct geographic regions. Systematically, the data collected was subjected to clustering, resulting in the categorization of body shapes, both at the regional and national levels. This classification process was anchored in robust measurements of height and key girth dimensions, with a specific focus on Bust, waist, hip, and upper hip girths. The classification employed six distinct combinations of measurements, namely Bust – Waist, Hip – Waist, Bust – Hip, Bust – Upper Hip, Hip – Upper Hip, and Waist – Upper Hip, facilitated by the k-means clustering algorithm.

This indigenous research unveiled the four most prevalent body shapes among Indian females: Hourglass, Rectangle, Trapezoid, and Bottom hourglass. Furthermore, a comprehensive regional analysis of body shapes was conducted, comparing them to the national cluster. Employing advanced statistical tools, such as SPSS Statistic V.28 and SPSS Modeler V.18.2, it was found that while regional variations existed, the fundamental body shape clusters among Indian females remained consistent with the national clusters. The regions displayed the same four primary body shapes for females, with variations in the prevalence of these identified shapes. This groundbreaking study not only sheds light on the unique body shapes of Indian females but also provides invaluable insights for industries striving to offer better-fitting products, thereby enhancing customer satisfaction and mitigating the financial losses associated with returns. Moreover, it underscores the necessity of considering regional variations in product design and sizing to cater to the diverse Indian population accurately.

Mosquito Repellent Textiles: A Sustainable and Green Approach

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With the innovations and developments in technologies in textile industry, mosquito repellent textiles have become an important focus of the protective textile sector. These textiles protect humans from mosquitoes and the diseases transmitted by mosquitoes, which include malaria, dengue fever, chikungunya and so on. Mosquitoes are among the most dangerous vectors, transmitting and spreading severe diseases which can even be life threatening. Also, not many vaccines are accessible to counter the mosquito-borne diseases. There are many mosquito repellents available in the market in the form of coils, lotions, vaporisers that are known to contain harmful synthetic ingredients such as DEET (N, N-Diethyl-meta-toluamide) and prolonged exposure to these products can cause serious health issues in humans. Therefore, mosquito repellent textiles are one of the effective ways of protecting humans from mosquito bites as textiles being the basic need, cover most parts of the human body. The present study discusses the benefits of natural mosquito repellents over synthetic mosquito repellents. The study is also focussed on the application and penetration of mosquito repellent finish in textiles using advanced technologies such as microencapsulation and nanoemulsions that can increase the durability of the finish on textiles. Finally, the application area that would create new opportunities for the textile industry to investigate its effectiveness on different textile substrates in a more sustainable manner is discussed.

Visual Art and Communication Design: Bridging Creativity and Connection

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Visual art and communication design are two dynamic fields that intersect to create powerful means of expression and connection in our modern world. This explores the intrinsic relationship between these disciplines, highlighting their role in shaping culture, conveying messages, and fostering human connection.

Visual art, encompassing a wide range of mediums from painting and sculpture to digital media and installation, serves as a profound form of self-expression and reflection of society's values. Artists translate their thoughts, emotions, and observations into visually captivating compositions, provoking thought and emotion in their audiences. Art's ability to evoke visceral responses transcends language barriers and facilitates communication on a primal level.

Communication design, on the other hand, is a purposeful and strategic approach to conveying information and messages through visual elements. Graphic designers, illustrators, and multimedia artists utilize their skills to create compelling visuals that enhance the clarity and impact of messages across various media. In an era dominated by information overload, communication design plays a pivotal role in making content more accessible, memorable, and engaging.

The synergy between visual art and communication design is evident in various aspects of our daily lives. From advertising campaigns that use striking visuals to convey brand identity, to public art installations that foster community engagement and dialogue, these fields collaborate to shape our visual landscape. Museums and galleries showcase the fusion of art and design, illustrating how aesthetics and functionality can coexist to create transformative experiences.

Furthermore, digital platforms and social media have amplified the influence of visual art and communication design, offering artists and designers global reach and immediate impact. Infographics, memes, and multimedia storytelling have become vital tools for disseminating information, sparking conversations, and driving change.

In conclusion, visual art and communication design are essential pillars

of human expression and connection in our contemporary world. They enrich culture, facilitate communication, and inspire change. As technology advances and the boundaries between these fields blur, their collaborative potential continues to expand, promising a future where creativity and communication are even more intertwined and influential.

Influence Of The Metaverse In Fashion

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Ever since the COVID pandemic hit the world, the definition and boundaries of technology have changed drastically. From conducting online classes to creating ultra-modern software and platforms, the pandemic has changed the way we interact. The digital world has always been known for its upward-looking philosophy. One of the prime examples of such a revolution is the metaverse. The gigantic world of the Metaverse started with the aim of transforming the business sector and making it even more accessible and effortless. Yet, it has jumped to various other sectors like refining education, increasing the accuracy of diagnosis, doing distance operations, creating interactive virtual workspaces, adding social circles, improving the gaming experience, and building a new sense of digital assets and economy. Taking the world by storm, this technological advancement is still building in order to change the way we interact, buy, work, and live. In terms of fashion, technology has been working widely in order to make designing, selling, consuming, marketing, and branding easier and faster. Metaverse has wildly entered fashion in the way of creating simplified e-commerce structures, virtualizing clothes, collaborating with Meta platforms to launch collections or designs, and changing the physical face of fashion into a virtual one. The research paper gathers studies from various resources and articles to clearly define the contours of the metaverse in fashion. The paper discusses the pros and cons of its influence on fashion, the advantages and disadvantages of this influence, and how fashion brands have already started using it. It also offers enough information for the users to form their individual opinions. The metaverse can dramatically reshape the face of fashion and demands a lot of screen time and our presence in a virtual reality. It can either be a dystopian approach to the future or a utopian aura with scope for improvement.

Characterization of Wastewater of Micro Craft Cluster of Gujarat manufacturing Single Ikat

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The current study aims to characterize the effluent generated during the dyeing process of yarns for single-ikat weaving in Limbdi, a small village in Surendranagar district of Gujarat, using important pollution indicators such as pH, TDS, COD, and BOD. Subsequently, a framework for better management of wastewater generated in small decentralized clusters is proposed.

The handloom sector is vital to the country's economy as it is the second largest employment sector after agriculture. This sector occupies a unique place in the Indian economy as it generates employment, manufactures fabrics, and adds value while preserving India's rich cultural heritage. Rajkot Patola is an ancient traditional fabric produced in Rajkot and Surendranagar districts of Gujarat. The weaving community has been holding these indigenous single-ikat sarees of Rajkot for around 800 years. The making of single-ikat is a very tedious process. Dyeing the yarn is an essential preparatory work, during which effluents are discharged to open land or water bodies. The crafts practiced in India for centuries were sustainable, but since the invention of synthetic dyes and their use for the crafts, it is no longer sustainable. The use of synthetic dyes and chemical auxiliaries makes the water harmful to both people and the environment. Many technologies are available to treat wastewater in large quantities. However, in small clusters such as hand weaving and dyeing, the amount of wastewater generated is less, and the existing technologies are not cost-effective for treatment. Studies have been conducted to characterize and manage liquid wastewater from industries. However, the studies are scanty on small clusters where wastewater discharge to open land or water bodies is practiced due to a lack of awareness or appropriate measures.

Wastewater samples were collected for the primary color dyes from the single-ikat weaving artisans in clean, transparent bottles and subsequently preserved at a temperature of 4°C. Additionally, water samples employed in the dyeing process were also systematically acquired.

These acquired samples were subjected to comprehensive characterization, including assessments of pH, total dissolved solids (TDS), biological oxygen demand (BOD), and chemical oxygen demand (COD). Notably, the results indicate a pH variance within the effluents, spanning from 6.8 to 8. TDS measurements, expressed in milligrams per liter (mg/L), exhibited a range between 2606 mg/L and 1382.60 mg/L, while COD concentrations, also in mg/L, demonstrated variability between 311.42 mg/L and 109.90 mg/L. Similarly, BOD concentrations, again in mg/L, exhibited a spectrum from 52.60 mg/L to 33.30 mg/L.

Furthermore, this study introduces a comprehensive framework aimed at addressing the management and reutilization of wastewater generated within this micro-cluster context. The development of this framework was rooted in an exhaustive review of relevant literature, in-depth consultations with subject matter experts, and a profound understanding of the distinct challenges and environmental intricacies inherent to the craft's operations.

The issue of residual color removal from wastewater originating from various dye-utilizing industries, such as textiles, paper, and leather, has garnered heightened attention in recent times. This heightened concern arises from the inherent resilience of synthetic dyes to chemical, photochemical, or microbial degradation. Even the presence of trace amounts of these dyes in aquatic environments is deemed undesirable, both for aesthetic considerations and due to their association with documented carcinogenic, mutagenic, and allergenic effects, as elucidated in numerous research studies (Ranga & Sanghvi, 2017). In a 2022 study conducted by Khetani et al., small-scale enterprises engaged in indigenous craft practices in the Surendranagr district, particularly within the Limdi taluka, were found to discharge untreated wastewater (effluent) directly into public drains and open areas due to a lack of proper measures. More than 500 families in Limdi taluka were engaged in single-ikat weaving, with each unit releasing an average monthly effluent volume of around 300 liters into drainage systems without proper treatment. It is imperative to underscore that wastewater originating from tie-dye processes contains remnants of azo, reactive, or vat dyes, all of which are characterized by the presence of intricate organic molecules that pose significant challenges in terms of degradation (Ranga & Sanghvi, 2017). To ensure the safety of the surrounding environment and the well-being of the community, it is vital to address this issue comprehensively by implementing adequate wastewater treatment measures, thus rendering it socially and environmentally benign.

Upcycling: A Sustainable Approach Towards Fashion

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Sustainable fashion is the practice of customizing and designing clothes, accessories, and footwear in the best possible way to protect the environment from negative impacts.

This involves many aspects such as:

Using environmentally friendly materials and chemicals.

Ensuring fair worker's rights.

Support local artisans (to reduce the carbon footprint).

Use machinery for waste reduction.

Educate consumers.

Rise of Regenerative Fabrics.

According to recent studies, this increased production has made the fashion industry the biggest generator of greenhouse gas emissions. It was found that the apparel industry approximately emitted 897 million metric tons of carbon dioxide equivalents, which is estimated to increase to 1.3 billion metric tons by 2030 if no drastic measures are taken. (1)

Only 20 percent of clothing waste is collected for reuse and recycling, while the majority ends up in landfill or is incinerated, according to a 2017 report by Global Fashion Agenda and The Boston Consulting Group—showing the need for improvement when it comes to addressing the environmental impact of our cast-offs. “There’s too much unwanted clothing out in the world,” says Elizabeth L. Cline, fashion journalist and author “It is overwhelming systems in place that are trying to deal with it.” (2)

There are different ways to deal with the waste generated by the fashion industry.

Recycling is finding another use for an existing garment or textiles; it sometimes also means converting (waste) into reusable materials. Garment recycling generally involves finding another use or user by re-entering a new phase for its life beginning at retail. The loop to recycle therefore closes towards the end of the supply chain and frequently re-enters the market through charities and collection points. The pro-

cess of recycling textiles can also include the breakdown or grinding of high-grade materials into their purest raw forms or substrates. Recycling technology is seen as important in combating the scarcity of raw materials and offers companies additional ways of managing their supply of raw materials.

Upcycling however includes the performance of value-added activity on the material or disassembled garment in such a way as to create a product of higher quality or value than the original. In upcycling the new life cycle commences with a design and may require a complete manufacturing cycle as with a new product. The time frame for upcycling can be lengthy to allow for sourcing, disassembly, and reconstitution. (3)

Downcycling turns textile waste into something of lower value. At the TransAmerica facility, about 50% of what comes in is damaged or stained and is downcycled into wiping cloths, carpet padding, and sound insulation for other industries. This keeps textiles out of the landfill for a while, but eventually, these materials will end up there. (4)

In this study, a method of upcycling has been discussed. An old garment is converted into a new garment by the inclusion of new design elements which could enhance the interest of the consumer. The new garment is designed as per consumer fashion choices which increases the life of that product. The detailed process of converting the skirt into a Corset and converting a shirt into a Cord set has been discussed. The study provides a more practical solution of upcycling old garments.

Eco Art and Culture: A Pursuit of Sustainable Art and Environmental Creativity.

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Art is a form of creativity and requires various motor skills and the capability of thinking out of the box, to create something unique. Art & Craft not only helps with creativity, but it can also improve focus and discipline, as well as develop observational skills, and is a great way for a person to express themselves. Art is also a way to use your imagination and help others see things differently. However, art can be subjective, so one person can view something as art, while somebody else does not look at it as an art form but observes something as a beautiful object. The definition of art has changed over the years and is likely to evolve and change in the future. This paper shares the sustainable art & crafted form of resources used for making conceptual pandals during Bengals festival Durga Puja, one of the most legendary and distinguished festivals.

The concept of Sustainability is recycled and reused in Art & Craft which is being extracted from nature & is also an eco-friendly craft. My research subject is the sources of nature which are sustainable and are most importantly used as an art and craft to design a concept, used to beautify, and is developed a theme for making decorative Pandals in West Bengal.

The natural resources used in cultural art are Canes, Bamboos, Clay, Jute & Shola. This paper shares its contribution towards (SDGs) Sustainable Development Goals.

Furniture Design for Primary School Children

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Over 80% of a child's time in school is spent in the classroom, which is the primary learning environment. Classroom furniture, particularly children's sitting desks, which serve as adaptable platforms for eating, reading, and writing, are central to this environment. Children spend a lot of time sitting in classrooms, which can have an effect on their posture, comfort, health, and ability to learn in the long run. This furniture needs to be designed in an ergonomic way.

This study presents the Seat and Work area plan (ED-005), custom-fitted to meet the ergonomic necessities of youngsters aged 7-12 years. The examination targets incorporate upgrading ergonomic help, guaranteeing strength, advancing eco-benevolence, and keeping up with cost-viability. The centre spotlight is on making outwardly engaging furniture that offers ergonomic solace as well as draws in kids consistently and charmingly, encouraging energetic and compelling opportunities for growth.

The Bench and desk design (ED-005) is developed and tested to determine its ergonomic efficiency and suitability for the intended age group. The initial results show promising results in improved comfort, posture support, and overall satisfaction among children who use this furniture. The implications of these findings for children's well-being and learning outcomes are discussed.

In conclusion, this study focuses on ergonomics, durability, eco-friendliness, and cost-effectiveness when designing classroom furniture for children aged 7 to 12. The Bench & Desk design (ED-005) has a lot of potential for creating learning environments that are inviting and enjoyable, fostering intellectual development and academic excellence. These preliminary findings need to be validated with additional research, which will be discussed in the following sections.

Innovative Strategies for Insect Repellent textiles: Microencapsulation of Citronella Oil and DEET in Textiles

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Citronella oil has been extensively studied for its insect-repelling properties and pleasant fragrance. Researchers have developed innovative approaches, including microencapsulation and Nano emulsion, to prolong its release and maximize mosquito protection. Moreover, the combination of citronella oil with other essential oils has shown promising results in repelling a wide range of insects. On the other hand, DEET (N,N-diethyl-meta-toluamide) is also one of the promising & widely employed insect repellent, has been investigated for its effectiveness on different materials, including cotton fabric. Encapsulation techniques, such as microencapsulation and graft copolymerization, have been harnessed to control DEET release and extend its antibacterial activity. DEET has also been incorporated into various forms, such as sprays, lotions, and impregnated materials like wristbands, to enhance its usability.

This comprehensive review delves into the utilization of citronella oil and DEET as prominent insect repellents and fragrance components, exploring their applications on textiles and various encapsulation techniques for enhanced efficacy. Furthermore, this review discusses the molecular targets and mechanisms of action of DEET, shedding light on its olfactory sensory neuron-blocking properties. These findings have paved the way for the development of DEET-based products that offer prolonged and effective protection against biting insects. Overall, this examination underscores the diverse applications and encapsulation strategies for citronella oil and DEET, contributing to the advancement of insect repellent technologies and odor-retentive textiles.

Unveiling Sanganeri Block Printing: Design Evolution and Product Diversification with Natural Dyes

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The art of Sanganeri block printing has a rich history steeped in tradition, with its roots tracing back centuries in the vibrant region of Sanganer, Rajasthan, India. The research endeavours to lean into light on the intricate world of Sanganeri block printing, focusing on its design evolution and the potential for product diversification through the use of natural dyes. Sanganeri block printing is an age-old craft renowned for its intricate designs and intricate patterns that capture the essence of Indian culture. This study investigates into the historical evolution of these designs, tracing their journey from traditional motifs to contemporary adaptations. By exploring the design evolution, it also aims to highlight the adaptability and enduring appeal of this craft in the modern era. Natural dyes have gained increasing attention due to their eco-friendliness and sustainable properties. Some of the significant vegetable dyes produced naturally, internationally well-known are Black, Maroon, Yellow, Indigo and Red.

This research into the process of pre-treatment, extracting, and applying these dyes in the perspective of Sanganeri block printing. It targets to offer sustainable alternatives to conventional chemical dyes, promoting environmentally responsible practices in the textile industry. Moreover, this research explores the potential for product diversification within Sanganeri block printing. Traditionally used for textiles such as sarees, bedspreads, garment and broader range of products. From home decor items to fashion accessories, the versatility of Sanganeri block printing is assessed, opening doors to new creative possibilities and economic opportunities for artisans and entrepreneurs alike. In this study aims to provide a comprehensive understanding of the intricate world of Sanganeri block printing. By exploring into its historical evolution, exploring the use of natural dyes, and considering avenues for product diversification, this research contributes to the preservation and revitalization of this traditional craft while adopting sustainable practices and empowerment of artisans.

Designing For Diversity - A Study Of Inclusive Design Initiatives In Leading Technology Organizations

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United Nation's sustainable development goals mention SDG 5: gender equality and SDG10:reduced inequalities as two important goals.Globally organizations are making an effort to support these goals, hence technology organizations cannot ignore their role in providing the products which are inclusive and accessible.

In this paper, we analyse the inclusive design initiatives in leading organizations such as Microsoft, Google, Apple, Adobe as well as niche organizations: deque systems, TPGi, Level Access, UsableNet, audioeye, Fable, Crownpeak, Knowbility which offer information technology services in the accessibility areas using inclusive design principles. We also analyse the role of professional organizations such as International Association of Accessibility Professionals (IAAP) and Valuable 500 to understand their role in inclusive design.

We refer to the key papers published in journal/conferences as well as blogs to understand the current progress in the field. We refer to websites/annual reports of the above organizations as per availability for the required data and do content analysis to generate the insights. The finding indicates that the technology organizations have taken step forward in this area by making their products more inclusive but a lot more needs to be done. They are also engaging with people with diverse needs to get their feedback for further improvements in products. The indicative literature includes 'Making the case for inclusive design' published in journal 'Applied Ergonomics', Inclusive design tool kit by University of Cambridge, Inclusive101guidebook by Microsoft, thevaluable500.com and websites/annual reports of the organizations referred above.

Sustainability in Action: A Case Study of a Second-Hand Reuse Store Bridging the Gap Between Wastage and Need

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This case study explores KCG Fashion Bank, a second-hand clothing charity store operated by the Fashion Design and Arts Department of Hindustan Institute of Technology and Science, Chennai, in collaboration with the Ys Men International Mylapore Chapter of Chennai. KCG Fashion Bank is a symbol of sustainability, addressing India's clothing wastage issue, where around 2 million tons of textile waste are generated annually.

Fashion Bank's mission revolves around collecting, carefully assessing, and distributing pre-owned clothing. Donated garments undergo thorough examination, with torn or heavily soiled items handled responsibly. High-quality clothing undergo professional laundering and ironing, then organized by size and type. The collection process is ongoing, while distributions occur biannually or as needed, reflecting Fashion Bank's commitment to waste reduction and meeting local demands. The initiative aligns with the 2030 Sustainable Development Goals (SDGs), contributing to Goal 12 on responsible consumption and production.

KCG Fashion Bank is not only a part of Hindustan University's corporate social responsibility (CSR) but also educates its fashion students about the alarming statistics of textile waste and the global fashion industry's environmental footprint. This education empowers them to become responsible designers, addressing overconsumption and waste in the fashion sector.

The case study underscores the successful implementation of an environmentally and socially conscious initiative, significantly contributing to waste reduction in the Indian textile industry by providing tangible solutions to clothing wastage while fostering ethical awareness among students. Fashion Bank is an example of how educational institutions can drive positive change in the fashion industry and beyond.

Designing for Sustainability: A Holistic Approach to Lifestyle Product Solutions

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The proliferation of plastic waste has become a growing concern, primarily driven by the consumption and disposal habits of current generations. This escalating issue highlights the urgent need for a strategy to mitigate its impact. However, the attempt to curtail plastic production or introduce costly alternatives is considered an impractical endeavor by experts . Consequently, an innovative approach is proposed to address this crisis, extending the lifespan of plastic products well beyond their intended use and delaying their disposal through the utilization of readily available, affordable natural materials for repairing and enhancing damaged plastic items instead of discarding them .

By adopting this approach, several significant outcomes are achieved. Firstly, it leads to the aesthetic enhancement of the product, further extending its usability and postponing the need for replacement. Additionally, it encourages a do-it-yourself (DIY) mindset among consumers. Most importantly, it provides valuable support to local natural material farmers across the country. As a result, the resulting product not only promotes environmental sustainability but also contributes to the economic upliftment of disadvantaged farming communities.

The primary objectives of this project revolve around the creation of a lifestyle product that prioritizes sustainability. This entails the selection of materials and manufacturing processes that minimize adverse environmental impacts. Furthermore, the product is designed to be accessible to economically disadvantaged individuals, aligning with the commitment to inclusivity and social responsibility.

“Rhetoric Or Reality?” Assessing The Progress Of Sustainable Fashion Practices

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The study examines the roles and perspectives of designers and consumers to ascertain the growth of sustainable fashion practices. The paper “Assessing the Progress of Sustainable Fashion Practices” addresses the concerns raised by Rina Singh, the designer of the brand Eka, who believes that the term “sustainability” has been abused in the fashion industry. According to Singh, the bulk of Indian fashion companies ought to embrace sustainability as a fundamental tenet rather than just as a promotional tactic.

The study examines the idea of sustainability from both the standpoints of designers and consumers. In an effort to bridge the gap between modern and traditional Indian components, designers have been shown to embrace a design approach. By including classic styles that may be worn repeatedly, this method discourages mindless consumption and indicates an intentional effort to encourage sustainable practices.

Additionally, consumers are essential to the development of sustainable fashion. The article stresses the significance of mindful consumption and exhorts readers to make careful, long-term clothing purchases. Consumers may substantially help the fashion sector adopt sustainable methods by adopting this mentality.

The implementation and effects of sustainable fashion techniques are generally critically evaluated in this study, taking into account the views of both designers and consumers. The research highlights the need for ongoing efforts to close the gap between rhetoric and reality while also shedding light on sustainability’s difficulties and successes.

Study of Symbolic Content in Traditional Textile Motifs of Santhali Community

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The Santali community, one of India's largest ethnic groups, boasts a rich tradition of textiles and fabrics adorned with distinctive motifs like pots, birds, plants, and religious symbols. To explore the symbolic significance embedded within these traditional textile motifs of the Santali community, a semiotic approach has been employed. This involved visually documenting the motifs and conducting interviews in the Kolhan administrative divisions of Jharkhand. The analysis has revealed that these traditional textile motifs hold deep connections to the Santali community's way of life, beliefs, and civilization.

Furthermore, these traditional textile motifs serve as valuable resources for studying the culture and traditions of the Santali community. Understanding these indigenous practices and skills is poised to exert a profound influence on culturally inspired textiles and designs in the future.

Product development with Bamboo, an Ecofriendly and Sustainable Material for the Future

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The aim of this research is to promote bamboo as an eco-friendly and sustainable alternative to traditional timber and steel. Bamboo is a potential renewable resource with a vast number of applications. A fast growing grass with excellent mechanical properties. The hollow cylindrical culms and uniform longitudinal fibres with intermittent nodes make it suitable as a construction material.

Exploring the flexibility and resilient nature of bamboo the author has been conducting weeklong workshops for students of design, motivating them to understand the material and come up with products and accessories for homes. He feels the potential of bamboo has not been fully explored. There seems to be a wrong notion that bamboo is a poor man's material whereas bamboo has amazing structural and mechanical properties comparable to steel and promises to be a material of the future.

Using heat and steam bending technique a more aesthetic form language was developed minimising the usage of joints. Utility products for home décor with an improved visual flow were designed. The traditional Process of working with bamboo involves cutting, splitting and joining bamboo to shape products. The use of excessive joints give an ungainly appearance and limits the form language. The use of heat and steam bending minimizes the use of joints and opens up opportunities for an improved aesthetics for an international market.

A range of products were developed for the upwardly mobile urban elite, who value eco-friendly materials with an added aesthetic. The new generation who are willing to experiment and are conscious of new trends.

The nice thing about working with bamboo is that no capital machinery is required and basic hand tools can be used to cut, split and shape bamboo into products and accessories in very hands on manner. Products like service trays, luminaires, display shelves, containers and furniture were designed through the format of workshops.

The Design And Style Of Narrative Art: A Story Of Sustainable Visual Culture

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The ancient knowledge and philosophy of the Indian culture based on the Vedas and Puranas has been expressed in the form of temple sculptures and murals, manuscript illustrations.

Within the purview of this essay, we will discuss the works of the great Indian artist Raja Ravi Verma, who created abiding imagery of the Gods and Goddesses in an academic style. These were commissioned works for the various royal families of the Indian princely states during the British rule. On the advice of the minister of the state of Baroda Raja Ravi Verma created oleographic prints of his paintings. These prints broke the class and caste barrier of art being the preserve of the rich and upper caste, every person of the country could have an image of their deity in the house. This created a path-breaking and sustainable visual culture forming a bridge between the past to the present.

The second art form under discussion is the Kalighat paintings, a form of folk tradition practiced in the Bengal region, the imagery of this art form, presented the same themes of belief in a simple rural grassroot format which had immense acceptance among all genre of people. The artworks also commented on social issues.

Post independence, Amar Chitra Katha, the 20th century publication through, illustrated art presented the ancient tales of history and knowledge creating another bridge of sustainable visual culture for the contemporary times.

The power of the communication encapsulated within these narrative visual cultures can be fathomed from the instant recognition and empathy felt for them. Therefore, in conclusion an in-depth perusal of the various facets of art is of some utility towards the establishment of sustainable communication.

The Rise Of Sustainable Approaches In Development Of Waterproof Breathable Fabrics For Clothing: A Systematic Literature Review

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This study summarizes a comprehensive exploration of the evolving landscape of sustainable practices within the development of waterproof breathable fabrics for clothing. The study focuses on an extensive review of research publications between 2013 and 2023, retrieved from the Scopus database. The study shows a noticeable increase in studies focused on sustainable approaches in recent years, highlighting the industry's dedication to ecological responsibility. It is noteworthy that the majority of these studies are coming from China. A predominant trend in the research landscape centres on the development of fluorine-free materials, aligning with the broader textile industry's push to mitigate environmental and health concerns associated with conventional waterproofing agents. Furthermore, another major trend was the development of fabrics for Personal Thermal Management to reduce energy consumption on space cooling, emphasizing their potential for addressing climate-related challenges and enhancing comfort. This study can assist future researchers in planning their studies on the possibility of sustainable change in the garment industry as well as the development of sustainable waterproof breathable fabrics for clothing.

Green Manufacturing

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Green manufacturing in the textile industry has gained significant attention in recent years as the global demand for sustainable and eco-friendly products continues to grow. Innovation plays a vital role in green manufacturing, fostering research and development of sustainable materials and technologies. Collaborations with other industries and the exploration of smart textiles highlight the industry's commitment to ongoing improvement. New generation eco-friendly fibers such as polylactic acid, lyocell and chitosan fibers has been significant role in textile industry recent years. PLA (Ingeo™) is new generation eco-friendly fiber, generated by converting corn starch into lactic acid and then polymerizing. It is spun by melt-spinning process. Compared to the solvent-spinning process applied for synthetic fibers, melt spinning process allows them to have lower environmental cost and the production type of fibers are gained a wider range of characteristics. It is both renewable and non-polluting. PLA has very good wicking ability and it is derived from D-lactide materials (>15%) are more amorphous in polylactic acid polymer structure. Chitosan is a well-known natural polymer that is biodegradable, biocompatible and non-toxic. It is obtained through deacetylation of chitin which is found in the shell of crab and shellfish. It has antibacterial effect. As consumers increasingly prioritize eco-friendly and ethical products, the textile industry's adoption of green manufacturing practices is essential for a more sustainable and responsible future.

To Study on Zero Wastage in Pattern Making Process

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The Fashion industry is transposed swiftly. There are more than 400 billion square meters of fabric produced into clothing in a year where 15 percent of the fabric ends up as waste. This fabric wastage is one of the major contributors in environmental pollution. Zero wastage in pattern making is one of the best solution to achieve sustainable development goals. Various fast fashion brands are colossal contributors with produc-es huge styles every year. The major problem to achieve zero wastage in pattern making is due to lack of awareness among the work force as well as skill. It is pertinent that we cannot produce different designs with zero wastage in pattern making. Hence, we will have to work on develop-ment of new techniques and styles to afford the zero wastage in pattern making. With the help of different artificial intelligence and automation in fashion industry it could be possible.

Exploring the Impact of Design Intervention on Product Consistency in Traditional Craft: A Case Study of Ringaal Basketry in Uttarakhand, India

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This paper explores the impact of design intervention on product consistency in traditional crafts, with specific reference to Ringaal Basketry in Uttarakhand, India. The declining consistency in craft products, attributed to various factors such as limited access to raw materials, inadequate technical skills, and lack of appropriate tools and technology, poses a significant threat to the survival and growth of the craft sector. In response to these challenges, design intervention is proposed as a potential solution to bridge the gap between traditional craftsmanship and modern market demands. The study specifically investigates the introduction of “farma” or ready structures as a design intervention strategy to enhance product standardization and overall quality in Ringaal Basketry crafts.

The study adopts a mixed-methods approach, combining field observations, interviews, and analysis of artisan practices in three locations in Uttarakhand. Based on the active presence of artisans practicing traditional crafts, field studies were conducted in Gajoli and Bharangaon in Uttarkashi; Pipalkoti and Kiruli in Chamoli; and Bhanaj, Machkandi and Akhodi in Rudraprayag. The selection of diverse locations ensured the study's comprehensive nature, encompassing different communities engaged in this craft.

The observations revealed a significant improvement in product consistency following the design intervention. The iron frames or ‘farma’ ensured that each product conformed to pre-defined dimensions and shapes, reducing the variability observed earlier. This was particularly noticeable among artisans with limited weaving skills, suggesting that the intervention could also make craft production more accessible to individuals with varying skill levels.

These findings highlight the transformative potential of design interventions to revive traditional crafts and enhance their appeal in the contem-

porary market. This study contributes to the discussion on maintaining and revitalizing traditional crafts in the face of contemporary challenges. It provides empirical evidence on the impact of design interventions on product consistency, providing insight into potential strategies to preserve traditional craftsmanship and ensure sustainability about their economics and culture. The study calls for further research and action to support design intervention initiatives and promote the preservation and promotion of traditional crafts in Uttarakhand and beyond.

Review on Use of Polylactic Acid and its Composites in Sustainable Food Packaging

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Due to emerging global trends and consumer preferences, packaging application requires continuous improvement in the technical specification of polymeric materials. Moreover, with the world moving towards globalization, packaging should have a longer shelf life, along with the monitoring of safety and quality based on international standards. Also, the environmental concern has increased, resulting in the need for bio-based packaging solutions. In the last decade, polylactide polymers have gained enormous attention as a replacement for conventional synthetic packaging materials. Polylactides (PLAs) are an alternative packaging material to conventional commodity plastics by being fully biodegradable and derived from natural resources. This review aims to study PLA composites' technical advancement and feasibility for packaging applications. The paper shall also discuss the successful application of PLA in packaging and food storage, which has boosted research interest in bio-based polymers. Although PLA is a relatively new polymer, it is possible to manipulate its physical, mechanical and barrier properties by changing its chemical composition and varying its molecular characteristics. Inherently, PLA is very brittle; hence, it is required to improve the flexibility of PLA to be used as packaging material. Different research work has been carried out throughout the globe to blend PLA with other polymers to make it flexible but strong as an alternative to plastic packaging. Recent studies mainly emphasize the properties of PLA with fibres, nanoclay, nanofibers and metal oxides for different applications. Bio-based reinforcements for PLA offer other advantages, such as reduced dependence on non-renewable energy/material sources, lower pollutant emissions, lower greenhouse gas emissions, enhanced energy recovery, and biodegradability.

Promoting Sustainability: Examining Customer Communications from Indian Fashion Firms

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Sustainability is among the most concerning issues in fashion industry over past three decades. There has been an increasing number of brands that agree on the need for addressing the environmental and social concerns posed by the clothing and textile industry, there are few consensus on what sustainability includes. Although the term “sustainability” might be understood intuitively, it has multiple implications that depends upon how and by whom it is being used. Sustainability becomes subjective in the absence of a precise definition. Under this context, studies at the confluence of fashion–sustainability communication and their activities for customers, who play a crucial role in this shift, is the need of the hour.

Using the Indian fashion industry as the centre of study, we investigated that how developing industrial fashion business models and their emerging best practises are influenced by the grip of sustainability. We assess how businesses communicate sustainability to customers across three main sites: brand’s websites (i.e.- CSR reports), in-store marketing and social media platforms. Young, urban fashion consumers actively seek out sustainable options, but most shoppers remain neutral to the idea. In fact, many find it challenging to figure out what actually constitutes “sustainability,” with a long, complex list of potential factors to consider.

Despite increased awareness about the importance of sustainability, the fashion industry’s environmental footprint remains significant. Companies create far more products than they can sell, and more than half of all global fibre produced is polyester, a material that requires a great deal of energy for extraction and processing and that lingers in the environment for a long time. We discovered that the companies not only implement a variety of strategies to define their stand for sustainability in a different way, but these definitions also changes based on their circumstances. This study investigates the consequences for a more effective approach for both practice and theory, since COVID-19 has increased and aggravated such issues.

Sustainable Practices In Industrial Engineering And Design

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The apparel industry is facing an immense challenge in producing goods with right Quantity and Quality, in time and at minimum cost with zero waste discharge and Industrial Engineering plays a pivotal role in meeting these challenges towards sustainability. Sustainable Industrial engineering is the process of designing or operating systems to use energy and natural resources in a cost-effective manner that does not compromise the natural environment, social equity or the ability of future generations to meet their own needs. Sustainable practices in textile industry include using less amounts of water, hazardous chemicals, pesticides, and fertilizers, pollution minimization, adopting eco-friendly production processes, by using less energy for production processes; Energy-Efficient Manufacturing: Embracing renewable energy sources, investing in energy-efficient machinery, and implementing sustainable production techniques are crucial steps towards reducing carbon emissions and decreasing the environmental footprint of apparel manufacturing and introducing 3 Rs—Reduce, Reuse, and Recycle.

This article is to brief about Sustainable manufactured products through economically-sound processes that minimize negative environmental impacts while conserving energy and natural resources. Sustainable manufacturing also enhances employee, community and product safety. Sustainable practices support ecological, human, and economic health and vitality. Sustainability presumes that resources are finite, and should be used conservatively and wisely with a view to long-term priorities and consequences of the ways in which resources are used by reducing petroleum products in the Apparel Industry and reducing the Time, Cost and Waste management techniques, Floor Space Management, implementing IE tools and ensures the effective utilisation of resources and Go green. There are a number of reasons why companies are pursuing sustainability:

Increase operational efficiency by reducing costs and waste

Protect and strengthen our Global and green way to future generations
More Productivity in less time and Electricity.

A Study on the Business Model of an Indigenous Sustainable Brand: Re-Charkha.

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This provides a concise overview of a research study focused on the sustainable brand ReCharkha and its business model, as well as the broader context of government schemes for sustainable brands in India. The study employs exploratory and quantitative research methods to achieve its objectives, which include identifying government policies, understanding ReCharkha's supply chain, gauging customer awareness, and assessing marketing strategies. Primary data is collected through interviews with CEOs, founders, and artisans of sustainable brands, while secondary data is sourced from various sources, including official websites and publications.

The research findings underscore the significance of government schemes in supporting artisans and sustainable brands. For instance, the Ambedkar Hastshilp Vikas Yojana was identified as one such scheme that aids in developing handicraft artisans. The study delves into ReCharkha's supply chain, illustrating the intricate process of converting waste plastic into fabric, which is then handwoven into various lifestyle products. This process aligns with the brand's commitment to sustainability and innovation.

The study also examines the marketing strategies of ReCharkha and similar sustainable brands. These brands primarily rely on social media and online platforms to showcase their products and engage with conscious consumers. By maintaining transparency in their supply chains, these brands empower consumers to make informed choices that align with environmental values. While the products are priced slightly higher due to their handmade nature, the research emphasizes that the reduced production quantity and the eco-friendly approach justify this.

In conclusion, the research effectively addresses its objectives by shedding light on the government's role in promoting sustainable brands, revealing the intricacies of ReCharkha's supply chain, and analyzing the marketing strategies employed by ReCharkha and similar brands. The study underscores the importance of sustainability, innovation, and transparency in the pursuit of environmentally conscious consumer behavior and the upliftment of artisans.

Reflection Before Action: Building Design Competencies for Social Responsibility in Fashion Education

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The fashion industry is one of today's most unsustainable global businesses contributing to the depletion of fossil energy, deforestation, severe pollution caused by chemical dyeing, the non-ethical treatment of factory workers, among others. The Linear business models within the fashion industry are implausible, as they are predicated on an imbalanced set of criteria. However, with the concern for socio-ethical issues and its impact on the planet and its people have forced the industry to reassess its role and seek professionals with competencies for a circular model. Thus, fashion designers have a key role to play towards sustainable fashion, as they can influence and contribute to all dimensions of fashion (economic, environmental, social, and cultural).

Fashion education should be seen as a chance to make aspiring designers aware of the challenges and potential of responsible design for sustainability and equip them with knowledge and necessary skills. To meet the industry requirement for new competences, Pearl Academy (India) implemented a foundational course on Social Responsibilities for the Post Graduate Fashion Design students in 2020. The course is created from a collaborative, participatory and ecological paradigm, and draws on an inquiry-based learning (IBL) approach to fashion education that is oriented towards process, action, and creative participation in all aspects of the transition to sustainability. This learning style requires students to play an active role in making inquiries, gathering information, and drawing conclusions about a topic. The author uses mixed research methodology to:

Reference students work, to set out some of the opportunities and challenges through the process.

Share the findings from a questionnaire completed by two cohorts at Pearl Academy.

This paper demonstrates that teaching Social Responsibilities using IBL strategy to fashion design students can effectively ingrain the philosophy of reflection before action while working within a framework of sustainability.

Designing Art & Craft Kits: Improving Mental Health, Cultural Awareness and Sustainability.

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In an increasingly global country with the current largest population, A large number of indigenous crafts that have persisted for centuries have been dying out, and with them, their cultural identities. With machine production of everything being the norm on a global scale, the necessity of handicrafts have also dwindled relentlessly. It has become a contemporary necessity for people to relocate to metropolitan areas, leaving behind their regional practices, crafts, and identities, and be engulfed by the demands of the city. This leaves most people little to no time to stay connected to their roots, or even explore other cultures, the diversity of which had once been the pride of India.

This severance from one's cultural identity and lack of awareness of other identities brings a detrimental effect to one's mental health. This effect is exacerbated by the high-strung lifestyle of big cities that provide financial independence but not enough leisure time to actively pursue activities and hobbies that have been scientifically acclaimed to be imperative for good mental health. Currently, there is a lack of research on indigenous forms of art and crafts as a method of improving mental health of adults in Indian metropolitan cities.

This paper delves into the design and development of art & craft kits based on indigenous and traditional arts and crafts from different areas of india. These kits, that will include raw materials and corresponding tools, will work to provide a sense of cultural connection by making the acquirer an active participant in the craft; by involving them in the process of creation. At the end of the process, the acquirer will be left with an environmentally sustainable piece of art, something that they will be personally connected to, as it will partly be their own creation. This touch of connection will not only improve mental health by providing a sense of cultural awareness and identity, but also help to sustain the original craft.

Sustainable Practices in Textile and Apparel Industry

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Sustainable practices are actions and strategies designed to reduce harm to the environment, society, and the economy while fostering long-term well-being and resource preservation. Many industries are taking a step towards sustainable practices as this is the only way to save and nurture the planet. The textile industry continues to expand day by day, the need for sustainable practices becomes increasingly vital in this ever-evolving sector. Behind all the glitz and glamour, the fashion, textile and apparel industry stands as the second most polluting industry after the oil and gas industries as it is responsible for 20% of global wastewater pollution, 10% of total global carbon emissions and for nearly 8.6% of global greenhouse gas emissions. (Bailey, Basu and Sharma, 2022)

Some of the sustainable practices being used in the fashion industry are:

- Sustainable material sourcing
- Eco Design
- Organic Clothing
- Use of chemical free dyes
- Recycling
- Upcycling, etc.

The present study discusses the sustainable practices employed in the textile and apparel industry and examines how their impact is leading to a more ethically advanced and environmentally conscious sector, one that fully embraces its responsibility for sustainable development, i.e. to conserve resources for future generations and to save nature, earth, biodiversity, and ecosystems for harmonious life at the present as well as the future.

Taking the textile industry into consideration, it is a fast-growing industry in the twenty-first century both in terms of production volume and employment, and hence, the industry's impact is huge on the society, econ-

omy, and environment. The industry is a thirsty industry, being a huge consumer of water, a resource that is becoming scarce day by day. The textile industry is indicated to be one of the most polluting industries, and hence, it becomes mandatory to adopt sustainable practices to conserve nature. (Chand, Chand and Raula, 2023) Sustainable practices in the textile industry include using lower amounts of water, hazardous chemicals, pesticides, and fertilizers; adopting eco-friendly production processes; using less energy for production processes; and introducing 3 Rs—Reduce, Reuse, and Recycle. Society is also growing more conscious of green consumerism and actively seeking eco-friendly products. (Karuppuchamy, 2017)

The apparel industry is at a turning point, acknowledging the urgency to address its environmental and social footprint. By incorporating sustainable practices in areas such as fiber production, water and energy conservation, waste reduction, and supply chain transparency, this sector has the potential to bring about a positive transformation. Embracing innovation in dyeing and printing methods, placing a premium on product longevity, and empowering the consumers through education become essential steps toward a more environmentally friendly and sustainable future for the future of fashion. Through collaborative efforts, the industry can pave the way in demonstrating that style and sustainability can seamlessly coexist. (Wu et al, 2022)

Zero Waste Pattern Making: Redefining Sustainable Fashion

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In an era where environmental consciousness is paramount, the fashion industry has come under increasing scrutiny for its ecological impact. As a result, innovative approaches like zero waste pattern making have emerged, offering a promising solution to minimize textile waste and reduce the carbon footprint associated with clothing production. This revolutionary technique challenges traditional pattern-making methods and fosters a more sustainable future for fashion.

At its core, zero waste pattern making is a design philosophy that seeks to eliminate textile waste entirely during the garment creation process. Conventional pattern-making often results in offcuts and discarded fabric, contributing to the staggering amount of textile waste that ends up in landfills. Zero waste pattern making aims to disrupt this norm by strategically arranging pattern pieces on the fabric in such a way that every inch is utilized, leaving no remnants behind.

Creating garments using zero waste pattern making requires a shift in mindset for designers. Instead of focusing solely on aesthetics and trends, they must consider the material's dimensions and the layout of pattern pieces. This approach encourages creativity within constraints, as designers must find innovative ways to manipulate fabric shapes while still achieving a visually appealing end product.

Implementing zero waste pattern making comes with its challenges. Designers need to balance aesthetics, functionality, and efficiency. Irregularly shaped pattern pieces and unconventional design elements can pose challenges in garment assembly. Additionally, the transition from traditional methods to zero waste pattern making requires reimagining the entire design and production process.

While zero waste pattern making was once considered niche, it's gradually gaining traction in the fashion world. Designers and brands that prioritize sustainability are incorporating these methods into their collections. As consumers demand more environmentally conscious options, the industry is recognizing the urgency of adopting these practices on a larger scale.

For the purpose of this study, the authors identified three fashion organizations that adopt the process of zero waste pattern making. This paper uses the qualitative methodology of case study to understand the challenges faced by these companies and identify the ways through which they address those challenges. The brands' approach towards choosing the raw materials, coordination systems with the human actors and the choices made towards technology are studied through the theoretical framework of eco-innovation.

Zero waste pattern making stands as a beacon of hope in an industry grappling with its environmental impact. By reshaping the way garments are designed and manufactured, this approach represents a fundamental shift toward sustainability. The cases of implementation of zero waste pattern making underscore the potential of this approach to reshape the fashion industry's relationship with waste. By creatively integrating design, pattern making, and sustainability, the brands are successfully reducing waste, conserving resources, and improving its environmental footprint. These case studies will serve as an inspiration for other fashion brands looking to adopt innovative and sustainable practices in their operations.

Sustainability-An Imperative for Future-Proofing Fashion Business in a VUCA World

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There has been a dramatic change in the business world over the last decade fuelled by rapid technological advances, massive rise of social media, digital transformations, volatile economic landscape and disrupted supply chains due to global events like the Ukraine war, pandemic etc; which have eroded the sense of stability, safety and familiarity. This has led to the creation of an environment described by the “VUCA” acronym which stands for ‘volatility’, ‘uncertainty’, ‘complexity’, and ‘ambiguity’. When today’s connected society around the world, felt the burden of the economic and social cost of ‘collective sustainable inaction’, the focus shifted to bringing the depleting environmental and ecological resources to centre stage. The research aims at understanding the reality of the challenges faced by the fashion businesses in adopting sustainable approaches, how they impact the decision making process and suggest measures of how can apparel firms navigate through these challenges. Qualitative research was carried out through in-depth interviews with 10 fashion business professionals to understand their challenges, opinions and motivations to develop a sustainability driven strategy with customer experience as the core for the customers in the fashion sector. In-depth interviews were used to gather information about the underlying factors from the business perspective on challenges in promoting sustainable fashion while utilizing the available capabilities. Since the attitude and perception towards sustainability and fashion is context and individual specific, it was essential to use qualitative research to holistically understand the participants’ feelings, opinions and experiences. The findings were used to suggest practical strategies for managing sustainability related risks that impact organizational competitiveness and counter the threats of VUCA to turn them to competitive advantage thereby building resilient businesses.

Sustainability in the Indian Leather Industry: Challenges, Alternatives, and Innovative Design Intervention

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The Indian leather industry grapples with formidable environmental challenges, encompassing pollution and unsustainable resource usage, necessitating holistic solutions. This study seeks to evaluate the environmental footprint of the industry, appraise barriers hindering sustainable practices, and explore eco-friendly alternatives to traditional leather production.

Guided by an extensive review of academic literature, the research covers diverse leather types, including full-grain, faux, and vegan leather, with a central focus on sustainability criteria such as raw material sourcing and water consumption.

Notably, the findings underscore substantial challenges in responsibly sourcing raw materials and optimizing water utilization within the Indian leather industry. Promising alternative materials like Cork and Tomtex face limitations in terms of availability. Furthermore, the decomposability of animal hides, with its environmental advantages, depends on tanning processes that significantly influence ecological footprints. A pressing issue is the non-reusability of post-tanning water due to its chemical composition.

This study introduces an innovative design intervention by incorporating a QR Code on the product tag, enabling customers to access detailed information about the production process, environmental impact, recycling, and reuse options at the product's end of life.

In conclusion, this study identifies viable sustainable alternatives within India's leather industry while highlighting enduring challenges, particularly in material sourcing and water usage. The integration of a QR Code on the product tag represents a tangible step toward educating and engaging consumers in sustainable practices.

Green Toys: Business Model for Introducing Sustainable Bamboo Toys

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Children of the present era will become the adults tomorrow. It is important that children learn the sustainable values such as recycling, reducing waste, resource management and energy consumption. Toys being the integral part of child's life for cognitive development and learning skills the large scale use of plastic toys has contributed to the global environmental pollution. Toy market is ever growing, popular and commercially viable, however, majority of the researches and works are being done on toys developed using different polymers. Thus, they are unable to instil sustainable values among the future generations and unlikely to address the negative global environmental impact. Sustainable toy market will grow in future as consumers are becoming more aware of the impact of their purchase and seeking out more sustainable options. This paper focuses on designing a business model to introduce sustainable bamboo toys, keeping the larger picture in mind that goal of children's cognitive development, physical development and learning skills are achieved. The popular business model of e-commerce retailing of bamboo toys was kept as focus as selling the product through e-commerce portal can reach a wide audience without the need of physical storefronts. Mapping of the various stakeholders were done to design a business model canvas for bamboo toys and retailing through e-commerce portal. The findings conclude that investment in green toys from bamboo can be profitable and a sustainable decision. It is hoped that the outcome of this study will help to inspire many young entrepreneurs to design eco-friendly toys using bamboo as material and become part of the growing toy industry with sustainable contributions.

Impact of Social Media on Fashion Consumer Buying Behavior with Reference to Sustainability

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Fashion is a popular style or practice in trend, it expresses someone's feeling. Fashion trend can be defined as the design that is popular at a particular limited period. The term fashion industry generally refers to several sectors like textile, clothing, accessories, cosmetics, and jewelry. When Zara landed in New York at the beginning of 1990s people first talked about the term 'Fast Fashion'. It focuses on trend replication and low-quality materials in order to bring inexpensive styles to target market. Fast fashion called as 'fast' because the availability of trendy clothes in the markets is fast, the rate at which the apparel reaches the customers is fast, and the span in which they end up in dump yards is fast.

Fast Fashion encourages consumers to buy and dump at an alarming rate which results in overflowing of landfills. Not just consumers but also factories dump their textile wastes, discarded clothes and industrial wastes in landfills and water bodies. Consumers today are hungry to consume fashion in high quantity and social media is the most encouraging platform for brands to spot these consumers. Social Media has promoted the over consumption by collaborating with influencers, celebrities, and small businesses. The rise of shopping hauls and try on videos with trendy hashtags has led to increased shopping sprees.

Now this is a time to use the same platform, SOCIAL MEDIA, to make the fashion consumer aware about the environment pollution, sustainability & their responsibility towards society.

This paper will be exploratory research and will try to find out the level of awareness of sustainability & the role of different social media platforms in promoting fast fashion brands. It will also cover the other available sustainable brands in India which can provide an alternative to fast fashion that can lead to a better environment to live in.

Integrating Inclusivity by Redefining Fashion for Visually Impaired People

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In an increasingly inclusive world, fashion should be accessible to all, regardless of their abilities. Globally, at least 2.2 billion people have near or distant vision impairment. Visual impairment profoundly influences lifestyle and clothing preferences, requiring reliance on touch and sensory perception in selecting and wearing apparel. These challenges encompass difficulties in identifying clothing, dependence on external assistance for dressing, and limited accessibility to visually appealing fashion. This project aims to empower visually impaired people by providing a diverse selection of stylish and practical clothing options crafted to cater to their distinct needs.

In this project, an effort has been made to design a clothing line specifically for individuals with visual impairments. The product range encompasses everyday attire, such as shirts, pants and dresses all meticulously designed to optimize comfort, functionality, and style. Firstly, primary research was conducted with exhaustive surveys and interviews involving visually impaired individuals to glean insights into their clothing preferences, needs, and unique challenges. This informed the selection of fabrics characterized by distinctive tactile qualities and durability to ensure both comfort and longevity. High-quality materials and craftsmanship were employed to enhance the garments' resilience. Innovative surface embellishment techniques, including embossed textures, raised patterns, and meticulous stitching, were explored to serve both functional and aesthetic purposes.

This innovative clothing line incorporates Braille tags and design elements into the clothing, revolutionizing the way the visually impaired experience and express themselves through fashion. Through the integration of Braille tags, visually impaired customers can effortlessly identify garment details such as colour, size, and care instructions. This thoughtful addition not only enhances the practicality of the clothing but also promotes a sense of independence and empowerment. The collections feature tactile textures, distinctive patterns, and carefully chosen colour palettes to stimulate sensory perception and encourage self-expression through fashion. Designing inclusive fashion, for visually impaired individuals not only provides them the opportunity to explore their clothing choices but also leads to a more inclusive and equitable society.

Solutions for Sustainable Packaging: Popular Items with Future Promise

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Designing and printing packaging now has sustainability as a top priority. The packaging industry has a long history of using non-renewable resources and generating a lot of waste. However, packaging designers and printers are now giving greater consideration to sustainable solutions as a result of growing environmental consciousness and the demand for more sustainable practises.

The biggest gap in environmental protection is packaging. Heavy metals, microplastics, and other types of plastic damage forests and oceans and cause the extinction of many species. In addition to this, the extraction of petroleum, aluminium, and other heavy metals raw materials and subsequent processing frequently leave behind an unfavourable ecological legacy. As a result, there is currently an unparalleled demand for products without packaging.

Therefore, finding sustainable packaging solutions is essential for reducing product waste. It is possible to reduce the amount of garbage produced globally by creating packaging that is recyclable, reusable, and beneficial to the environment. The digital networking of all parties involved in the process chain makes it possible to follow in detail the materials used in package manufacturing and the additional substances that came into touch with it during usage, which contributes to the optimisation of the recycling cycle. Further reuse possibilities may be precisely determined in this method, and recycling can be made easier.

Product Invention & Craft Revival with Reference to Pichwai Paintings by Using Punch Needle Embroidery

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Paintings are the mirror of society; they are the song sung by artists with their painting brushes and showcase their culture without writing but just with some colors and lines. Every state of India has its own art and crafts, which manifests the richness of their lifestyle. India has a very diverse culture, from Kashmir to Kanyakumari, various climatic changes, cultural changes, and changes in art form can be seen. Whether it is the Pahari paintings of Jammu-Kashmir and Himanchal or Chittara of Karnataka, there are numerous art forms that are flourished by artisans for their livelihood. Pichwai is one of them; it is an art form practiced by the artists of Nathdwara, Rajasthan. These are the paintings found on the backdrop of idol of the Lord Shrinath ji. It is believed that this art, which has been practiced for almost 400 years by the devotees of Shrinath ji, is now losing its charm because it takes too much time to develop, the complexity of the design, and the unavailability of natural dyes. These challenges, cause disinterest among young artisans in carrying on their ancestors work as a source of livelihood. In this study, an attempt has been made to revive this glorious art form of Nathdwara by developing it with punch needle embroidery. It also aims to open up global economic opportunities for artisans.

Enzymes Used in Textile Industry for Wet Processing

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Today, enzymes have become an integral part of the textile processing. With the increasing awareness of environmental pollution and the extensive consideration of mankind health, chemical processes used in textile industries are being replaced by enzymatic processes. There are mainly three primary sources from where enzymes are obtained i.e., animal tissues, plants and microorganisms. Most of the enzymes used in textile industry belong to the class hydrolases and oxidoreductases. Usages of enzymes in textile industry will be the best possible alternative of chemicals used in textile industry. These enzymes have been categorized on the basis of various parameters like the site of action, the type of substrate, active pH range, and mechanism of action involving particular amino acid present in the active site. Enzymes like amylase, cellulase, catalase, protease, pectinase, laccase, and lipase are widely used in textile manufacturing and processing industries. Use of enzymatic treatments in textile industries is very promising approach as they are eco-friendly, produce high-quality products, and lead to the reduction of energy, water, and time. It is observed that enzymes can replace harsh chemicals, catalyze reaction and operate under mild conditions. These are biodegradable, safe to use and easy to control. In this review environment-friendly uses of various enzymes in different textile processing steps have been discussed.

Bio-polishing – An Enzymatic treatment on Cellulosic Fabric to Enhance their Properties for Sustainability

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The textile processing industry is increasingly reliant on water, energy, harsh chemicals, and other environmental pollutants. Residue waste from chemical treatments is readily hazardous and harmful for both human being and environment. There is increasing demand to replace some traditional chemical processes with biotechnological processes. To address these issues, the use of bio-polishing has become popular in recent years. This technique is particularly effective in wet processing, as it reduces the use of harsh chemicals by saving time, energy, and water. Cellulose is one of most abundant natural bio-polymer found on earth. It is a natural plant biomass made up of D-glucose units linked together by 1, 4 bonds. The bio-polishing process is a relatively novel approach to the treatment of cellulosic textiles material with cellulases, has gained considerable industrial significance over the past decade. Cellulase is a commonly used enzyme for processes such as bio-polishing bio-finishing, and softening of cellulosic substrates. Bio-polishing of cellulosic fabrics carried out, either before or after the dyeing process, has an influential role on dye ability of the fabrics. The enzyme treatment not only maintain the fabric freshness after multiple washings, but it also improves the feel, colour, texture and drape of the fabric, resulting in a superior textile or apparel product.

The Design Role in the Anti-Fast Fashion Era

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In recent years the fast fashion phenomenon is one of the main themes connected to the sustainability, making it the second most disruptive industry after oil, creating a problem of textile waste management world-wide.

Most textile products, in fact, end up directly in landfills, although most of them could be recycled and often also re-used. For this reason, the public attention is increasingly critical towards the fashion industry and much more careful to the environmental impact of the different fashion brands.

In this view, lots of brands, industries and designers tried to find innovative sustainable solutions to face the crisis. These solutions are focused to the production sphere, almost avoiding the time frame between the post utilization phase and the product's dismissing phase. However, it is necessary that the designer understand what factors can influence the premature non-use of the products, in order to improve their lifetime, focusing, in particular, on the users' behaviors after the purchase. The user could be guided and educated by the designers to choose consciously in a more ethic and sustainable way.

Nowadays, in fact, the green washing phenomenon can easily confuse the consumer, sponsoring totally unsustainable and harmful practices as green and proud actions against the fashion pollution. In this view, it is clear that one of the best and fastest solutions to the fashion pollution is to highly improve the lifetime of the fashion products.

The aim of the present research is to understand how the design can improve the lifetime of the products, and then to suggest how innovative services and solutions could connect the several stakeholders of the fashion industry and the final consumers. The design, in this way, can aware and educate the users to a more conscious fashion consumption, re-using the clothes and delaying the dismissing phase.

Technopreneurship – The Way Ahead!

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The apparel and textile industry make up more than 4% of the total global greenhouse gas emissions, spanning from the initial extraction of raw materials to the disposal at the end of their useful life. This issue primarily stems from the prevalence of mass-produced fast fashion, which is easily replaceable and results in vast quantities of unwanted clothing. This surplus includes leftover fabrics and offcuts that require effective management. In 2019, the “Sustainability Clothing and Textile Project” was initiated by students from a South African University of Technology. They were tasked with utilizing offcuts, which are fabric remnants and trimmings from completed garments that would otherwise be discarded as waste and end up in landfills. The project’s objectives aimed to encourage creative thinking, innovation, and critical problem-solving skills among the students while introducing the principles of sustainability and technopreneurial expertise. Technopreneurship involves the integration of technology and entrepreneurship, where individuals or organizations leverage technological advancements to create, develop, and manage new business opportunities. Technopreneurs are individuals who identify and exploit technology-driven business concepts, utilizing their entrepreneurial acumen to bring these ideas to fruition. This research focuses on offering support for entrepreneurial endeavors, addressing job creation, and enhancing curriculum development. Furthermore, the research seeks to tackle societal challenges in South Africa, particularly for vulnerable segments of the population who face limited opportunities that address to the SDG goals and AU Agenda 2064. Simultaneously, it aims to foster the growth of new entrepreneurs and increase accessibility to the job market, offering hope for a brighter future.

Development of Sustainable Fashion-Accessory Inspired by the Philosophy of Circular Fashion

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Circular fashion is a very popular and essential domain of research in the present day, so far as the sustainability of planet earth is concerned. It is very essential to introduce and adopt the reuse, recycle and reduce philosophy in our daily lives in order to limit and restrict the consumption of natural resources. In this context, the reuse and up-cycling of post-consumer apparel-waste to start a new product life-cycle is an effective trend. In this context, an effort has been made to up-cycle the used face-masks for starting a new product life cycle of fashionable hand-bags, followed by evaluations of its market acceptability.

Each used mask is collected from different sources with proper care as per health protocols, followed by treatment with disinfectant chemicals in boiling water. Three masks are stitched together for proper reinforcement. And, such six assemblies are stitched together to prepare a rectangular panel, using superimposed seam and 2 mm stitch length. Next, surface embroidery is done to suppress the dullness of old face-masks and enhance the mechanical strength further. Tensile tests are carried out to check the toughness of that assembly after embroidery. Finally fashionable hand bags are made by side-stitching of the embroidered panels and adding the handles using another set of disinfected old face-masks. This way, a fashionable hand-bag is prepared using 48 pieces of used face-masks. Furthermore, detailed consumer survey and relevant mechanical tests are conducted.

The prime objective has been to manifest real-life case study and assessment of consumer response about the concept of circular fashion. As it is obvious that only theoretical discussion or philosophical analysis is not sufficient for the commercial implementation of circular fashion at the consumer level. It is evident from consumer survey that even though around 30% of the consumers are not aware about the term circular economy but most of them have accepted the concept and realized the need of circular economy to save the planet earth. Also, around 81% of the consumers have recommended such conception of circular economy for mass consumption

through detailed supply chain. Hence it is very essential for the Indian retail sector to come forward to promote and commercialize such concept of circular fashion, by developing and stream-lining of a system for collection of old face masks, disinfection and other sequential steps to start a new product life-cycle. Such practice of circular fashion is the need of the hour for the reduction in consumption of natural resources for the sustainability of our own environment.

Recycling: A Double Impact Journey From Top to Bottom

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The role of recycling takes a divisive stand when it comes to its types. In reference to the term “cycling” in recycling, the same stands for a cyclic process of sustainability to prevent any harm to the planet. While recycling is a fundamental element of the strategy 3R’s, the part of it that is downcycling might be contrary of what had been intended. As the name indicates, the substances are recycled into lower quality products for further use. The cause of this can be degradation of materials due to joining or mixing, contamination with certain matter, lesser claims for recycled goods or due to the design aimed for the new product. The limited advantages of downcycling includes energy saving, reduced pollution and minimized manufacturing costs.

On the other hand, another constituent of recycling, the “upcycling” has vast number of benefits to itself and the products. Upcycling not only increases the quality and value of a good, but changes its course in protecting the environment. Providing a new function to a wasteful material and minimal usage of natural resources is what recycling and sustainability stands for. While there is more than enough pressure for the municipality, sanitation department, textile industries and society in general in terms of “more for the future generations”, practices like upcycling helps more than most. As mentioned, sustainability is a whole circle process; upcycling stands by this, whereas downcycling does not.

Hence, in this paper, an attempt has been made to implement a more suitable process in place of downcycling to counteract any further environmental harms.

Development of Sustainable Garment from Post-Consumer Waste: A Holistic Approach Towards Circular Fashion

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With the growing frequency and quantity of clothing consumptions, the volume of post-consumer waste of garments has been increasing significantly in the modern days of fast-fashion. In this context, the ultimate objective of this present study is to focus on reuse and renewal of product life-cycle. Circular fashion by reusing the post-consumer waste is one of the most emerging research interests in the present days. As a huge amount of water and natural energy are consumed for manufacturing of dyed or printed textile fabrics, therefore multiple and cyclic usage of the same textile fabrics for different life-cycles of consumable goods are essential for global sustainability.

An approach has been made to utilize the post-consumer waste like old saree for the preparation of new product like women's garment, followed by mechanical tests and consumer survey to evaluate the product feasibility and market acceptability respectively.

The selected old saree is properly washed, followed by treatments with disinfectant chemicals. Basic mechanical tests like areal density, tearing strength etc are carried out for the old saree. Next, all-over surface embroidery is done on 21-head computerized embroidery machine, with a suitable stitch density, motif type and using suitable embroidery thread. Application of surface embroidery is found to be very effective, so far as the enhancement of structural stability, aesthetic improvement and enhancement of both tensile and tearing strengths are concerned. Mechanical properties have been tested to assess the improvement of tensile parameters after embroidery. Furthermore, CAD software is used for the initial simulation of the planned new product, using the scanned image of the embroidered old saree. From different options of simulated garments, the selected garment is produced through regular processes of pattern making (through garment CAD), cutting, sewing and finishing. The consumer acceptability and consumer responses are analyzed through online consumer survey.

A real life demonstration and actual manifestation of the philosophy of

circular fashion is represented, accompanied by the analysis of consumers' responses. As it is important to generate wide spread consumer awareness about reusing of old apparel in new product life cycle, to make it successful at the supply chain level. In this context, an old saree is used to create new life cycle of women's garment. All over surface embroidery is used to enhance the aesthetic as well as the tearing strength and tensile strengths of the saree fabric. The computer aided design (CAD) is used for initial simulations of different garment options, using the scanned image of the embroidered saree. It is evident from the consumer survey analysis, that even though less than 50% of the consumers are not aware about the term circular economy but still it is very inspiring to notice that most of the consumers have accepted the concept of circular fashion, and realized the need of circular fashion to save the planet earth. Also, around 70% of the consumers have recommended such conception of circular fashion for mass consumption through streamlined supply chain.

Elements and Principles of Design for Sustainability

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The main purpose of this analysis is to make aware about the sustainability in elements and principles of design for fashion and footwear so that we could be able to develop the sustainable product, which can play an essential role in protection of the environment and society.

The sustainability in elements and principles of design are the prominent tools in development and creation of the eco-friendly and feasible fashion product.

In this article I will elaborate The brief discussion on sustainable design with the selection of the eco-friendly materials, energy efficient solutions, implementation of the zero waist process, product life cycle estimation, local sourcing and sustainable Guideline for a designer in terms of reusability of product and recycling, inspiration from natures and copy natural process and system to improve efficiency and reduce waste, user friendly design and minimize negative impact, design thinking should be human centric approach to solve problem and prototyping of sustainable solution, , consumers awareness about the products environmental impact, promoting the equitable access, social aspects of sustainability in design, adaptation of the unseen challenges of the environmental conditions, collaboration among the designers, engineers and scientist to develop the innovative sustainable solutions.

In conclusion the application of the sustainable elements and principle of design is essential for today's most challenging environmental situations. Designer must concentrate on adopting the sustainable methods in design elements such as the material selection, energy efficiency, waste reduction, product life cycle assessment, durability and span, and have also acquire the instructions of the cradle to cradle, biognosis, user centered design, system logic, transparency, social equity, resiliency, close loop system and the collaboration. With this analysis the designer can achieve the way for a more sustainable and harmonic future for all in the world.

Enriching Shantipur's Textile Legacy: Exploring New Horizons in Taant Saree Craftsmanship

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Shantipur, a quaint town in the heart of West Bengal, is renowned for its exquisite taant sarees, which have garnered worldwide appreciation and recognition for their intricate craftsmanship and traditional elegance. However, despite its rich legacy in saree weaving, Shantipur's textile industry has primarily focused on sarees, leaving a noticeable gap in the availability of a diverse range of textile products. This research endeavors to address this significant research gap by delving into the untapped potential of the taant saree industry in Shantipur to expand its product offerings beyond sarees.

The primary objective of this study is to investigate the feasibility and prospects of diversifying the textile production in Shantipur while preserving the essence of taant sarees. To achieve this, the research will employ a multi-faceted approach, including in-depth interviews with local artisans, market analysis, and consumer surveys. These methodologies will be instrumental in understanding the preferences and demands of both artisans and potential customers, as well as identifying the challenges and opportunities that lie ahead.

The findings of this research will contribute to the broader discourse on sustainable rural development and craft preservation by catering to present-day fashion trends, as it seeks to empower local artisans and revitalize the traditional textile industry of Shantipur. By exploring avenues for product diversification, this study aims to not only enhance the economic prospects of the region but also ensure the continued relevance and prosperity of Shantipur's taant saree heritage in a dynamically changing market.

This research aspires to bridge the gap in Shantipur's textile industry by advocating for expanding product offerings beyond sarees while preserving the rich cultural heritage of taant saree weaving. The study's outcomes will provide valuable insights for local artisans, entrepreneurs, and policymakers to promote sustainable economic growth and cultural preservation in this historic town of West Bengal.

Evolution of Leather as Sustainable Textile

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The development of leather as a sustainable fabric marks a significant change in how the fashion industry views raw materials and manufacturing processes. Leather has historically been linked to practices that are resource-intensive and damaging to the environment, such as the use of hazardous chemicals in tanning procedures and the substantial carbon footprint of cattle rearing. However, the textile industry has started on a transformational journey toward sustainable leather in response to mounting environmental and ethical concerns.

Adoption of environmentally friendly tanning techniques, such as vegetable tanning, has lessened the environmental impact of leather production, is one notable breakthrough.

Furthermore, the industry has undergone a revolution thanks to the development of lab-grown or cultured leather. This method avoids the need for conventional livestock husbandry and killing by growing animal cells in controlled conditions. It lessens the carbon footprint of leather production as well as the ethical issues surrounding animal care.

Alternative materials like pineapple leather, cork leather, and mushroom leather are also becoming more and more well-liked. These materials use renewable and sustainable resources and offer traditional leather's aesthetics and utility without the related environmental disadvantages.

In order to promote ethical leather manufacture, it is essential to establish sustainable leather standards and certifications, such as those offered by the Leather Working Group. These certifications make it easier for customers to find goods that adhere to strict environmental and moral standards.

These eco-friendly leather substitutes have been included into collections by the fashion industry in response to rising customer awareness of and demand for sustainable fashion. As a result, leather's development as a sustainable textile continues to advance, signaling an industry with a brighter, greener future. This research paper discusses the advancement of leather and its various sustainable substitutes as sustainable textiles.

Meenjhar: A Flower Of Hope In The Desert State Of India

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Scientific studies have shown that crochet provides therapeutic benefits, including the alleviation of stress, the development of patience and social skills, and the forging of close friendships and a sense of purpose.

The author's expertise in textiles helped her make the connection that led to her taking charge of this project. Being a native of Jaipur, known as the "Craft City of India"—in the western Indian state of Rajasthan – the author considered the project's long-term benefits keeping in mind the skilled population of the city and its inclination to sustainable crafts.

The Meenjhar Project progressed from a common domestic household practise to a commissioning of more than 50 experienced artisans across two states in India: Uttar Pradesh and Rajasthan. Meenjhar, a beautiful desert flower is seen as an escape from harsh heat by travelers and brings colour and hope to them, when there seems to be none.

The Author's three-month-long endeavour to manufacture "Rakhis," or wristbands, that symbolise the bond of protection, obligation, or care in Hinduism, gave hope to many unemployed mothers, wives, and daughters during COVID19, when they needed it the most. The Rakhi made was wrapped in a compost-and-cow dung-filled biodegradable seed paper. There was no use of any non-recyclable material in the product or packaging. Coming from a desert state, Author realised the importance and potential of sowing and nurturing a handful of seeds.

In essence, the spirit of this initiative was a commentary on how and where the fashion ecosystem should move forward, especially post pandemic. The purpose of this industry can no longer be just to fulfil human growth, but also to create a positive, symbiotic society that takes the responsibility of the impact of its actions on our collective future.

Consumer Perspective About Smart Functional Clothing

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Currently, the Internet of Things, the incorporation of sensors and communication devices in objects which collect and share information and interact with each other as if they are living organisms, has received a great deal of attention. With the arrival of the era of the Internet of Things, wearable devices that can be attached to our body and collect data are getting more and more critical. These days, there are many attempts to transform cloth to digital technology by connecting fashion and IoT, using newly developed material technologies such as conducting fibers and textile sensors. Smart clothing is a type of wearable devices. According to the purpose, wearable devices are used in different categories like fitness, healthcare, infotainment (information + entertainment), which provides entertainment as well as information, military/industry and family care. However, smart clothing is still in its early stages of development, and there are few products on the market. New applications and new products continue to appear as this field evolves and grows rapidly on a day to day basis. This study analyzed consumer's awareness toward smart functional clothing. The research consisted of questionnaires filled out by consumers who indicated that they are aware of smart clothing. In this study, the participants responded that the rate of purchase and use of smart functional clothing is low. We found that smart clothing is struggling in the market because smart clothing is not the technology or product that users desire. Smart clothing is also believed to have an enormous growth potential, but at present, it is not so attractive in terms of sales.

Exploring the Changing Face of Visual Narrative: Challenges and Opportunities

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The evolution of storytelling approaches, altering cultural environments, and technological breakthroughs have all contributed to a considerable change in visual narrative design in recent years. The goal of this review article is to investigate how visual narrative design is evolving and to examine the potential and problems that occur in this ever-changing environment. The study explores the effect of these shifts on storytelling, audience engagement, and the creative process by examining a variety of media, including film, television, virtual reality, and social media. The ethical and social ramifications that emerge when visual storytelling develop further, has also been studied in detail. Efforts have been made to learn more about the future of visual storytelling and how it might influence our society through this investigation. This review paper is an invaluable tool for academics, filmmakers, storytellers, and anyone else interested in learning about the transformative potential of visual storytelling as well as the difficulties and possibilities it provides in the ever-changing environment of today. This study shows the importance of visual narrative design which is essential to determine the direction of storytelling since it has the power to affect and transform society in addition to reflecting it.

Sustainability in Textile and Fashion Design: A Circular Economic Approach using Natural Resources (Organic and Natural dyes)

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The textile industry is the second largest sector of the global trade market. Running an enterprise in this sector is akin to walking a double-edged sword; which requires a high level of monitoring and adaptation to proper guidelines to reduce environmental side effects. Sustainability in the textile and fashion industry has been evolving gradually and gone beyond using organic materials and efficient processes. The textile chain consumes a large amount of water and energy and uses various chemicals and harmful substances. There is a dire need to adopt newer methods of manufacturing and consumption which do not hamper the environment while utilising natural resources to help us sustain the textile industry and the ecosystem as a whole.

The areas covered include the utilisation of natural resources, availability of alternative raw materials which are sustainable in the long run, handling of chemicals in processes like dyeing, printing, finishing and treatment of waste material, various technological advancements for recycled products and steps taken by production houses to promote sustainability, etc.

Besides being a multibillion-dollar industry, fashion is also an integral part of our identity. Fashion and textiles have been more relevant and meaningful than ever in the current context. Innovation is a crucial element and as we start innovating for sustainable environment needs; we underline the significant role of fashion and textile industry in achieving sustainability through a circular economy.

Communication Through Illustration: The Digital Transformation

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The convergence of digital technologies and illustration has ushered in a new era of creative possibilities and strategic approaches. This paper aims to delve into the ways in which digital tools and techniques have transformed the creative strategies employed by illustrators. It examines the historical evolution of digital technologies in illustration, their impact on strategic decision-making, and the broader implications for creative industries.

The objective of this study is to examine and elucidate the transformative role of digital technologies in the realm of illustration, with a particular focus on their impact on the creative strategies employed by artists and designers.

This research aims to:

Investigate the development of digital illustration technologies historically and how, from early trials to modern digital tools and software, they have influenced creative approaches over time.

Assess the influence of digital tools, software, and platforms on the creative process of illustrators, including the ways in which these technologies have transformed the conceptualization, production, and distribution of illustrated works.

Assess the broader implications of digital technologies on creative industries and organizations, examining how these technologies have influenced strategic decision-making, visual communication, and problem-solving approaches.

By focusing on these goals, the research paper aims to contribute to a thorough understanding of how digital technologies are changing the illustration industry and how communication design professionals can strategically use these tools for improved visual storytelling, communication, and problem-solving.

This study adopts a mixed-methods research design, combining both qualitative and quantitative approaches to provide a comprehensive understanding of the transformative role of digital technologies on illustration techniques for creative strategies.

Method

Qualitative Data Collection

Interviews: Semi-structured interviews conducted with professional illustrators, designers, and creative professionals who have experience in using digital technologies for illustration. These interviews provided in-depth insights into their creative strategies, experiences, challenges, and the impact of digital tools on their work.

Content Analysis: A comprehensive content analysis of relevant literature, scholarly articles, books, and online resources was conducted to contextualize the historical development of digital technologies in illustration and their impact on creative strategies.

Quantitative Data Collection

Surveys: A structured survey questionnaire was distributed to a diverse sample of illustrators and creative professionals. The survey collected quantitative data on their use of digital technologies, preferences, factors influencing the choice of illustration technique and the impact on their creative strategies. The Likert scale and closed-ended questions were utilized.

Observations: Observational data was collected by observing the workflow and techniques employed by illustrators using digital tools. This provided empirical insights into how digital technologies are integrated into creative strategies during the artistic process.

Conclusion

Today's illustration techniques are vastly different from those used previously. Illustration styles have evolved to reflect changing trends, such as the growing requirement for visual content such as interactive banners, animated characters, emoticons etc. on social media, websites, e-commerce and blogs, resulting in a rise in digital approaches to illustrations.

Digital technology has unquestionably transformed illustration methods for creative strategies. These tools have reimaged the methods that illustrators use to approach creative problem-solving, storytelling, and communication. Digital tools have democratized illustration, making it more accessible and versatile than ever. However, the sheer volume of digital content and concerns about authenticity underscore the need for artists to balance technology with traditional skills. As technology continues to evolve, the future of digital illustration holds exciting possibilities, from AI-driven creativity to redefining ownership in the digital age. Ultimately, the role of digital illustration in communication is one that will continue to shape how we convey ideas, stories, and emotions in the years to come.

Analysis of Mekhala Chaddor Craft Cluster for Augmentation of the Craft

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India's handloom industry stands at number two after agriculture. There are more than three million workers and out of this more than one million are from Assam. Assamese handloom industry showcases the diversity of India's culture. The Bodoland Territorial Region of Assam is the abode of Bodo people along with other native communities of Assam. Their cultural heritage reflects their tribal origins. Mekhala Chaddor has been traditionally worn by Assamese women and most of the women of Bodo village are involved in the weaving of Mekhala Chaddor. Since many weavers are from this region and as per our knowledge very few researchers have focused on the craft clusters of this region. It's vital to understand the problems faced by the weavers carrying out the weaving tradition from generation to generation. This paper analyzes the production process of Mekhala Chaddor and the problems faced by the weavers. The study was carried out in the Bodo village by observation and well-structured interviews administered to 20 respondents out of 22. A variety of Mekhala Chaddors in silk and cotton are woven at 22 units of weaving cluster at Bodo village. Observations indicated that weavers were facing several constraints and the study revealed problems related to handloom industry, raw material supply, design aspects and basic livelihood of the weavers. Based on the study various initiatives are identified which aimed at enhancing the marketing and distribution to this remote area situated in northeastern region of India which may directly or indirectly result in growth of the craft.

Designing Men's Shirt Collection Inspired by Kullu Weaving

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India's extensive cultural legacy is best represented by the rich handloom and handicraft industry. It is a crucial source of income for the local populace. The textile and handloom industry accounts for 14% of the total industrial production, contributing to nearly 30% of the total exports. Moreover, this industry is the second largest employment generator after agriculture.

Realizing the ill effects of fast fashion, a need has arisen to design and promote clothing aimed at slow and classic fashion. Presently the textile and apparel industry is witnessing a paradigm shift in the use of raw materials and integrating design elements catering to the recent sustainable fashion movement.

In this project, an attempt has been made to bring awareness about a traditional craft that flourishes in the beautiful valley of Kullu, Himachal Pradesh, a land known for its rich culture and crafts. Kullu weaving is an age-old craft being practised in every household where the weaving artisans work relentlessly to weave different textiles using different wools. However, due to the warm weather conditions of other regions of India, these woollen textiles are not widely accepted. Also, there is a lack of product diversification and innovation in designs that suit the needs of modern consumers.

As per the survey conducted it was noted that a maximum number of people were not aware of Kullu weaving and did not own many hand-crafted products. Hence in this project, a range of semi-formal to casual cotton shirts with kulluvi motifs woven within the fabric have been designed. The products were woven by traditional weavers of Kullu. It was found that reimagining the Kullu weave in contemporary urban aesthetics led to higher acceptance among respondents. It could be craft-centric products with the essence of Kulluvi designs and design innovation could serve as a great means to widen its access and acceptance to larger market segments.

Designing Sustainable Clothing Using Eco-Printing and Traditional Embroidery

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The textile and dyeing industry are one of the largest contributors to environmental pollution, with its extensive use of water, energy, and chemical-intensive processes. The detrimental impacts of conventional textile dyeing methods include water contamination, resource depletion, and greenhouse gas emissions. As awareness about sustainability spreads, there is a pressing need to transform textile design practices.

The paper unveils an exquisite collection that combines eco-printing techniques with the age-old artistry of Kantha embroidery. This unique collaboration resonates with the evolving eco-values of the contemporary consumer, who seeks both aesthetic beauty and a meaningful narrative behind their garments.

The project's objective is to establish a gender-inclusive sustainable brand that aligns with contemporary design aesthetics, thereby expanding the sustainable fashion market. This initiative aims to encourage individuals to embrace sustainable fashion by broadening their perspectives on the subject. This Brand is called- "Kathaka- Where Sustainable Stories Unfold". The product line will range from Shirting to unisex silhouettes with interesting Kantha embroidered motifs adorning its surface. The packaging of the final products will have a minimalistic yet luxurious approach where waste materials, cardboards, jute bags will be put to use. This collection aims to showcase the beauty of traditional crafts while conveying a narrative that resonates with the consumer. The materials used for the dyeing and printing will be sourced from the surroundings, fabrics used will be natural and sustainable. For Kantha embroidery and applique work, waste fabrics and leftover scraps will be utilized. Embracing a unisex approach, the collection transcends conventional gender norms, offering ethically produced garments that resonate with those who seek to wear their values and celebrate the beauty of nature's palette.

This collection showcases fashion's potential for positive change. As the fashion world grapples with its environmental impact, this project offers a glimpse into a harmonious and ecologically responsible future, where clothing is not just an ensemble but a story woven with care for both people and the planet.

Beyond Binary: Designing for Gender Inclusivity in Product Design

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Design is a direct reflection of the contemporary cultural climate that surrounds creatives, in the same vein as the visual and performing arts. In view of the relevance of the ever-changing political and social climate, addressing civil liberties and exclusion is given the highest priority, which hence swells the need for empathetic strategies and approaches. Every design decision has the potential to either include or exclude users. Culminating design decisions based on holistic awareness of user diversity facilitates incorporating the most viable users. Furthermore, designs that have a tendency to be exclusive may inhibit a particular set of users from utilising the product or service to accomplish their objective, or worse yet, may hinder their autonomy. Inclusive design is gaining prominence because it intervenes to produce products and services that are practical and accessible to a broad spectrum of people. Inclusive experiences aim to integrate minority, vulnerable, and understudied user groups in the design process, recognising blind spots to avoid exclusionary experiences for users. Contemplating different gender identities, inclusion in product design assists marginalised groups as well as the more expansive public. Teams often overlook inclusion and accessibility until project completion, which may not result in truly inclusive output. Integrating inclusion from the outset is cost-effective and less daunting. An inclusive design guarantees that all users, regardless of identity, preferences, cultural background, impairments, or barriers, have a positive experience with the product. Gender inclusivity is crucial for businesses in social media, health, finance, and insurance, as users become more aware of their needs and identify friction in daily interactions. In the following paper, the authors focus on the impact of exclusive ideologies on user engagement and product usefulness, focusing on strategies to avoid stereotypes and binaries associated with gender through vigilant observation, analysis, and study of existing literature.

Interfacial Solar Evaporation Using Textile Fabrics Functionalised with Polypyrrole as a Photothermal Material

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There is a scarcity of clean, fresh water worldwide, which has become a severe problem that needs to be urgently addressed. Due to the abundance of solar energy and saline sea water on Earth, solar evaporation can be an effective technique for water desalination and purification. However, the evaporation rate of water from its interface need to be accelerated utilizing sunlight sothat water can be separated quickly from salt and wastes. Because of good moisture wicking ability, porous, hydrophilic structure, low heat conductivity, and effective heat absorption, textile fabrics can assist quicker solar evaporation of water. The performance of textile fabrics can be enhanced further by coating them with an appropriate photothermal substance, such as polypyrrole (PPy) that can convert solar radiation to heat energy at the interface. In the current study, different woven and spunlace nonwoven fabrics are coated with PPy to produce a functional textile material for effective photothermal conversion. In the presence of sunlight, the coated fabrics can heat-up quickly and evaporate water in a quicker rate. Some textile materials, in particular, have excellent wicking properties that enable them to efficiently move water molecules from the water supply to the location of evaporation. The 100% viscose spunlace PPy-coated nonwoven fabric could be a perfect solar steam generator since it exhibit a high rate of evaporation ($3.343 \text{ kg m}^{-2} \text{ h}^{-1}$) when exposed to sunlight. In order to address the issue of water scarcity by effectively utilising solar energy, such PPy-coated textile material can be a possible candidate for water desalination and purification.

Comprehensive Strategy for the Revival of Kala Raksha Vidyalaya

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Kala Raksha Vidyalaya (KRV), an initiative of Kala Raksha Trust in Kutch, Gujarat, has been a torchbearer for traditional craftsmanship. Established in 2005, KRV initially served as an educational institution, offering design education to the region's artisans. This platform empowered artisans, fostering market-driven innovation while preserving their heritage. KRV's faculty comprised design experts from India and abroad, along with faculty from Kala Raksha staff.

Regrettably, due to financial constraints and various challenges, KRV had to cease its operations within a few years. This paper presents an innovative strategy for revitalising the institution, making use of its existing campus and the talents of its artisans.

After an in-depth brainstorming process, the 'Collaborative Craft Workshop' concept was selected as the ideal approach to revive the Vidyalaya. In this revamped model, the workshop serves as a collaboration between artisans and participants. Artisans take on the role of educators for the workshop attendees, sharing their traditional craft expertise.

This revival strategy empowers artisans to share and teach their traditional crafts, preserving and advancing their cultural heritage. It also encourages them to extend education within their families and communities. Additionally, it benefits participants who can bring contemporary advantages to the artisans and their craft. The workshop's fee structure ensures Vidyalaya's sustainability without relying on funds from the Kala Raksha Trust.

The workshop was organised during the summer, facilitating cross-learning and cultural exchange. Social media played a pivotal role in spotlighting this revival effort, workshop announcement, and connecting with interested participants.

This paper consists of qualitative research methodologies, including participatory observation and snowball sampling to select skilled artisans for teaching at KRV during the workshop. It also addresses challenges in the project, including artisan selection, participant well-being, sustainability, and balancing traditional values with urban culture. It outlines a successful plan for revitalising KRV and conducting craft workshops.

A Comparative Study of Upcycling and Downcycling in the Textile Waste-to-Value Transformation

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The textile industry is popular for its negative influence on environment because of the enormous amount of waste produced during production and consumption. For the textile sector to be sustainable and have minimal negative environmental effects, a circular economy model is essential. A requirement for implementing a circular model is recycling textile waste. With the idea of upcycling and downcycling, this study presents an overall assessment of textile waste management with an emphasis on ensuring sustainability and minimizing environmental effects. Two environmentally friendly waste management practices followed in the textile industry is upcycling and downcycling. Upcycling entails giving used textiles a new life by giving them a greater quality, longer lifespan, and higher value. Downcycling, on the other hand, limits the value of textiles by transforming them into materials with lower quality.

By examining their viability, this study aims to provide light on which strategy is more environmentally friendly and economically beneficial. This research comprises analysis of both qualitative and quantitative methodologies to judge the viability of various initiatives. The financial aspects of the two methodologies are statistically compared using a cost-benefit analysis. Initial investments, production costs, and resource usage are a few of the elements considered in this study. Each strategy environmental benefits and costs, such as reduced waste, energy use, and emissions, are also taken into account. By contrasting the financial viability of upcycling versus downcycling, this study offers important new insights into the textile industry & move towards circular and sustainable practices. Additionally, it offers waste-to-value techniques to promote the adoption of more environmentally friendly production and consumption practices in the textile industry. This study encourages environmentally responsible behaviour that is in line with financial incentives in order to promote the circular economy.

Applications Of Smart Wearable Solar Footwear For Energy Storage Solutions And Sustainability

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In the modern age, technology has vastly advanced in every field that exists including healthcare and personal lifestyle. It has gained wide-spread public attention thus generating immense economic and social impact. Various researches are being conducted across the world these past few years to develop flexible, lightweight, self-powered, miniaturized and integrated wearable systems.

Among many other impacts of the advanced technology, comes the need to produce renewable, easily available energy sources that are sustainable and do not harm the environment. Solar energy is a type of renewable and sustainable energy that is obtained from the sunlight, which is available in abundance around us.

This paper also examines the current state of smart wearable solar footwear technology, discusses its potential challenges, and outlines future directions for footwear and smart technology to use a sustainable source of energy like solar energy to produce electrical energy that can power electronic devices like a phone, thus enabling the footwear to act as an emergency power bank.

For development of footwear with smart technology, users are also concerned not just about its practicality but also its looks and aesthetics. Therefore, another characteristic feature that has been incorporated into this paper, solely for the aesthetic purpose, is the Photochromic upper. Photochromic pigments are pigments that undergo a reversible change in color when exposed to sunlight and reverts back to its original color when the sunlight is no longer available.

An overview of the process, its background and functioning are presented further in this research paper.

Footwear for All: Embracing Inclusive Design Principles - Design Thinking Aspects

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In a world that is becoming more varied and interconnected, the concept of inclusive design has gained traction in a variety of industries, including fashion and footwear. "Footwear for All: Embracing Inclusive Design Principles" looks at the convergence of footwear design and inclusive principles, with a particular emphasis on the use of design thinking approaches.

This research paper investigates the various components of inclusive design thinking in the context of footwear, highlighting its critical role in creating shoes that cater to a wide range of consumers, regardless of age, ability, or personal taste. It analyzes how design thinking supports empathy, ideation, and innovation in the footwear design process, resulting in products that are not only aesthetically beautiful but also functional, comfortable, and accessible, using real-world examples and case studies.

Visual Design in Wall Paintings of Old Buddhist Monasteries, Ladakh: An Appraisal of Fabric Patterns

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This paper explores, Ladakh, which is not known only for grandeur of amazing nature but also as a cradle of art since it provides a gate for North-Indian planes opening towards West and Central Asia and Silk-Route linking east and west. Alchi, Mongyu, and Sumda-Chun are monastery which records murals in these temples and stucco images enshrined therein ascribed to period between eleventh and thirteenth century CE. The main theme of murals inside the temple is Buddhist, which practically covers every square inch of the inner wall of the building. Besides the iconic and the figurative paintings, these monasteries also register a rich tradition of textiles prevalent in that region. This variegated textile patterns are adorned on the ceilings made of wooden planks of the temple. Being established as a hub for trade route, between Central Asia and Kashmir, these centres were the beneficiary of the natural exposed to the variety of designs to be assimilated. Some of the characteristic techniques of textile decoration are frequently identifiable in their representation on the ceilings of Alchi, such as: tie-resist dyeing, resist dyeing, dyeing with mordant, stitching and embroidery, and brocade. They appear as an amalgam of heterogeneous artistic traditions from several cultural areas, namely India, the Near East and even reveal the after-effects of distant Hellenistic roots. It is probably the impact of a rich trade of textile which was in all probability flourishing between Central Asian oasis, Iran, and Kashmir along the great silk route.

Exploring The Evolution and Impact of AI Art: A Study on Creativity, Perception, and Boundaries

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The swift evolution of AI art is fundamentally reshaping the creative landscape, introducing profound changes at an unprecedented pace. Artificial intelligence (AI) now possesses the remarkable capability to produce artwork within seconds, challenging the traditional artistic process that artists have traditionally invested hours and days to achieve. This paradigm shift not only underscores the boundless potential of technology but also raises significant questions regarding AI-generated art's essence, copyright boundaries, and its impact on human creativity.

This paper delves into the fundamental principles of artificial intelligence and its pivotal role in the genesis of AI art. Furthermore, it explores the multifaceted impact of AI art on artists and the broader public, while contemplating its potential trajectory. To comprehensively gauge the influence of AI art, our study employed an innovative and comprehensive approach.

We distributed meticulously designed questionnaires, akin to vibrant and brushstrokes on the canvas of inquiry, explicitly crafted to capture the nuanced, elusive, and often perplexing sentiments and thoughts evoked by AI art. This methodology mirrored the dynamic and multifaceted nature of AI-generated creations, aiming to reveal a deeper understanding of human experiences in response to this evolving art form.

Our primary objective was to quantitatively measure the extent to which AI art stimulates or constrains creativity, as well as to evaluate its potential to disrupt established artistic norms. Through an exhaustive analysis of participant responses, we sought to create a comprehensive and vivid picture of the intricate interplay between artificial intelligence and the world of art. Our findings provide valuable insights into the complex relationship between AI and the creative process.

Within the context of the ongoing discourse concerning AI and art, our study makes a significant contribution to inform future developments in this rapidly evolving field. It highlights AI's potential as a catalyst for innovation while addressing concerns within the traditional artistic

community. As AI art continues to evolve, navigating this shifting landscape with a nuanced understanding of creativity, perception, and artistic boundaries becomes increasingly crucial.

In conclusion, the rapid ascent of AI art is revolutionizing the creative landscape, presenting both opportunities and challenges. This study sheds light on the profound impact of AI on artistry and creativity, contributing to a broader conversation about the evolving role of technology in the world of art.

Charkha: The Sustainable Future of Spinning

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The Indian spinning industry has grown over the years to attain the advanced developmental stage that it has now. India has the second-largest installed capacity of spindles in the world. At the same time, it has been successful in keeping its heritage alive and thriving. Spinning has gone through a long journey, from basic hand spinning to mechanized spinning. The major revolution in its landmark was the invention of charkha or the Indian version of the spinning wheel. Hand spinning was very prevalent in ancient India. Despite being equipment for spinning yarn from fibre, it had a much broader perspective in Indian history. During the fight for freedom, it was a symbol of nationalism, economic upliftment, revolution, and self-reliance. Hand spinning on charkha is still a source of income in rural India and is gradually gaining popularity amongst Indian youth as a way of practicing meditation and spirituality.

There are several types of charkhas, and they can be broadly classified into two types, viz., upright-wheeled charkha and horizontal charkha. New technological advancements in charkha spinning are continuously being introduced to enhance its functionality without losing its spiritual importance. Technological research and development have also been taking place continuously, leading to many varieties of charkha, ranging from traditional timber charkha to New Modal Charkha and e-charkha.

The Charkha spinning process requires maximum expertise with minimum resources, making it a sustainable alternative of yarn production. Since it does not require any electricity and fuel to produce yarn, it has a negligible carbon footprint when compared to machine spinning. The latest technological achievement in charkha is the solar charkha. The hand spinning on charkha is an eco-friendly process to begin with, Moreover, after the invention of the solar charkha, it is an energy-generating process as well.

Unravelling Consumer Attitudes: A Multigenerational Study Of Apparel Thrifting And Sustainable Consumption

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The circular economy of alternate consumption models for used items has gained significance in recent years. However, very little study has been done to gain a thorough knowledge of the opposing or complementary consumer attitudes, motivations, and values that underlie the use of apparel thrifting. The modern consumer landscape is undergoing a transformation driven by evolving values, concerns, and preferences of diverse generational cohorts. As society grapples with the imperative of sustainable consumption, an intriguing phenomenon has emerged—the resurgence of thrifting, characterised by the act of purchasing second-hand clothing. The act of thrifting, once confined to thrift stores and flea markets, has garnered newfound prominence, transcending age-old stereotypes and evolving into a vibrant market segment that captures the attention of individuals spanning multiple generations. In its purest form, thrifting entails the act of reinventing the lifetime of clothing—a departure from traditional practices of consumption. By avoiding the resource-intensive processes involved in producing new clothing, thrift shopping offers a way to lessen environmental impact. It is rooted in a desire for sustainability. Additionally, it is consistent with evolving consumer values that place an emphasis on deliberate decisions and a rejection of fast fashion's disposable nature. This paper embarks on a journey to unravel the intricate interplay between consumer attitudes and behaviours across generations within the dynamic thrifting landscape. This research endeavour seeks to delve into the intricacies of apparel thrifting, aiming to unravel its underlying concept and identify the emerging trends within this burgeoning market.

The findings reveal distinct differences in the attitudes and behaviours of each generation towards thrifting. Being more ecologically aware and technologically proficient than previous generations, Generation Z is predicted to have a larger propensity towards thrifting as a sustainable practice. Millennials who have grown up in a time of economic uncertainty may be more interested in saving money. Being wedged between the other two generations, Generation X might have a more

nuanced viewpoint on saving money.

The study adds to the body of knowledge on consumer behaviour, sustainability, and second-hand purchasing. The findings can help marketers and policymakers better target their tactics to encourage frugal behaviour among various consumer segments. It also highlights the possibility for intergenerational cooperation in promoting sustainable consumption practices, which will ultimately result in a society that is more ecologically conscious and economically inclusive.

Analysis and Unisex Apparel Range Development Inspired from Traditional Indian Phulkari Embroidery

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Punjab, which is renowned for its lively cultures, includes a variety of things, each with its own distinct appeal, including architecture, cuisine, art and craft, costumes, and festivals. Women have historically practiced Punjab Phulkari, an embroidered cloth with a strong cultural foundation in Punjabi society, and have passed it down through the generations. However, by offering them pitiful wages, intermediaries frequently abuse craftspeople, creating problems for their means of subsistence. The present study focuses on the apparel range development of jackets for the unisex category, inspired by the motifs of the surroundings used in traditional Indian textiles. The choice of motifs can be inspired by different sources, such as nature, and is also closely linked to natural, cultural, religious, environmental, and socio-economic factors prevailing in any society. Consumer behaviour is also observed through conducting market research at the time of scrutinising motifs for range development. This study examines the connection between consumer attitudes, cultural motivation, and the acceptability of product diversification by integrating qualitative and quantitative methodologies.

Training and PPE Requirements for Sanitation Workers in India Towards Achieving SDG 6 Goals.

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It is necessary to ensure safe water, sanitation and hygiene including safety for sanitation workers to achieve one of the goals of SDG6. Work-ers in sanitation and sewerage systems are at highest risk due to mul-tiple reasons including but not limited to exposure to hazardous gases, drowning, accidents, infections, etc. while operation and maintenance of the systems. Absence of basic requirements like personal protective equipment (PPE), trainings, resistance in following standard operating procedure (SOP) multiplies this problem to manifold. Due to these mul-tiple risks, average life of sanitation workers in India is observed less than the National average of 65 years. The Government of India has Legal Act to ensure the protection of the divers and also released Standard Op-erating Procedure (SOP) for Cleaning of Sewers and Septic Tanks, 2018. An Advisory has also rolled out in 2021 for creating Emergency Response Sanitation Unit (ERSU). However, all directives have been given on focusing to proper training, proper PPE and improving life conditions, well framed and researched training module and set of PPE gears specially body suit as per requirements of sanitation workers is not available at National level.

In order to undertake in-depth analysis of current plight of sanitation / sewerage workers including measures for occupational health, prevention of diseases, training and functional requirements to understand safety and health hazards, a primary research has been conducted in multiple cities in India on 100+ sewerage workers and 20+ sewerage maintenance officers. The cities were selected based on geographical positions, population, availability of water resources, infrastructure available, type of sewerage systems, etc. The analysis of data revealed that there is a major deviation in PPE availability across the country, job oriented trainings imparted to the workers, short duration training consisting mainly of theory sessions, little exposure on field training, etc. Due to

availability of limited no. of multi gas monitors/ detectors and lack of adequate trainings, about 90% of interviewed sanitation/ sewerage workers admitted that they have to rely on manual inspection methods for poisonous gas detections instead of mechanical means. About 85% of the interviewed workers admitted that they are aware of regulations of compulsory use of protective gears and it has to be provided from the parent organisation. In order to improve the condition of sanitation/ sewerage maintenance workers, there should be a National level well researched training program at all levels and only trained workers along with safety gears should be allowed to work for sanitation/ sewerage maintenance for their occupational safety.

Optimizing Design Practices For Effective Functionality And Socially Responsible Entrepreneurship

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Sustainable design practices have become a critical avenue for businesses to reduce their environmental impact and promote sustainable development. The integration of social entrepreneurship into these practices has intensified this impact within the community by promoting social and environmental awareness, tackling social problems, and promoting positive change. This paper examines the relationship between sustainable design practices and social entrepreneurship, highlighting how they can work together to create a sustainable society.

The paper explores how sustainable design practices and social entrepreneurship can be intertwined through discussing their core principles and values. Sustainable design practices are concerned with the reduction of harmful impacts on the environment, promotion of social equity, and enhancing economic development. Social entrepreneurship, on the other hand, emphasizes the need for businesses to create a positive social impact in communities through innovation and entrepreneurship. The two concepts can be integrated to create a powerful phenomenon that promotes sustainability, economic stability, and social upliftment.

Furthermore, the paper discusses some traditional sustainable design practices that have been combined with social entrepreneurship to achieve sustainable development. For instance, green building technology has been adopted as a sustainable design practice, and when combined with a social entrepreneurship mindset, can create a more environmentally responsible society. The paper also highlights various case studies of businesses that have successfully integrated the principles of sustainable design and social entrepreneurship. These case studies are evidence of how the integration of sustainable design practices and social entrepreneurship has brought substantial benefits to the people and the environment.

Overall, this paper presents a compelling case for the ways in which

sustainable design practices and social entrepreneurship can work together to address environmental and social concerns in the design industry. Through case studies and examples, it highlights the potential impact of these practices and calls for a more collaborative and socially conscious approach to design.

The Art of Strings: Exploring the Contemporisation of Puppetry as a form of Storytelling in Cinema

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Puppetry has been a source of storytelling and entertainment in this country for over 1,500 years. However, the digital revolution is currently declining its popularity. According to Moser, S., Clinton, E., & Wallach, J. (2017). Leisure activities in Southeast Asia, from pre-colonial times to the present. The Palgrave Handbook of Leisure Theory, 107-125, puppetry was a part of leisure activities in the pre-cinema era. This study aims to examine the contemporisation of puppetry. Its objectives are to explore the contemporisation of puppetry and discuss the potential of puppetry as a means of entertainment in modern India. The study is quantitative research-based, and content analysis is conducted through a diverse range of internet sources that examine the adaptation of puppetry in the digital world. The popularity of puppetry has been reducing through the decade, while modern puppetry is adapting and integrating with cinema as a dynamic form of storytelling to educate and entertain generations. Viollet-leDuc, E. (1875). Dictionnaire raisonné de l'architecture française. Paris: Morel. States, "The term restoration and the thing itself are both modern." This statement confirms that puppetry is not being preserved but rebuilt, repaired and contemporised to sustain and adapt to modern society and to maintain its prominence in today's fast-paced and visually saturated world.

A Comparative Study of Pattern Making Principles Used by Textile-Craft Oriented and Upcycle Brands to Develop Distinct Collection

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Traditionally, pattern cutting has not been viewed as a sound course, but rather as a secondary by-product of the fashion design discipline. In contrast to the Asian culture, pattern cutting is viewed as a profession requiring very little formal schooling. Nevertheless, the addition of creative pattern cutting as a specialisation within tertiary design education is starting to dispel preconceived notions and change the function of pattern cutting as a complement to fashion design (Tan & Chon, 2016). Pattern making research are mostly paired with technical studies, education sector and relation between designer-pattern master. Brands are studied on the basis of entrepreneurship, administrative capabilities of the designer, and sustainability. Several research papers talk about importance of education in pattern making and how education sector is growing by offering special courses and awards for it.

The study refers to utilisation of pattern making principles by the brands – knowingly or unknowingly. In the ever-evolving landscape of sustainable fashion, the realms of textile-craft oriented and upcycle brands have emerged as innovative forces reshaping the industry. This study delves into the pattern-making principles employed by these two distinct segments of the fashion world, with a focus on their strategies for creating unique and environmentally responsible collections. This comparative study explores the core principles of pattern making. The findings of this research not only shed light on the distinct approaches employed by these two segments but also highlight areas of convergence, where traditional craftsmanship meets modern sustainability practices. By understanding the pattern-making principles that drive textile-craft oriented and upcycle brands, fashion designers, educators, and industry stakeholders can gain valuable insights into the development of distinctive and eco-conscious fashion collections. Ultimately, this study contributes to the ongoing dialogue surrounding sustainable fashion, offering a nuanced perspective on the dynamic interplay between tradition and innovation in the pursuit of a more responsible and creative fashion future.

Analysing the Awareness and Interest of the Various Concepts of Sustainability Among Academic Stakeholders

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Sustainability, as the name suggests, refers to 'the ability to sustain over an extended period. Academicians have defined sustainability as the capacity to meet current development needs without compromising the ability of future generations to fulfil their own requirements. Education is a key player in development of an individual. It is also seen as a crucial factor in fostering a transformative shift towards development of a responsible society. Hence in order to arrive at a sustainable society, education has an important role to play.

This paper aims to ascertain the level of awareness among the stakeholders, namely the members of faculty and students. An assessment of the existing curriculum, wherever possible, presents an opportunity to include the concepts of sustainability further in the syllabus. This document talks about integrating sustainable education into academic curricula to cultivate awareness among academic stakeholders, with the ultimate goal of forging a sustainable future.

The research undertakes an exploratory approach to establish various aspects of sustainability and to further establish the objectives firmly. Conclusive research, utilizing survey as a tool with a questionnaire for both the target groups, namely, members of faculty and students of various educational institutions followed. Various attributes representing sustainability were probed and data was collected for analysis. The research analysed academic stakeholders' understanding and interest in sustainability using a mix of questions and stratified sample from faculties and students..

Every group had a different set of questionnaires. The information collected included demographic, psychographic, and behavioural characteristics of the participants as a part of their awareness and interest in sustainability.

The study helps academics uncover sustainability aspects and traits. Lack of social influence and education were the main reasons sustainability concepts were sluggish to catch on. The study emphasises

the importance of education in promoting sustainability, the need to include it in the curriculum, and academic participants' understanding of barriers. This study aims to promote a systematic and comprehensive approach to sustainable education in Patna, Bihar, India.

Oral Storytelling And Visual Cultures: Exploring The Evolution Of Kaavad As A Craft Practice

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Traditional Indian civilizations thrived on oral culture which has existed for ages and have passed mythological stories like that of Ramayana and Mahabharata on to generations. It brought communities together as they bonded over stories. Storytelling itself has gone through a lot of changes from oral to visual. Additionally, oral culture has seen its ups and downs and is now coming back in the form of the open mic, stand-ups, etc. In a culture where storytelling is considered auspicious, hailed a 400-year-old craft of visual storytelling- the Kavaad craft of Rajasthan. Kavaad comprises three stakeholders- the Suthars (carpenters and painters), the Bhats (storytellers), and the Jajmans (listeners). The portable shrine goes to the homes of devotees rather than the customary vice-versa.

Through the artisan's constant efforts and inspired designers, Kaavad has come a long way. The paper explores the current state of the stakeholders, their relationship, and a review of its evolution over the years. The theory of 'Participatory Culture' by Henry Jenkins and the theoretical framework of Human Libraries inspired exploring the relationship between the pluralist storytelling of Kaavad and present-day storytelling formats. It attempts to understand the content and depiction in ancient storytelling and compare the same with contemporary representations. Efforts have been made to find a pattern in the changing themes and explore the possible motivation behind it. The method used is in-depth interviews with the three stakeholders and the contemporary audience. Further, data is collected in the form of pictures of the craft and written accounts of stories

Although the craft is evolving, the relationship between the stakeholders is weakening. The target audience has been segmented. To conclude, the craft has been reduced to just an art form that is losing its authenticity in matching the market demands. Furthermore, the stories depict perhaps a deep-rooted psychological propulsion that has remained constant against the backdrop of this evolving craft.

The Implementation of “Zero Waste Model” To Acquire Zero Waste in Footwear Manufacturing

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The aim of this research is to ameliorate the implementation of Zero Waste Model (ZWM) in footwear manufacturing units. ZWM is the model of footwear manufacturing which helps in the cost cutting of 5 M that includes man, machine, material, money and method. Thus there is a need to implement such systems for significant saving in the footwear industry. Zero Waste Model is inspired from six sigma which emphasize on quality. To run the footwear factory smooth & successfully, quality, production & leather saving is having their own importance. Also waste control reduces the cost of product & productivity and improvement is very important aspect in achieving the desired targets. The Zero Waste Model is introduced in the research with following objectives, which will improve the efficiency of footwear manufacturing unit and give profit to the organization as a whole:

- Quality of work output
- Material saving

The researchers will choose the footwear factory, preferably from North India. The normal procedures followed by factory will be observed for 1 week (Week A) and its working will be analyzed minutely. Then after data collection and successive research, Zero Waste Model (ZWM) will be prepared and implemented. It will be observed for another week (Week B). Zero waste practices observed in both the weeks will be compared and profit will be calculated thereon. The basis of a study will be as follows:

- Time Study
- Method Study
- Calculation of machine efficiency
- Operation flow chart
- Factory layout

Many scientific parameters have been incorporated for this study.

The study provides a unique opportunity to suggest new approach. During the study, reputed footwear manufacturing units will be examined. Data will be collected from the middle and top management of Footwear Industry. Various international and national veterans of industry and institutions will also be consulted.

Enhancing Sustainable Education Practices for a Greener Tomorrow

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In the face of overwhelming environmental difficulties in the twenty-first century, there is an urgent need for effective sustainable education methods capable of providing future generations with the information and skills needed to address these issues. Despite rising awareness, there is still a sizable knowledge gap when it comes to the best ways to incorporate sustainability into educational institutions. This study aims to fulfil this gap by investigating how sustainable educational practices affect both student involvement and environmental consciousness, with a focus on the evaluation of various pedagogical approaches and their results. The primary objectives of the research are to identify the most widely used sustainable education practices and curricular approaches in educational institutions, analyze how they affect student engagement, knowledge acquisition, and attitudes toward sustainability, investigate what influences how successfully these practices are implemented, and provide evidence-based recommendations for improving sustainable education in a variety of educational settings. This study uses a mixed-techniques approach and incorporates a wide range of educators and students from elementary, secondary, and postsecondary institutions. These methods include surveys, interviews, and classroom observations. According to preliminary research, using sustainable educational approaches fosters increased student involvement, a deeper understanding of environmental concerns, and the development of pro-environmental behaviours. Training for teachers, easy incorporation into current curriculum, and cooperation with neighbourhood organizations are important elements impacting success. The study also emphasizes how crucial it is to take cultural and geographic settings into account when putting sustainable education ideas into reality. This study's findings highlight the significant potential of sustainable educational approaches to raise student participation and environmental consciousness. The need of using a comprehensive strategy that acknowledges the crucial parts played by educators, curriculum design, and community involvement in the success of sustainability education is emphasized. Educational institutions may better prepare students with the skills and knowledge necessary to solve environmental issues and actively contribute to a more sustainable future by incorporating these findings.

Identification of Digital Solutions for Preservation of Print Publications: A Critical Review

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Publications have long served as a primary means of mass communication and information dissemination. With a cultural legacy spanning centuries, books hold a significant place in our society. However, the relentless march of digital technology and the advent of the internet have profoundly disrupted the print industry. This sector now struggles with numerous challenges, jeopardizing the survival of certain publication categories. The traditional magazine-centric business model has already surrendered to these changes. Nevertheless, there remains a glimmer of hope for independently published magazines and alternative forms of publication, provided the right course of action is pursued.

To survive the impact of the digital era, potential solutions emerge. One such strategy involves the adoption of an omnichannel approach, facilitating cross-channel distribution of content to reach the intended audience effectively. Another avenue for survival lies in the evolution of printing technology and a substantial improvement of the production and delivery processes.

The work endeavours to dissect past and present conditions, from which we will extrapolate future scenarios for print publications. It is a secondary research effort, leveraging the wealth of available online information in the form of blogs and articles. The proposed method is structured to scrutinize and navigate the industry's impending changes, considering the challenges posed by digitization, shifting consumer behaviours and preferences, the enduring relevance of print publications, publishers' sustainability efforts, future trends, and proposed survival strategies through synergy with digital technologies.

A Sustainable Cotton Textile Innovation for Skin Rashes

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Human skin has a vital role in safeguarding us from environmental dangers such as bacteria, pollutants, and temperature. Normally, our skin produces substances that fight bacteria, and the melanin pigment protects the pigment chemically from UV rays, which can harm skin cells. Dust can have various effects on skin and this effect can vary depending on factors such as the composition of dust, individual sensitivity and duration of exposure. Dust particles can contain allergens, irritants and pollutants that can lead to redness, itching and inflammations. The exterior surface of the skin may develop a rash as a result of the above mentioned contaminants of dust particles. These rashes are primarily caused by bacteria, specifically *Staphylococcus aureus*. Clothing is the only thing that stays in direct contact with our skin for the longest period of time. Developing fabrics that heal or protect our skin would add value to our clothing. Using a particular type of cloth can have remedial and mitigating effects on us. These kinds of textiles are called healing or therapeutic textiles. Therapeutic fabrics offer new approaches and are becoming increasingly important due to its numerous benefits and positive outcomes. These fabrics play an important role in reducing stress levels, rejuvenating, treating skin diseases and helping us to sleep better. Recently, healing or therapeutic textiles have been globally accepted and getting popular for its functional values. The aim of this research is to create cotton fabric that has been naturally coloured and therapeutic characteristics to treat common skin rashes. For this work, cotton fabric was naturally bleached and colored with the use of natural mordants utilizing the combinations of pathimugam (*Biancaea Sappan*) with Kuppaimeni (*Acalypha Indica*) and Turmeric (*Curcuma Longa*) with Kuppaimeni (*Acalypha Indica*). The colored material undergo testing for color fastness and AATCC 100-level antibacterial activity also to determine the efficacy of the textile.

Circularity through Zero-Waste Pattern Making; A Study of the Connection Between Fabric and Form, Brief History, Scope, Limitations and its Feasibility with the Rise in Popularity of Korean Fashion

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Fashion has the power to create positive shifts in the society. When we look at the history of costumes throughout the ages, we can see how fashion has been able to spark revolutions at various moments in time and bring about changes in conventions, societies, and customs. The efforts and work of eminent fashion designers such as Coco Chanel, and Ralph Lauren among others will be remembered for their contribution to removing the vagaries of fashion prevalent in their times and bringing about much-needed changes in mindsets and social norms by creating a positive impact through Fashion. The goal of the current paper is to examine how pattern-making can affect positive change by producing zero-waste patterns and to understand the relationship between fabric and form by learning how to produce zero-waste patterns for everyday clothing. It also seeks to provide a brief history of zero-waste patterns and their contribution to the development of ethical fashion and circularity. The limitations of introducing zero-waste clothing into the mainstream fashion industry have also been examined. In light of the current trend of loose-fitted silhouettes made popular by Korean and Japanese fashion, this article also examines the viability of zero-waste patterns in the present, which may be an advantageous time to introduce zero-waste styles. The feasibility and awareness of zero waste styles among the general public were assessed using questionnaires completed by a diverse group of people from various age groups and backgrounds. This study also allows room for future discussion and debate on the subject. For the purposes of this work, both primary and secondary data collection approaches were used.

Impact Of Non-Value-Adding Activities of Supply Chain On Sustainability

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In the era of fast fashion, where there is a huge demand for textile and apparel products, it is quite evident that this sector is following many non-sustainable practices and is responsible for the depletion of natural resources. Recently, companies started undertaking many efforts to contain the harmful impact of the production processes of fabric and garment manufacturing. As a result, in some value-adding activities like the processing of material, there is a significant reduction in the disposal of affluent in the environment. But in the whole supply chain, it is also a must to look for the Non-value-adding activities like transportation/logistics, and warehousing which also contribute negatively towards the use of national resources.

It is a need of an hour to make the supply chain operations more responsible by employing modern ways of transportation and logistics activities. Companies are exploring strategies to make the supply chain more sustainable by employing techniques such as recycling packing material, use of reusable packaging material, cross-docking, advanced data analytics, and minimizing emissions by implementing the 4PL strategy. Not only environmental but social and economic sustainability should also be considered to improve the best practices of doing business. Efforts are required to understand the impact on the environment from various operations of the garment industry like product design, procurement, and till the end of the product lifecycle.

An exploratory study is conducted to understand the impact of non-value-adding activities of the operations and supply chain on the use of natural resources. Inputs from various manufacturing, warehousing, and logistic partners are collected and studied in a qualitative manner. The study will help in designing a strategy for the use of resources efficiently and ethically to reduce the environmental footprint of industry partners.

Creating a Range of Personal Ornaments by Combining Practices in Ganjifa Art and Patwa Kaam

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This craft project addresses the decline of traditional crafts such as Ganjifa playing cards and Patwa Kaam jewelry due to evolving market demands and trends. Ganjifa cards are now primarily used as gifts and educational aids, while Patwa Kaam jewelry is being supplanted by imitation products. The suggests that these crafts can be revitalized by merging them into a new fusion of painting and jewelry art, providing a modern and authentic expression of traditional values. The argues that in a society focused on modernity, traditional crafts can remain relevant by preserving cultural and emotional value, captivating audiences seeking unique and meaningful products.

The purpose of this craft project journey is to collaborate on Ganjifa cards from Sawantwadi and Patwa Kaam thread jewelry, two distinct art forms, and create beautiful accessories as a result. The project is named „Alekhya Kaushika,“ which literally translates to paintings and silk. Here, painting represents Ganjifa art, and silk represents Patwa Kaam jewelry.

In today’s world, we are all acutely aware of sustainability, encompassing the three pillars: people, planet, and profit. However, when discussing Indian craftsmanship, there is an additional „P“ to consider, which is “Parampara,” signifying legacy and tradition. This tradition helps us convey our historical narratives and heritage through handmade crafts, which play a vital role in sustaining our culture, values, and heritage. Indian craft is not merely a means of livelihood; it serves as a lifeline for our culture.

In the twenty-first century, various industries, including the art and design sector, are collaborating, introducing an additional “P” to sustainability - pluralism. By bringing together two distinct crafts, we can exchange the stories and values associated with each craft making, leading to cultural pluralism. This approach can help sustain our handmade art and craft in the modern world.

Crafting Sustainable Wallets from Tropical Fruit Waste Leather: An Animal Cruelty-Free Approach

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Animals have always been essential to our existence, assisting us with farming, giving us clothing, and food. Not much has changed since then. To see the various ways that livestock improves our quality of life, one only needs to look around. From ancient times, leather production has been a practised art that utilises both skilled and unskilled labour across all unit operations. It creates a vast variety of finished goods, including footwear, bags, clothing, wallets, and other items used every day. Although leather hasn't always been produced responsibly, technological and scientific advances have significantly reduced the impact of leather on the environment and people, especially when compared to leather substitutes created from petroleum. When leather is produced sustainably, it eventually reduces waste and emissions, helps to create jobs, and support a vibrant economy. Wallets are flat bag or small pouch which is frequently used to hold small personal goods including cash, debit cards, and credit cards. Today researchers have devoted to creating sustainable and animal-free products from coconut water, mushrooms, cactus, pineapple leaves etc. In this study, the investigator has designed wallets from tropical fruit waste leather which can be an alternative to the conventional leather.

Decoding Gen Z's Relationship With Fashion And Its Impact On The Industry: A Literature Review

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The Indian fashion industry is one of the fastest growing in the world, with a compound annual growth rate (CAGR) of 11-12 per cent, expected to reach \$115-125 billion by 2025. It is highly diverse, with consumers demanding a wide range of products from affordable to luxury as well as a rising demand for sustainable and ethical fashion. In the recent time, the industry has witnessed a transformative shift in its landscape due to evolving consumer behaviours and emerging trends. Generation Z, also known as Gen Z, is a demographic cohort group born between 1996 to 2010. This generation has its unique attributes, discerning fashion preferences, inclination towards sustainability and ethical considerations, and adept utilization of digital platforms and social media for style inspiration. Gen Z is of special interest, given their per capita spending will increase by more than 70% in the next 5 years, and their ability to influence older generations. They have risen as a dominant force in shaping the contemporary fashion scene. This literature review of scholarly research, empirical studies, and industry reports explores the relationship between Gen Z and fashion. It presents an overview of how Gen Z plays a pivotal role in moulding modern fashion trends, consumer attitudes, and industry strategies. It also contributes to understanding this influential generation and its ever-evolving impact on the fashion industry. Furthermore, it identifies gaps in the current literature and provides strategic perspectives for future research endeavours and industry approaches towards the Gen Z cohort.

Enhancing Environmental Well-Being Via Sustainable User Experience: Designer's Role In Making A Positive Impact

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The internet, an expansive and continually expanding network, has revolutionised modern life by serving as a digital conduit connecting individuals worldwide. Despite its seemingly intangible nature, it's crucial to dispel the notion that the internet has no environmental impact. In reality, it generates a staggering 300 million tonnes of carbon emissions annually, surpassing the combined annual output of the aviation industry. This substantial ecological footprint is intricately tied to data usage, with the average web page's data consumption ballooning from a mere 500 kilobytes in 2011 to a substantial 2 megabytes today, as reported by the IEA. Activities such as downloading, storing, sharing, and retrieving data all consume energy. If we liken a website to a book, the more information it contains, the greater the energy required when users access it. Ultimately, the volume of data directly corresponds to the size of the carbon footprint it leaves in its wake, highlighting the pressing need for sustainable internet practices.

Regrettably, leaving behind a huge gap where current internet trends are not aligned with sustainable practices. Bloated websites create a lose-lose situation: users experience frustration due to slow loading speeds, developers and designers witness a decline in user engagement, and the environment suffers from wasted energy.

Hence, the objective is to create a more social and ecological design, that focuses on sustainability and aware designers to employ sustainable practices in order to mitigate harm. Designers play a pivotal role in creating websites that maximise efficiency, reduce surfing time and simplify task completion. Hence, the focus must shift towards not only an enhanced experience but also minimising the amount of data required for website operation.

The study delves into the utilisation of a digital co-design toolkit to facilitate the incorporation of sustainable principles into the everyday tasks of UX design professionals. To accomplish this goal, the methods will involve conducting interviews, surveys, and data analysis in partnership

with UI/UX Designers and IT companies.

Thematically, this project focuses on the UN Sustainable Development Goals (SDGs) and holistically developing a toolkit that contributes to the Designers and Environment. This thesis endeavours to examine the crucial role of designers and steps involved in the pursuit of a more sustainable internet, where environmental responsibility and user experience coexist harmoniously.

The Assamese Gamusa with GI tag: What's going on?

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The term “Gamosa” in Assamese originates from the words “Ga” (body) and “Mosa” (wipe), signifying its historical use as a cloth for cleansing the body. Additionally, it may also be linked to the Kamrupi word ‘Gaamasa,’ denoting the cloth used to cover the Bhagwad Puran at the altar. In Assam’s diverse cultural landscape, the Gamosa serves as a unifying symbol, bridging varied lifestyles and backgrounds, and exemplifying unity in diversity.

The Gamusa has a major historical significance in Assam, symbolizing unity among the diverse communities of the region. This iconic handloom of Assam, an identifier for the Assamese people, got the GI tag in 2022. However, machine-made substitutes, the use of cotton polyester blends, and the availability of cheaper counterfeits in domestic markets of Assam have drastically impacted its uniqueness and charm over time. This study aims to understand the impact of GI tag on the current market of Gamusa in Assam and proposes suitable materials to be used in Gamusa so as to regain its uniqueness and enhance product performance. This research is a qualitative study. Secondary data was collected through online articles, journals, and newspapers. The primary data was collected through personal interviews with members of the Weavers Cooperative Society from Doom Dooma, one of the Gamusa weaving centers in the Tinsukia district, Assam. This study found that a lot of counterfeit products are sold in the domestic market in the name of Gamusa. To tackle this problem, this study suggests an identification mark on a tag that may be given by the Weavers Cooperative Society for Gamusa. This study also suggests finer yarn composition instead of existing 2/80s cotton yarn with certain aesthetic finishes to enhance the product performance, uniqueness, and customer appeal.

Polka Dots: A Timeless Design Element and Its Exploration with Sustainability

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This presents an exploration of the enduring glamour of polka dots as a design element and their potential role in advancing sustainability. It explores the synergy between the timeless charm of polka dots and the pressing need for sustainable design practices. The paper encompasses a comprehensive study of polka dots, including their various sizes and color combinations.

Furthermore, this research highlights how the enduring design element of polka dots can serve as a bridge between classic aesthetics and contemporary design trends. Data for this study has been meticulously gathered from diverse sources, including surveys conducted among design enthusiasts. These surveys aim to uncover their perceptions and preferences regarding polka dots and other design elements that can seamlessly integrate with sustainable fibers and fashion.

The ultimate goal of this research is to provide valuable insights and guidance to fashion designers, retailers, and manufacturers interested in incorporating sustainability into their practices. By analyzing the data using specialized software, such as data tab software, the research has revealed that sustainable fabrics can harmonize effectively with polka dot patterns. This finding underscores the potential for polka dots to play a pivotal role in the sustainable fashion landscape, catering to both the traditional and contemporary tastes of consumers.

Water Hyacinth Fiber as a Sustainable Alternative in the Toy Design Industry

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Synthetic fibers are durable, affordable, versatile, and widely used in the fashion and textile industry. Still, their production and disposal has a negative impact on the environment and human health. Material choice is crucial for designing and producing a sustainable product. Hence, plant-based natural fibers are valued raw materials as they are biodegradable and environment-friendly. There is a need to focus on secondary fibers (bio-waste or residues from other industries) due to increasing competition for land use between cash crops and food crops amid the increasing population. In the case of aquatic plants, water hyacinth has been considered a waste due to its rapid growth, which hinders the development of fish and other marine species by reducing the amount of dissolved oxygen and sunlight. This research aims to explore water hyacinth fibers as a sustainable, valuable product. The study involved the use of hyacinth fibers in a novel way to produce an alternative to synthetic hair. In this research, the synthetic hair of a doll were successfully replaced with water hyacinth fiber as a prototype. Fibers were extracted from the stem of the plant through a water-retting process. The result shows that water hyacinth fibers can become eco-friendly materials for making wigs, hair extensions, or toy hair that mark a step towards sustainable fashion and development of rural economy. The article also reports the challenges encountered during fiber extraction and product development, necessitating the need for additional research efforts in this direction.

Revolutionising Luxury Fashion in the Metaverse: A Strategic Alliance Approach to Targeting Gen-Z Consumers from Singapore

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This research delves into the intersection of the Metaverse, luxury fashion and international market entry (IME) strategies for Gen-Z consumers from Singapore. Even though the use of digital channels for brand-consumer interactions has increased, there is a lack of studies to understand the impact of Metaverse-based strategic alliances on luxury fashion. The research fills the academic gap between strategic alliances, Technology Acceptance Model 3 and Social Influence Theory. Therefore, this study aims to develop a strategic alliance approach that caters to Singaporean Gen-Z consumers' behaviours on the Metaverse retail platform. The study follows interpretivism, adopting qualitative methods, including semi-structured interviews and a type 2 case study. According to the findings, it is crucial to develop tailored strategies that cater to the specific requirements of the intended audience. The result of the study highlights three key priorities of Gen Z consumers in Singapore when it comes to Metaverse retail experiences: elevating self-worth, effortless consumer journey and multi-touchpoint interaction. The study also reveals the distinct characteristics of the Singaporean market, strongly emphasising work culture, herd mentality and influence of opinion leaders. The study's managerial recommendations include improving brand visibility, addressing financial and workforce constraints and navigating regulatory issues. This research provides valuable insights into the Singapore market, where the Gen-Z demographic has significant purchasing power.

Sanjhi: The Folk Art of Braj

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Folk art of India belongs to ancient art forms practised in various places in India. The Sanjhi art of Braj region infuses a new enthusiasm in the minds of Indian people. During the 16th and 17th centuries, this art form grew rapidly. But in this era, this art is declining. The current research intends to explore, identify, address problems faced by traditional craftsmanship with the goal to contribute to the sustainability of traditional art heritage and assure the continued transmission of craft skills and knowledge from one generation to next. Mathura, Vrindavan, Barsana, of Braj region was selected to conduct the study. For pilot study, structured interview method was adopted. To achieve the objective of the study 30 respondents were selected (10 from each region). Majority of the respondents were found to be associated with this craft from more than 20 years and Sanjhi art is their family tradition. It was revealed that, people are unaware about this art and it is only limited to temples and folk traditions of Braj, it is time consuming and herbal colors for making Sanjhi are not available in the market. This study offers to help researchers better understand the current situation and offers recommendations for future development.

An Investigation On Metal-Art Handicrafts Micro-Enterprises To Explore The Scope Of Design Intervention

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The traditional metal-art handicrafts in India have a significant history. It is a source of employment for rural artisans and contributes to the country's economic growth. Artisans create intricate metal pieces based on ancient design patterns. However, they encounter multiple challenges due to the absence of novel design patterns, formal design processes, and design thinking practices. This study is an effort to explore the loopholes in the existing practices and develop a holistic framework to rejuvenate the sector. An exploratory study was conducted on micro-enterprises in Roorkee (Uttarakhand). The study utilized face-to-face interviews and observations to evaluate the current metal craft design processes. The finding of this study has identified that there needs to be more interaction between artisans and customers to explore the needs/ demands of the market that hinder the introduction of new designs.

Furthermore, to rejuvenate the sector, there is a scope to apply reverse engineering techniques such as 3D scanning to capture traditional design patterns precisely. Such intervention will facilitate the introduction of formal structured design thinking practices and encourage innovation in the industry. The metal-art handicraft sector must foster innovation, diversify products, enhance market competitiveness, and improve artisans' well-being through ergonomic intervention. The findings depict ample scope to standardize the manufacturing process to minimize material wastage and improve productivity. The research paves the way for future investigations into craft preservation, innovation, and economic impact.

Consumer's Sustainable Online Shopping Behaviour

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In today's world online shopping or e-commerce has become the practical solution in young adult's lifestyle. People buy products from offline stores but they find online shopping more convenient and approachable. Online marketers should adapt to customer desires and expectations in order to create a more sustainable e-commerce platform that focuses on climate-neutral packaging and environmentally friendly e-commerce. The processing of online transactions is an approach that promotes social systems and is not detrimental to the environment is known as sustainable e-commerce. The study's main objective was to understand the online shopping behavior of people and to analyze how sustainability affects their e-purchasing. A survey method was used to conduct the study. A self-structured questionnaire "online shopping behaviour" was distributed to 100 respondents of eastern Rajasthan, India. The survey results show that people do online shopping to save time and for varieties of products and services available at one place. It highlights the factors that online shoppers like and dislike. The facility of home delivery is the most liked factor in online purchasing and inability to touch and feel the product is the factor people do not like. Most of the consumers have concerns about sustainable packaging and environmentally friendly e-commerce.

When making strategic judgements about the elements influencing consumers' online purchasing intention, the findings enable online shops to take important factors into account.

Augmented Reality and Education: Towards Quality and Sustainable

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New age technologies like Visual Reality, Augmented Reality and artificial Intelligence are speedily penetrating our everyday life. Augmented Reality or AR is a highly useful tool that has been already adopted by various museums around the world to enhance experience of their visitors. Many fashion brands are also using it, especially for retail purposes to give real-world experience to their customers. These technical tools can immensely benefit educational experience, especially in the field of liberal arts like Visual Arts, Design and Fashion. Through the use of these technologies a real-world experience can be provided to students by bringing to life historical monuments and art works, giving out valuable information and experience about art, culture, fashion and architecture of not only gone by times but also of distant objects and sites. As AR does not require physical presence and infrastructure, it becomes a sustainable tool in this field. In this paper we aim to explore various ways in which quality education may be provided to students through modes using AR, while also achieving goals of sustainability. Aim is also to focus on education in countries like India, where students are sometimes unable to access quality education due to financial and other reasons.

Awareness Level Of University Students Towards The Aspects Concerned With Sustainable Apparel Production And Consumptions

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As we know that apparel/clothing comes into the basic needs of the human being according to maslow's hierarchy of needs. As human beings, we consume a lot of goods and apparel products are also a part of this. Each product harms the environment at every stage of the life cycle of a product. And apparel industry comes under the biggest polluting industry in the world. Consumers should be concerned towards the hazardous issues related to product manufacturing and consumption. The product life cycle assessment by human beings during consumption (buying, using, caring and disposing off) is very important. The present study was focused on youth consumers' awareness level on the different aspects concerned with sustainable production and consumptions practices of apparels. The study was conducted in the different State Agricultural Universities of North India and 280 respondents of PG (Post-Graduate) level were selected. The male and female respondents were equal in the sample of the research study. The data was collected by the survey method and the questionnaire was used as a tool for data collection. The collected data was analysed through the SPSS Software by applying descriptive statistical tools. The awareness among university students was found medium to high level towards the sustainable practices in production and consumption of apparels. The result showed a significant difference in awareness among male and female students. It was also found that the independent variables like personal, family, and economic variables affects the awareness.

Emotion-Driven Music Recommendation System: A Fusion of Facial Recognition and Sentiment Analysis

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In the digital music age, personalized music discovery systems have flourished. However, these systems often lack an understanding of the user's emotional context, presenting a gap between the user's emotional state and music recommendations. The aim of this research is to bridge this gap by developing an Emotion-Driven Music Recommendation System, leveraging facial recognition and sentiment analysis to provide emotionally tailored music suggestions.

The research entails the integration of facial recognition technology to capture real-time user facial expressions, along with sentiment analysis of text and vocal inputs to discern their emotional state. Machine learning algorithms, including Convolutional Neural Networks for facial recognition and Natural Language Processing for sentiment analysis, form the technical backbone. The system processes data locally on the user's device to ensure privacy.

Empirical testing demonstrates that the Emotion-Driven Music Recommendation System significantly improves the accuracy and emotional resonance of music suggestions. Users reported heightened satisfaction with emotionally aligned music, showcasing the potential for this fusion in enhancing the music discovery process. Furthermore, privacy and ethical concerns are addressed through local data processing and robust consent mechanisms.

This research presents an innovative approach to music recommendation systems, addressing the critical issue of emotional relevance. By successfully merging facial recognition and sentiment analysis, the system creates a more immersive and emotionally intelligent music discovery experience. This technology has broader applications beyond music and opens new avenues for personalized AI-driven interactions.

Exploring 3D Design Technology for Indian Small Fashion Firms on New Product Development Process: Technology Acceptance Model Perspectives

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The value of reducing lead time and waste affects the new product development process of big fashion brands adopting 3D CAD (3-Dimensional Computer-Aided Design) programs, including CLO3D, Browzwear, and Optitex. There is a lack of studies and practices of 3D CAD tools in Indian small enterprises. The purpose of this research is to interpret current 3D CAD tool behaviours in the Indian market and to address innovation adoption barriers by comprehending the advantages of innovating New Product Development (NPD) processes. A mono-method qualitative approach was employed. The study applied the semi-structured interviews based on the key literature, including the Technology Acceptance Model and Innovation Diffusion Theory. The 3D CAD tool has been evolving following the COVID-19 pandemic. Despite increased interest in 3D CAD tools, Indian small fashion enterprises lack execution. The discovered obstacles to innovation are expensive, and there is a need for more skilled workers and resistance. Design quality, reduced lead time and long-term competitive advantages were the pull factors for innovating NPD processes. This paper adds to existing scholarship, particularly in small Indian fashion businesses. The interpretation of cultural contexts sheds light on the unique challenges of the Indian market, particularly the requirements of traditional manufacturing processes. This research suggests the practical guidance of applying 3D CAD tools for small Indian companies.

Humanising The Assembly Line: A Systematic Review On The Impact Of Industry 5.0 On Manufacturing

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The concept of Industry 4.0 is characterized by the dynamic and rapid digitization of the manufacturing sector. Digital manufacturing technologies have been introduced and developed to establish fully automated factories that function efficiently and independently within value chains while being completely free of human intervention.

However, the reality of technology adoption, as proposed in theory, lies far from the expected outcome. The industry and the scientific research community have identified various prominent and inherent factors that contribute to this gap. These factors include job displacements, low acceptance and preparedness rates, and trust-privacy issues within the concerned workforce. This paper follows inquiries within assembly line manufacturing scenarios to explore the criticality of understanding the implications of human factors for improved technology adoption strategies. In light of these developments, the authors propose an overview of the domain to explore and identify potential areas of weakness in the Industry 4.0 concept, areas of humanization, and workforce sustainability in the Industry 5.0 concept.

A systematic literature review has been conducted in the Scopus database, considering publications up to August 2023. The retrieved s are analysed using Knowledge Graph generation to understand and illustrate relationships between existing literature. Text mining during full-text examination provides knowledge clusters, allowing interpretation of similar research entities within the domain.

The paper categorises information into four dimensions – types of digital manufacturing technologies under Industry 4.0-5.0 paradigms, human factor integration, technology adoption and performance measurement strategies. The authors present four emergent research directions specific to assembly line manufacturing: comparative analysis between Industry 4.0-5.0 revolutions, technology adoption drivers, technology implementation barriers and worker integration techniques for skill development.

Unleashing the Power of 3D CAD Software: A Sustainable Design Revolution for Emerging UK Designers and Small Brands

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With the growing need for green manufacturing, small fashion brands try to adopt sustainability value in their businesses. The scarcity of previous studies on applying 3D CAD in small designer brands is evident upon review of the literature on sustainability and innovation and small and medium-sized enterprises (SMEs). The study aims to explore the potential and impediments of 3D CAD software for small designers in the product development process. The study employed semi-structured interviews, recruiting eight participants comprising fashion designers and digital innovation experts. After data collection, the findings explore designers' experiences and opinions on the potential and barriers to 3D design innovation adoption. The result suggests vital benefits of 3D CAD, including increased flexibility and agility to tackle uncertain future variables. The findings also reveal the innovation adoption impediments of high cost and lack of skilled workers. The study recommends focusing on training programs and providing resources that could help to improve designers' skills. This solution ensures that more designers have the skills to effectively use 3D design innovations and imbue their process with sustainable value. The results also discovered that innovation theory for SMEs needs to be updated and further developed. The importance of education and democratisation enables small designers to effectively use 3D design innovation, leading to achieving sustainable value. Further research will enlighten the generalisation of this study's findings in both the methodological and scope of the investigation.

A Study on Socio-Economic Status of Varanasi Handloom Industry & Scope for Social Entrepreneurship

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One of the largest and oldest city in India, Varanasi is renowned across the world for its strong religious ties and status as a major hub for handcrafted textiles. Since the beginning of time, Banaras hand-woven fabrics have been renowned for their intricate patterns and lovely themes. Typically, silk brocades, sarees, jamadani sarees, and clothing materials are woven in Varanasi. The weavers are diversifying their product offerings in response to changing consumer preferences.

The weavers of Varanasi are called “Karigars” (Artists) and the workshop is Karkhana called out. “Bunker” is one who weave on an individual loom. There may be ten or fifteen weavers under the control of a karigari and a giri or griha (a Sanskrit word meaning master or head of a household) may be twenty or more Karigars work under him. “Kothdar” is a wholesaler or retailer of Griha, the leader of the organization has the most respect because he is the most an experienced person among them. In general, the Grihasts themselves are skilled weavers and designers (also called Nakshabandis). However, their job is to distribute yarn and other things raw materials for weavers, design control and finally their placement looms. They also supervise the marketing of the finished product.

Due to the industry’s extreme un-organization and complexity, it was difficult to measure the socioeconomic standing of the weaving community. The way that work is done in the handloom industry is also intricate.

The relevance of entrepreneurship in addressing global development concerns is rising. Since then, the Indian government has focused on addressing the development challenges relating to the involvement, empowerment, education, and gender equity of Varanasi’s weavers. Micro, small, and medium-sized businesses (MSMEs) are making a substantial contribution for the growth in fashion industry which leads to the economic development of the country by creating jobs and income, reducing poverty, and bringing entrepreneurial diversity to economic activities. The handloom sector may provide a suitable and sustainable development in context to the contribution of rural micro-businesses to regional economic growth.

Crafting a Sustainable Future For Kavadi Craft Of Rajasthan Through Its Product Development

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In Rajasthan, in the western part of India, there is a folk tradition called Kavadi, which means painted wooden shrine. It is used by itinerant storytellers to tell stories and tell genealogies for their heredity patrons. Today, Kavadi is a languishing craft. Initially, the Kavadi art was only practiced on wood panels, and the artisans were supposed to tell stories by opening doors. However, the researcher noticed that the art was never practised on textiles. Also, the art was facing extinction, and only two families were still practising it. Therefore, this research was conducted to raise awareness about kavadi craft and product development. The researcher translated kavadi paintings from wood into textiles with the help of hand painting technique. There were 5 product categories namely Jewellery, Home Temple curtains, Lampshade, Toran and partition panels. For each product category, 10 designs were created. From these 10 designs, three best designs were chosen by 70 respondents using Google Forms. After analyzing the results, it was found that adapting Kavadi arts to textile using painting was suitable and easy for artisans. The designs prepared were well received and accepted by artisans and consumers. Social media platform was explored for promotion and sustainability of the craft. This platform would help the artisans to get acknowledged and livelihood through this craft.

Botanical Contact Printing Using The Leaves Of *Psidium Guajava* (Guava)

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Botanical Contact Printing or eco-printing is a more practical way of natural colouring than immersion dyeing. It employs a method called low liquid ratio in which the actual dyestuff is distributed on the coloured objects. Botanical contact printing or eco printing involves using natural materials such as plants, leaves, flowers, and bark to create patterns on textiles through direct contact. The technique relies on the natural pigments present in these materials to transfer onto the fabric during the process. Unlike traditional textile printing methods that use synthetic dyes containing harmful chemicals and require excessive water consumption, botanical contact printing offers a more environmentally friendly alternative.

In today's society, there is an increasing need for sustainable practices in various industries, including textiles. Sustainable textile processes aim to minimise the environmental impact of textile production while maintaining quality and creativity. One such process that aligns with sustainability goals is botanical contact printing, also known as eco printing. This paper will explore the concept of botanical contact printing as a sustainable textile process, highlighting its definition, raw materials used, preparation techniques, printing methods, sustainability benefits, challenges and limitations, as well as applications and examples. This experimental project aimed to make a botanical print of guava leaves on cellulosic fibres like organic cotton and cupro fabric while standardising the production process and evaluating the prints' colour fastness. Parts of the guava plant, including the leaf and the fruit have various beneficial applications. In this study, the tannin rich guava leaves are used as the primary source of eco printing dyestuff. Following AATCC standards, developed prints were tested for colour fastness to washing, perspiration and sunlight exposure. The results will be tabulated and analysed for further conclusive discussion.

‘Like Fine Vine’ - Extracting Sustainable Fibers From Grapevine Shoot Waste.

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As industries transition towards a sustainable bio-based economy, researchers are exploring new, unconventional sources of fiber for reducing the burden on land and resources devoted to a few known natural sources of textile materials. *Vitis vinifera* (grape), one of the world's largest crops, and wine have been part of the human diet since antiquity. Global grape production is estimated to be over 73 million metric tonnes. However, vine shoots post-pruning (selective cutting-off of shoots), which are abundant agricultural residue, have little economic value as they are mainly used as fuel or fertiliser. Most research on waste vine shoots has been focused on paper pulp and ethanol production. This paper presents research on the physico-morphology of novel fibers extracted from pruned grapevine shoots without using any heat or chemicals, thereby minimising the carbon footprint.

Fiber extraction was done using water retting, subjecting grapevine shoots to biological maceration in water at room temperature, omitting the use of heat and chemicals. Morphology was studied using Scanning Electron Microscopy (SEM), comparing different extraction stages. Physical properties like length, fineness, tenacity, and breaking elongation were also examined.

The physical characteristics of fibers extracted from grapevine prunings were compared with better-known lignocellulosic fibers like jute, flax, hemp, ramie, sisal, etc., and it was found that resultant fibers fared better than the listed fibers in terms of tenacity and elongation, yet managed to have moderate fineness, comparable to that of hemp, ramie, and Pineapple leaf fiber (PALF). The superior mechanical properties of extracted fibers make them suitable for integration into various textile and composite materials. Researchers and industries can leverage these fibers in combination with others to create innovative yarns and composites with enhanced performance characteristics. Additionally, the valorization of grapevine waste as marketable goods would further cut the greenhouse gas emissions brought on by its decomposition.

Influence Of Design Knowledge On Aesthetic Preference: A Study On The Difference And Similarities Between Designers And Non-Designers In Perceiving A Designed Space

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Aesthetics can be explained as a set of principles concerned with the nature and appreciation of beauty. The term aesthetics evolved from the word 'esthetics' which was more confined into the world of art and artistic expressions. In today's world the term aesthetics plays a major role in almost everything. Aesthetic sense or aesthetic preference is one of the most intangible and qualitative aspects with an indefinite number of factors affecting this preference from person to person. The major effect of aesthetics or aesthetic quality is highly evident in the architectural world. The purpose of this study is to find the parameters which molds the aesthetic preference of an individual in the architectural world and the influence of the person's knowledge or profession in design on their preference, And also comparing this preference with the preference the same user groups displays in artworks like paintings and sculptures keeping the parameters same. The qualitative data collected from the people are graphically plotted and analyzed using two methods: Paired comparison and affect grid. The common assumptions like designers and architects having a preference towards minimal orthogonal designs, raw materiality, less ornamentation, Limited color palette etc, is being surveyed and cross checked parallel to understanding the dependency of aesthetic preference on the identified parameters. For the study the parameters chosen are the building's shape, size, texture, color, balance, unity, movement, emphasis, contrast, symmetry, proportion, space, alignment, pattern, decoration, culture and context. The findings lead to the conclusion that aesthetic preference can be altered based on all the selected parameters but by varying levels on varying user groups at varying context. This variation is carefully analyzed and studied to understand the variability of the aesthetic preference itself and the innumerable factors affecting it.

Digital Art and AI: Challenges and Opportunities

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AI has taken the artistic world by storm as it continues to influence it in several ways. Using Generative adversarial networks (GANs), image generators like DALL-E and Midjourney produce photorealistic art upon receiving prompts. This has stirred debates over the ethics of AI art and copyright issues. However, the concerns are not new. The inventions of the printing press, camera, and digital editing tools were perceived as serious threats. Instead, these events proved fruitful to art. This study focuses on the central question of how artists can adjust to the new realities of AI art by capturing the opportunities (preservation, accessibility, speed) brought about by digital art tools. This study employs content analysis of some of the contemporary debates investigating the issue of digital art. It will also come up with an in-depth understanding of the strategies that could be taken to mitigate the harms of AI on art. The study will contribute to the understanding of the role of AI in art and the possible adjustments that need to be carried out by the artistic fraternity.

Marketing And Consumer Study For Sustainability

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The market size for sustainability & green market was valued at \$10.32 billion in 2020 and is projected to achieve \$74.64 billion by 2030, growing at a CAGR of 21.9% from 2021 to 2030. Segmentation of the global green technology & sustainability is done on the basis of technology, application & region. In recent years, broadcasting of natural disasters has made sustainability a driving force in consumer decision making. Consumers are still unaware of whether the material in a garment is recycled or virgin. Some brands & retailers acknowledge the presence of recycled material in their garments & others do not. There are certain stereotypes around green clothing which includes higher prices, limited number of choices, not fashionable enough. To actually make green products a successful one, there is a need to address the consumer's need & what compromises they are prepared to promote sustainability. The key players in the sustainable market format include CropX Inc., Oracle Corporation, Tech Mahindra Limited, General Electric, IBM Corporation etc.

Sustainable Education Practices

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Energy transition is key to achieving a sustainable future. However, in this transition, an often neglected pillar is raising awareness and educating individuals on the benefits, complexities, and urgency of renewable energy supply and energy efficiency. Sustainable educational practices have gained increasing attention in recent years as the world grapples with pressing environmental, social, and economic challenges. The nature of sustainability, and the prospect of unsustainability, require a fundamental change of epistemology, and therefore of education. Changes are necessary in curricula, pedagogy, policy and institutional structures. Stephen Sterling has argued elsewhere for 'the necessary transformation of higher education towards the integrative and more whole state implied by a systemic view of sustainability in education and society'. Sustainability in education encompasses various dimensions, including environmental, social, and economic considerations. It revolves around the concept of equipping learners with the knowledge, skills, and values necessary to navigate an increasingly complex and interconnected global landscape. Through the integration of sustainable practices, educational institutions can inspire students to become conscientious stewards of the planet while fostering their personal growth and critical thinking abilities. Key components of sustainable educational practices include environmental education, experiential learning, resource efficiency, and a commitment to inclusive and diverse learning environments. Moreover, it promotes a holistic understanding of global issues, encourages community engagement, and emphasizes the importance of innovation and interdisciplinary approaches. By embracing sustainable educational practices, institutions can prepare students to become active and engaged global citizens who appreciate the interdependence of ecological, social, and economic systems. Ultimately, these practices hold the promise of not only shaping a brighter, more sustainable future but also nurturing generations of responsible individuals capable of addressing the challenges that lie ahead.

Antimicrobial Finishing for Textiles Using Natural Compounds

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The development of chemical entities having anti-microbial capabilities as well as dyeing properties is highly desirable to prevent any bacterial contact with the skin. Usually, drug loading on the textile material can be achieved by incorporating drug during the preparation of the textile material or after its formation by incubation. Although finishing of fabrics with anti-microbial dyes is an adaptable technique of protection from various diseases, the major challenge of identifying the anti-microbial dyes needs rigorous studies so that a nice combination of the dyeing and anti-microbial features of the compound are met. Many scientific and technological solutions are known for producing textile products with antimicrobial properties wherein the biocides are applied on the fibre during the process of dyeing, finishing, or final rinsing of the fibre. Nature of the fabric, environmental conditions under which the material will be used and the types of the target microorganisms are some of the bottlenecks for choosing appropriate biocides. Moreover, the increasing resistance of microorganisms to many chemical compounds, increased incidence of allergies and the toxic effect of biocides on the environment supplement the dose of difficulties in making an easy practice of antimicrobial fibres. Irrespective of the use of Neem, Aloe vera, Eukalyptus and capsaicin as the source of biocide dyes, there is a dire need to search for more such compounds that can serve as better substitutes for synthetic compounds. Taking into consideration the medicinal properties and the presence of coloring compounds, *Dacryodes* sp is explored for procuring new antimicrobial dyes. Various components of *Dacryodes* and other selected species like brown and green coffee were extracted, purified and characterized. Since the physico-chemical features of the natural products depend upon the extraction procedures, care was taken in adopting mild extraction protocols. All these fractions were subjected to anti-microbial screening and studies on their dyeing properties.

An Accessible Instore Shopping Experience for Wheelchair Users

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This research study delves into the pressing issue of enhancing accessibility in the realm of retail, with a specific focus on the challenges confronted by wheelchair users in Bhopal. These challenges encompass insufficient accessibility infrastructure, cramped store spaces, and a lack of awareness among both store personnel and shoppers. These issues underscore the immediate need for heightened retail accessibility and awareness to ensure a truly inclusive shopping experience.

To address this critical issue, our team conducted an extensive study aimed at enhancing the shopping environment for wheelchair users. We employed a multifaceted approach, encompassing surveys, interviews, on-site observations, and architectural assessments, to investigate the obstacles faced by wheelchair users while navigating retail spaces, especially within fashion stores. Our findings highlighted several key areas requiring improvement, including physical obstacles, crowded aisles, and a shortage of accessible facilities.

As a result, we formulated a set of practical recommendations aligned with universal guidelines to establish an accessible space and a more inclusive shopping experience at Shoppers Stop. Implementing these guidelines played a pivotal role in transforming Shoppers Stop into an accessible shopping environment. Notably, adopting these recommendations not only enhances the shopping experience for wheelchair users but also advances the comprehensive goal of promoting inclusivity within the retail sector.

In conclusion, this study underscores the importance of reimagining retail spaces to meet the unique needs of wheelchair users. The insights derived from our research provide valuable direction to retailers aiming to create a more inclusive shopping environment for wheelchair users to positively influence their shopping behaviour and facilitate a smoother, more inclusive shopping journey. It is important to note that while these initial findings were specific to Shoppers Stop, they hold the potential for broader applicability, dependent upon validation and further research to refine the accessible shopping experience for wheelchair users.

Multifaceted Components and Design Considerations of Next-Generation Smart Firefighting Footwear

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Firefighting is a high-risk profession that demands continuous innovation to enhance the safety and effectiveness of firefighters. One area of significant advancement is the development of smart firefighting footwear. These advanced boots incorporate a range of technologies and sensors, each serving a unique purpose to maximize firefighter safety and performance.

This research paper delves into the multifaceted components and intricate design considerations of smart firefighting footwear. It explores the integration of temperature sensors, heat-resistant materials, GPS and location tracking, biometric sensors, chemical hazard detection, inertial measurement units, augmented reality displays, communication systems, and more.

Additionally, this paper emphasizes the critical need for collaboration among various disciplines, including materials science, electronics, software development, and firefighting, to ensure that these boots not only meet the rigorous demands of the profession but also advance the overall safety and operational effectiveness of firefighters.

Through a comprehensive examination of these components and design considerations, this research aims to shed light on the future of firefighting footwear and its potential to revolutionize the field of firefighting. A comprehensive review of existing literature on firefighting footwear, smart technology integration, and safety standards was conducted to establish a solid foundation for the study. Collaboration was initiated with experts in materials science, electronics, software development, and firefighting to gather insights into the design and development of smart firefighting boots.

The analysis of each component revealed that the integration of multiple sensors and technologies into smart firefighting boots holds significant potential for improving firefighter safety and operational effectiveness.

Ensuring Quality and Sustainability in the Leather Industry

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The leather industry plays a pivotal role in India's economy, contributing significantly to exports and employment generation. However, the absence of a standardized quality assurance system has raised concerns about the authenticity, quality, and sustainability of Indian leather products in domestic and international markets.

This research paper delves into the pressing need for the introduction of a „Leather Mark“ certification system in India. It explores the current challenges faced by the Indian leather industry, emphasizes the importance of quality assurance and sustainability, and presents a comprehensive proposal for the establishment and implementation of the Leather Mark. The Leather Mark, akin to established global quality marks, seeks to instill trust among consumers and international stakeholders, while promoting ethical practices and environmental responsibility within the Indian leather sector.

The study employed a mixed-methods approach, collecting data through surveys, interviews, and literature reviews. It found that a Leather Mark certification system would instill consumer confidence, enhance international market access, promote sustainable practices, and ensure ethical standards. The proposed system comprises a dedicated authority, stringent quality and sustainability criteria, and consumer awareness campaigns.

In conclusion, the Leather Mark initiative is poised to elevate India's leather industry by addressing its challenges. By prioritizing quality, sustainability, and ethical practices, India can position itself as a responsible and quality-driven global leather market player. This research underscores the urgency of implementing the Leather Mark to safeguard the industry's future and foster international trust and sustainability in Indian leather products.

Potential Upcycling of Flex Banners in Kolkata: A Sustainable Management Approach

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Kolkata, India's cultural capital, holds an extravagant Durga Puja celebration each year. In addition, UNESCO designated the festival as a part of the Intangible Cultural Heritage of Humanity in 2021. The popularity of this festival is seen on every single face of the state and attracts a lot of tourism from other parts of India to witness this performance of excellence, curated with enthusiasm and dedication with devotion.

To impress and grab attention of the visitors, thousands of flex banners are used along the sides of the roadways during festival preparations and festivities to leave a lasting impression with golden memories. The three layer laminated flex banner, either, adds to the environmental burden because of its sophisticated design, which makes upcycling/ recycling challenging or expensive, ultimately leading to the choking of the drainage system. Limited amount of research has been done to offer a solution to this problem. Another usage of these flex banners has been observed around the streets of Kolkata as water protection products. Small tea centres have been observed to cover their tea stalls with old flex banners to protect themselves as well their customers from rain and let them enjoy tea or snacks.

Based on the initial observation and properties of vinyl compounds, this project has been undertaken to upcycle the used banners into a practical rain/ water protection products such as umbrella and raincoat.

Being an Eastern Coastal region, Kolkata faces 3-4 months of rainy season annually, this product will be serving as the solution for this necessity and also will help to reuse and upcycle the waste material as an utility product.

A mixed methods approach was adopted. The demand for these products was assessed through a questionnaire which was administered to 150 design college students. Based on the analysis, the finished product is still being developed. Undoubtedly, this novel strategy will have a lasting impact on society in the future.

Organic & Natural Dyes

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Fabrics said to be environment friendly and sustainable fabrics as do not carry much carbon foot print unlike the mill made fabrics which requires power. But colouring/dyeing of yarn/fabric causes pollution the environment. Which is required to be tackled. Dyeing with natural dyes is an alternate to chemical dyeing which causes pollution. Natural dye involves organic based. It adds value to the fabric due to its eco-friendly characteristics. In animal based natural dyeing. Dye is extracted from insects like cow urine/cow dung. The extracted dye is applied to the fibre by mordanting process for better fixation. we used different animal based natural dyes like , Cow urine & Cow dung and dyed fabrics attractively and converted into fashion garments. This value addition has been imparted to handloom fabrics with organic based natural dyes. In this research we used 100% cotton fabric. Cotton can be dyed easily by using natural dye. Natural dyes or ecofriendly dyes in which chemicals are not required during dyeing process. Since the use of synthetic dyes are more harmful than the natural dyes, synthetic dyes requires a huge amount of chemical during its application which releases effluents in our environment leading to impose us to a hazardous environmental therefore the natural dyes are widely accepted now- a- days. The advantages of natural dyes in comparison to synthetic dyes, lower price, ecofriendly colour and no hazardous chemical application and wider range of shades. The awareness of its usefulness and comfort be widely published in society for ecofriendly apparel use. Innovative methods for extraction of dyes: - Efficient extraction of dye from animal/animal residue is very important for standardization and optimization for the dyes extraction from animal/ animal residue. Using- Cow Urine, Cow Dung. We may have number of shades from animal/ animal residue.

Smart & Functional Textile Materials

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Versatile Vogue is the way towards adaptive clothing. We are focusing on materials-making apparel for disabled/handicapped persons. This paper analyzes a new innovation in the fashion & and textile domain. Fashion should feel good not only when you wear it, but also when you make it. In electronic textiles, the textiles that incorporate electronic components or technologies provide additional functions beyond traditional fabrics. Smart textiles which have a number of benefits like sensors, actuators, and electronic components respond or interact with the environment as we know the high level of technology used in sports/fitness & and customization like optical fiber etc & and beyond this.

As we know a coin has two sides including all positive implications. Somewhere textile waste is one of the major global issues. Disposing of E-textiles can be problematic as it may involve sending complex electronic components to landfills or incineration facilities. It also has environmental challenges like electronic waste, toxic materials challenges in recycling etc. Smart textiles having lot of applications & need a power source to operate electronic components..

This research focuses on the identification of important parameters & case studies. Some of the fashion designers like Nancy Tilbury, Sabin Seymour, and Leah Buechley etc. are the one who impact in the field of smart textiles.

The research follows a mixed method of quantitative & qualitative method approach. It allows the current analysis of both the approaches for creating new innovative ideas for creating in the field of smart textiles with zero waste.

Now day's bamboo fibers, banana fibers, jute are some of the textile materials that are widely used in apparel industry. So we can move towards such kinds of sustainable materials which can conduct electricity & not harm the environment too.

Bamboo is one of the substances that conduct electricity in some conditions. This was tested & recorded by Sir Thomas Edison himself. The carbonized bamboo could conduct electricity & the bamboo wire could last up to 1200 hours and as smart textiles may be in future we can use bamboo fibers.

A Review of Intelligent Fashion Technologies in 3D Scanning and Autonomous Landmark Recognition for Virtual Product Development

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The fashion industry has been substantially altered by the development of sophisticated technologies like 3D scanning and automatic landmark detection. These innovations hold immense potential, particularly for automating pattern design and enhancing fit in apparel. By precisely measuring and capturing body shapes, it revolutionizes fit evaluations and ensures that clothing is suited to each person's distinctive body type. Artificial intelligence (AI) algorithms can be used by the apparel sector to develop customized clothing patterns.

Both consumer and industrial environments could be completely transformed by these technologies. Increase production efficiency in mass apparel by automating fitting operations. By automating pattern production, 3D scanning and landmark identification enhance the fit of clothing. Adopting such procedures also presents a chance for eco-friendly product creation strategies tailored to the precise requirements of individual consumers. As a result, the fashion business grows to be more diverse, adaptable, and sensitive to different body types. Despite having so many benefits, virtual fit and autonomous pattern generation are still in their infancy, but there is no denying that these technologies have the potential to have a huge impact on the path of the industry.

This review paper aims to provide a thorough, systematic examination of areas such as 3D scanning, automatic landmark detection, automatic pattern development, virtual product development, virtual fit, the ethical and privacy concerns associated with, and other related topics.

A Study on Eco-Printing: A Means of Sustainable Textile Design

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Sustainable clothing is anticipated to account for 6.1% of the global apparel market in 2026, up from 3.9% in 2021. The niche clothing market holds tremendous potential for growth with trends like increasing use of organic clothing, handloom, handcrafted clothing etc in the product lines. As consumers are becoming eco-conscious, brands are exploring different techniques to bring more sustainable fashion choices. In the present scenario, eco-printing holds immense potential due to its eco-friendly, skin-friendly nature and endless possibilities for different design explorations. Recently various brands have successfully experimented with eco-printed techniques and many other brands are trying to excel in this novel technique to come up with exclusive collections.

In this review process of eco-printing, fabrics used, suitable flowers, and plants used, have been demonstrated. Various eco-printing techniques like mordant techniques, iron blanket resist print techniques, mirage techniques etc have been discussed. As per the study, many fashion brands are exploring the potential of eco-printing to achieve interesting effects like Prathaa Weaving Traditions, Jasmine Bains, LeafAge, Kankatala Lesya, Gonature origins, Hastantr, Heenaagrims, Heenaagrims, Rajmahal etc. Different fabrics used by the brands are cotton, mulberry silk, cotton, cotton-silk, linen, organza, satin silk etc. Different products are being developed like suit set, lehenga, skirt set, sarong, saree, sling purse, handbag, cushion cover, dupatta, and fabric, kameez, scarf, kaftan, dress, shirt, co-ord sets etc.

Moreover, a comparative analysis of different brands' approach to eco-printing in terms of product details, materials, design aesthetics, techniques followed have been elucidated. There can be seen all over patterns, random flora arrangement, overlapping designs, intermixing of flora patterns etc, often highlighting their eco prints with small embroidered motifs.

In conclusion, ecoprinting can be recommended for infant clothing, sleep wear, bed linen etc. This study could serve a guideline for textile brands and independent textile artists to introduce novel product lines based sustainable printing process.

Organic And Natural Dyes

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Dyes derived from natural materials such as plant leaves, roots, bark, insect secretions, and minerals were the only dyes available to mankind for the colouring of textiles. Natural dyes are dyes or colorants derived from plants, invertebrates, or minerals. The majority of natural dyes are vegetable dyes from plant sources—roots, berries, bark, leaves, and wood—and other biological sources such as fungi. Natural dyes are biodegradable, non-toxic and non-allergenic, making them generally better for the environment and for use around humans, as they don't have any carcinogenic components which are found in many synthetic dyes. The advantages of using natural colorants are manifold as they are eco-friendly, safe for body contact, unsophisticated and harmonized with nature, obtained from renewable sources, and also their preparation not required added chemical reactions. Natural colorants come from plants or animals, used in industries that are producing different products of human use. These dyes are collected from nature and no need to apply manufacturing process to prepare them. These dyes are easily decomposed in nature after using and they do not pollute the environment while destroying them after end use. Clothing dyed with natural dyes provide excellent feel of nature that cannot be obtained after using synthetic dyes. Due to their excellent nontoxic and non-allergenic characteristics, people of all ages can use the clothing dyed with natural dyes. They have wonderful capabilities to protect humane from ultra-violet radiation and extreme sun burning. Shades created by natural dyes are soothing to humane eye, comfortable and soft feel. They produce exceptional colour ideas and these shades are normally harmonious. It has been a matter of discussion that synthetic dyes give a superior glow and a range of colours natural dyes give only limited or dull colours shades. Natural dyes are components those provide the feel of superior sensual experience.

Crafting Brand and Weaving Sustainability in Textile Market For Patan Patola

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Patan Patola is an Indian handloom craft with an unwavering artistry that thrives in the state Gujarat in the local village of Patan. It's made with mathematical precision and a pain-staking process to achieve the bright everlasting colours. Each "warp and weft is separately and thoughtfully dyed" to then be woven together to reveal a beautiful pattern and motifs.

This paper delves into the intricacies of the craft to understand the underlying reasons of why patan patola costs so much and how it is better than the other fabrics and many more such intriguing questions. The famous craft is said to be "made with low overhead costs and less complicated equipment with no use of electricity in the production equipment could be the best green technology."

This paper uses the methodology of interviewing and observing to achieve the primary data whereas the method of analysing the already existing published research papers and newspapers for achieving the secondary data.

The paper focuses on emphasising, elaborating and discussing the richness of this indigenous weaving method. The declining demand rate and evaporating culture of this geo-tagged craft is an alarming call for the industry to understand where they are going wrong in educating their customers about the importance of sustainable and timeless fashion.

On-field visits will also be made by us to the house of Patola to understand the problem right from its roots. The thought of this craft being "no longer producer-driven, but now buyer-driven." is certainly thought-provoking.

In conclusion, the paper aims to explore the possibility of Patan Patola being a brand as one of the solutions on how the textile industry can preserve and communicate about this incredible craft to its worthy customers. We believe that patan patola might be costly but it's worth every single penny spent on it.

Identification of Marketing Challenges and Opportunities of Sikki Craft of Madhubani

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This study aims to find the current challenges and opportunities available in the market for the artisans of Bihar, practicing Sikki. Sikki is a handmade craft practiced in the region of Bihar, particularly the Raiyam East. The materials used in this craft include Sikki, Khar, and Munj grass, commonly found in the marshy areas of Raiyam East and Uttar Pradesh.

Raiyam East is a small town near Jhanjharpur, under the Darbhanga division of Madhubani District, Bihar. With a small population of around 15,000 and a total number of 3,000 families, the women of these families work at the Sikki Centre, a workplace to practice the craft.

The findings include the challenges and opportunities faced by the Artisans such as; inadequate financial support, lack of training, and advertising. However, opportunities like governmental and non-governmental support in the form of providing a platform and supporting schemes are identified.

Development of Optical Fibre Fabric for Garment Construction

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Fibre optics or optical fibres are long, thin strands of carefully drawn glass about the diameter of human hair. These strands are used to transmit light signals over long distances. At the transmitting source, the light signals are encoded with data and the same data then can be seen on the computer screens. So, the fibre transmits data by light to a receiving end, where the light signal is decoded as data. Therefore, fibre optics is actually a transmission medium – a pipe to carry signals over long distances at very high speeds. These fibre optics can be used in a variety of applications like computer networking, broadcasting, medical scanning, military equipment, etc. With further developments in optical fibres, the range of applications is increasing day by day. One of the newest applications of optical fibres is the development of optical fibre fabrics which is used to give fascinating colour effects to the fabrics. But the major problem in making an optical fibre fabric is the weave-ability of optical fibres. Being made from glass, the optical fibres are more fragile. They break easily when twisted or bent. Though technologies are available which use optical fibres in warp direction, but these methods increase the cost of the fabric. In order to make the fabric cheaper, in this present work, an attempt was made to develop a woven fabric using optical fibres in the weft direction. Cotton yarn was used in the warp direction. The fabric was prepared on a handloom with an open structure. Special precautions were taken to avoid any sort of damage to the optical fibres during weaving. From this fabric, a miniature-size garment was prepared, which when illuminated gave a pleasing colour effect on the fabric.

Disruption in Fashion -Sustainable Alternatives Post Covid

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In order to save the world from the ecological fallout, fashion education needs to be looked at deeply to involve concepts of sustainability. To make fashion sustainable the chain of educator -future designers -industry needs to work in tandem to make this world a safer place for future.

Future designers need to look at alternative methods and think of disruptive - out of box ideas which would make fashion creation and processing eco-friendly. Frugal innovation is also a way out towards sustainable product lifecycle. Industry and corporate houses need to upgrade the system in consultation with designers and technocrats. The aim of this research paper is to look into how the designers are able to influence the industry to convert to sustainable eco system of production. Also, insight would be sought to find out the technical problem faced by the industry in upgrading to eco-friendly system of manufacturing. Field interviews would be conducted with fashion educators, designers and corporates professional to look at the 360 degree of the making of sustainable fashion from conceptualisation to product development process and identify the solution at the various levels of the making of fashion. How the Fashion curriculum of Design institutes should be modified in view of the current situation faced by Industry and Designers. The kind of model to be opted by future Designers - to work as an independent designer or part of a collective or a larger company would help in sustainable design ideation, material sourcing and production in the Fashion Industry.

A Sustainable Education System Based on John Dewey's Works

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These days Students face various difficulties in regards to education like maintaining motivation for learning, connecting different subjects, relating theory to everyday experiences, etc. In the loop of the educative processes, students often fall out. In this paper, I present a model based on John Dewey's principle of experiential continuum and interaction to sustain the education loop. John Dewey has stated any given educative experience does not only bring the learning of facts and skills but also a 'collateral learning' of likes and dislikes of the educative process itself. Also, every experience like habit forms a chain or stack promoting or regressing further educational experience. And all this while the environment also plays its own role because as per John Dewey's principle of 'interaction' all given experiences happen as a mix of inside and outside conditions giving rise to a 'situation'. Therefore it becomes important to choose the right educative experience and form the right loop. Now this requires a well-thought-out ideology on education that aligns with the practical need of teaching and can help select the right experience for quality 'interaction' of inner and outer conditions giving rise to the right experiential 'continuum'.

Method: To form the educative process sustaining model Conceptual research methodology has been used. Available data and theories on education were looked upon and analyzed.

Result: After the study, a model focusing on John Dewey's experiential continuum and interaction was formed to sustain the educative process loop.

Conclusion: Enough attention to individual needs, and focus on learned-centered ideology can generate intrinsic motivation and sustain educative processes.

Upcycling Sarees to Design Streetwear

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In a world increasingly focused on sustainability and cultural appreciation, the fusion of traditional and contemporary fashion has taken center stage. This paper introduces a unique and innovative streetwear collection that reimagines the timeless elegance of traditional sarees into modern and eco-conscious streetwear garments. The collection, titled „Sari Street: Bridging Tradition and Urban Chic,“ is an exploration of the rich heritage of sarees and their transformation into street-ready attire. This project embraces the principles of upcycling and sustainability by repurposing discarded or vintage sarees.

The target group for the designed streetwear is Gen Z who want to wear saree but in their individual styles. The initial survey about the use of traditional sarees in contemporary scenarios revealed that the respondents consider the sari as Indian ethnic wear suitable for occasions like weddings, festivities, or some formal events. However, they expressed the need to repurpose sari in everyday wear or casual wear. As per the brand research, very few brands are using sari to create new garments. Hence this project „Sari Street“ envisions a fusion of cultures and styles, where the graceful drapes of the saree are reinterpreted into comfortable and fashionable streetwear pieces that cater to diverse tastes and preferences.

The design process was followed from taking an inspiration board to designing a mood board to illustrating the collection with all the details. Using techniques of pattern-making and draping, garments were constructed by adding various fasteners and closures. The costing of developed products was also done. The acceptance level of the developed streetwear collection was assessed among respondents and it was found that they highly accepted and expressed their excitement to use the products. This collection aims to pay homage to the craftsmanship and artistry of traditional sarees, while also addressing the evolving fashion sensibilities of today's youth. The collection is a visual and tactile feast that celebrates the beauty of tradition while embracing the energy of the contemporary urban environment.

Significance Of Traditional Costume,Clothing, And Its Motif In The Rabha Society

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Clothes are our second skin. We wear them from the time we are born until we die. Clothes play a very important part in our lives and our existence. It gives us our identity and adds to our personality. Traditional clothing and design hold significant importance in all the various cultures around the world. They are not just garments to wear; they carry history, identity, cultural heritage, and artistic expression. Traditional clothing represents a cultural identity and heritage that distinguishes one community or group from another. It helps them connect to their roots, ancestors, and shared history.

There is not much literature found about traditional clothing, its design, motifs, its meaning, and its significance in society. This paper aims to study the Rabha tribe, a prominent tribe from Northeast India, Assam, in the socio-cultural construct we live in, visual characteristics like color, motif, and design of traditional clothing plays a very important role. This paper aims to study Rabha's traditional clothing, its design, and its significance in Rabha society.

For the study, primary and secondary research methods were used. For secondary research, research papers and books on the Rabha tribe are refereed. For primary research field trips were made to places like Goalpara where the Rabha population inhabitant. Eminent personalities like nation awardee Weaver, Rabha museum curator, etc. were interviewed. Different museums, and libraries. Conventions, exhibitions, etc. were also attended to collect relevant data.

Traditional designs often carry symbolic meanings that convey important messages within cultures. Colors, patterns, and motifs can represent elements like status, marital status, social roles, spiritual beliefs, good luck, protection, religious beliefs, and more. These symbols create a shared language among members of the Rabha community and are often passed down through generations. The importance of design, motifs and their significance are highlighted in this paper to preserve the material culture of the tribe.

Sustainable Waste Reduction Through Upcycling Of Denim Pants Into Fashionable Smart Clothing For Women

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Globalization has made it possible to produce clothing at increasingly lower prices. This has perpetuated “Fast Fashion”, which generates increased amounts of textile waste leading to potential environmental and occupational hazards. Sustainability seems the only solution as it also does not jeopardize the needs of the future generations, for the ease of the present. One way to make fashion sustainable is to recycle or upcycle textiles that are contrary to the “throw away” attitude encouraged by fast fashion. The process involves re-working old textiles and updating them to match the prevailing fashion/styles. In this way it increases the life of the cloth and reduces pressure on virgin resources like cotton, reduces the need for landfill space, results in less pollution and energy savings. This concept of cradle to cradle through upcycling makes sense with respect to denim’s future, which is one of the most widely used textiles in the world. Given that the size of the worldwide market for denim jeans is currently around USD 70.71 billion and is projected to grow at a CAGR of 6.2% by 2030, it is anticipated that waste produced by this industry would also increase. Upcycling, the process of converting waste materials into something of better worth and/or quality in their second life, is thus the best way to reduce this waste. Reconstructing from an old pair of denim-jeans gives the historic jeans a contemporary spin, resulting in a complete “metamorphosis” or transformation of the original garment while preserving the environment. Over 300 pcs of old used and discarded denim jeans were collected from local vendors and after washing and sorting, they were converted into innovative and interesting dress patterns ranging from A-line dresses, coats, pencil skirts, jumpsuits, dungaree and shorts, to jackets and coats. Textures were created through surface-brushing, wash-out effect, fraying edges and tickling the fabric. A survey of young college going girl students was conducted and statistically analyzed

using weighted scores to understand the acceptability of the newly rejuvenated garments. Most respondents found the newly designed and upcycled garments innovative and more attractive than the denim jeans in their original form. Fast fashion brands can further carry on such studies and target creative, ecologically conscientious, and fashion-forward consumers with an aim to rejuvenate their surplus stock and reduce post-consumer textile waste for a safer world.

Dyeing & Eco Printing with Guava Leaves (*Psidium guajava*) Using Natural Mordants (gallnut and alum)

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Utilizing environmentally friendly natural resources is crucial in response to the growing need to protect the environment. On the basis of sustainability, green chemistry, and ecological approaches, there is currently a great deal of interest in revitalizing dyeing with natural dyes. It is essential to emphasize one of the less well-known practical advantages of natural dyes, which is printing, in order to increase the visual appeal of these colours and widen their use through a variety of applications. Contact printing, also known as botanical printing, direct, or eco printing, involves the direct transfer of colours from plant materials onto the substrate like fabric, paper, or leather without going through an extraction procedure. In eco printing, each print is unique and distinctive. Therefore, the goal of this study was to ascertain whether it was possible to create durable textile patterns using guava leaves that were readily available locally, as well as to assess the print quality in terms of the surface colour strength and fastness characteristics of the printed fabric. Alum and gallnut, two natural mordants used in leaf printing, generated patterns with distinct borders on cotton. The cotton fabric printed with *Psidium guajava* leaves showed high dry rubbing fastness. The slow wash fastness was corrected by steaming. Additionally, *Psidium guajava* leaf's comparative abilities for both dyeing and printing have been investigated, and its chemical makeup has been determined.

Threads of Sustainability: Jhabua Tribe's Wisdom

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The Jhabua tribe, an indigenous community, confronts stereotypes and marginalization within urban settings, leading to misconceptions and a gap between urban populations and indigenous communities. This research paper employs a mixed-methods approach to explore the potential benefits of embracing the Jhabua tribe's culture, including their unique fashion traditions, in urban contexts. By examining the intersection of fashion, sustainability, and cultural understanding, the study seeks to propose methods for fostering diversity, inclusion, and appreciation among urban citizens.

Through a comprehensive literature review on indigenous cultures, sustainable development, and fashion, this research establishes the foundation for investigating the role of fashion in promoting cultural exchange and sustainability. Additionally, semi-structured interviews were conducted with Jhabua tribe members who are practitioners of traditional fashion techniques and urban residents who have adopted these practices into their wardrobes. These interviews offer insights into the practical aspects and motivations behind the integration of tribal fashion in urban settings.

The findings reveal that integrating the Jhabua tribe's fashion wisdom can contribute to sustainable and equitable communities through the adoption of eco-conscious practices, utilization of traditional textiles, and a strengthened connection to nature. Moreover, the study highlights the importance of supporting indigenous-led fashion projects that facilitate cross-cultural dialogue and appreciation. By dispelling stereotypes and celebrating diversity through the incorporation of the Jhabua tribe's fashion elements, urban populations can cultivate respect for indigenous perspectives, resulting in a more inclusive and culturally enriched society.

Inclusive Fashion Design for Plus-Size Women

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The paper explores the transformative potential of inclusive fashion design and size for plus-size women, aiming to revolutionize an industry that has overlooked their needs and preferences for a long time. With a focus on promoting body positivity, diversity, and accessibility, it aims to provide a glimpse into the comprehensive approach outlined within. It is pertinent to acknowledge the existing disparities in the fashion industry, where the availability of well-designed and fashionable clothing for plus-size women remains limited. The study delves into the core principles of inclusive fashion design, emphasizing the importance of collaboration with plus-size individuals throughout the design process.

Key aspects of the inclusive fashion design framework include shifting from traditional sizing practices to a more human-centered approach that prioritizes comfort, fabric, fit and style along with the exploration of motifs, prints, and design placements within the silhouette. Moreover, the need for the adoption of inclusive design principles and standardized sizing across brands for plus-size women has been highlighted. The process began with a survey of the plus-size women group to take into account a more detailed, systematic approach to viewing and understanding the problems faced by them. Through involving them in the co-creation of clothing, invaluable insights gained were incorporated into unique preferences and requirements. The dress is designed based on the average age group of the women participating in the survey and thus recommended for women between the ages of 18 and 40 for best results. The study also stresses the importance of featuring plus-size models and influencers in marketing campaigns and fashion shows.

In conclusion, it provides a comprehensive approach to inclusive fashion design for plus-size women, seeking to empower them with stylish, comfortable, and well-fitting clothing options. By embracing diversity and showcasing real women with different body types will prove a step in the direction of challenging stereotypes and creating a more inclusive image of beauty.

Rejuvenating the Folk Craft of Indian Floor Paintings On Textiles Through Digital Technology

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India, a vibrant land of unity in diversity, has a rich cultural heritage with harmonious coexistence of varied ethnicities and traditions. Among the different folk arts and crafts practiced in different states of India, floor decoration is a unique and splendid custom. Due to urbanization and time constraints brought on by changing lifestyles, this traditional craft of floor painting is losing its significance. The scanty documentation of floor paintings is one of the factors that might eventually cause their obsolescence in future. Therefore, it is essential to conserve the craftsmanship passed down from the past, while also creating a network to persuade local people about the need to preserve their art and craft. Textile is a tangible entity that has historically served as a way to express cultural diversity connected to ancient civilizations all over the world. Hence, it has been explored as a medium for preservation of past in tangible form for future generations. This is an attempt to adapt Indian floor painting designs for their application on textile base i.e. stoles through diverse techniques of value addition and surface enrichment. Ten floor paintings namely Mandana, Alpona, Rangoli, Kollam, Onapukallam, Gond Painting, Chittara, Aipan, Muggulu and Chita were studied. Fifty motifs of each floor painting were collected and ten designs of each floor painting were developed through different combinations of 5 selected motifs from each floor painting using digital technology. This may provide designers with new opportunities to meet consumers' evolving needs, particularly for textile products with traditional and religious motifs. It might assist trainers from different states in creating capacity-building programmes for social welfare activities. It may also be used to promote the cultural legacy of various states beyond their borders.

Design and Development of Multifunctional Techwear Clothing

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Techwear, an exciting clothing category seamlessly merging functionality, adaptability, and fashion, has gained prominence. It addresses modern consumers' demands for durability, weather resistance, gadget integration, and urban utility through inventive textiles and design. This paper presents the development of techwear clothing, specifically tailored for urban explorers, travelers, and active individuals seeking versatile and practical attire for diverse environments. Survey findings underscore the demand for multi-functional garments capable of performing in varied weather conditions.

The designed product offers an array of advantages, including weather-resistant and insulation features to accommodate dynamic wearer needs. It incorporates hydrophobic, breathable, and wind-resistant properties, facilitating a seamless transition from everyday wear to adventurous scenarios. Employing materials like Primaloft for warmth, Gore-Tex for dryness, and Net fabric for breathability, Valecient Tek introduces an ideal shell layer for daily use.

The incorporation of this techwear product holds the potential to expand customer reach, granting a competitive edge and bolstering market presence in the casual sportswear segment. Its innovative design and multifaceted functionality align with the evolving preferences of today's consumers, promising to redefine urban exploration and active lifestyles.

Including this product in the product range of any brand could help in expanding the customer base and providing a competitive edge and market presence over other brands in the casual sportswear category.

Smart and Functional Textile Materials: Transforming Industries and Lives

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Over the last few years, the fabric industry has gone through an amazing and interesting change, thanks to the coming into view of smart and functional fabric materials. These fabrics, once limited to simple purposes of covering and decorating the body, have changed and gotten better into emerging, multi-functional tools that improve comfort, safety, and performance across different domains. One of the most common in this world is moisture-wicking fabrics. Designed and made with fibers and finishes, these fabrics (in a way that produces a lot with very little waste) draw sweat away from the body, allowing fast. As a result, moisture-wicking fabrics have become a staple in sportswear, workout gear, and outdoor clothing, providing wearers with (unlike any other thing in the world comfort and dryness during physical activities Thermoregulating fabrics have also gained significant attention. These fabrics use phase-change materials or thermochromic technologies to change to fit the wearer's body temperature. They keep people warm in chilly conditions and cool in the heat, making them ideal for extreme weather clothing and bedding. Smart fabrics, featuring conductive materials and electronic parts/pieces, have made long steps in (able to reply or react/quick to respond) fashion that changes color or shape, these fabrics are (totally changing and improving) the way we interact with our clothing and the world around us. Germ-killing and antimicrobial fabrics are adding/giving to improved (keeping yourself/something clean), especially in healthcare and everyday wear. More than that, fabrics with shape memory properties, energy-gathering/collecting abilities, and self-cleaning surfaces are pushing the edges/borders of invention of new things, offering endless possibilities across businesses. In end/end result, smart and functional fabric materials are changing our lives by redefining the abilities of fabrics. From sports and fashion to healthcare and beyond, these fabrics are improving performance, comfort, and safety, and paving the way for a future where our clothing does more than simply cover our bodies--it actively improves our lives. As technology continues to advance, we can expect even more exciting developments in this energetic/changing field.

Bamboo and its Innovative Derivatives: A Sustainable Material Revolution

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Bamboo, often referred to as “green steel,” has shown characteristics that make it a favorable material for a variety of applications. Bamboo has been the predominant choice for a sustainable and environment-friendly material. It is easy to manipulate and provides versatile possibilities for product creation. Many societies have continued to use bamboo as a material over the years due to this nature and has gained more attention in recent years.

This research paper delves into the multifunctional aspects of bamboo as a material, including its various innovative derivatives. These derivatives are made by the fusion of fundamental materials with bamboo. The primary aim of this research is to comprehensively analyze bamboo and its innovative derivatives. It would further delve into the various applications of these materials and list out the manufacturing methods for the same. Additionally, the research paper explores the potential of producing bamboo-based materials and their integration with other materials, leading to innovation in construction, furniture, and other industries. This paper will help readers to further explore the essence of bamboo crafts fused with its derivatives to increase the demand. It investigates the feasibility of scaling up production while maintaining the eco-friendly attributes of bamboo.

Despite the immense potential of these bamboo-based materials, there exists a significant need for more awareness among consumers and manufacturers regarding their properties, applications, and possibilities. This research paper aims to provide an opportunity for craftsmen and artisans to implement these techniques in future products they create. Further it would also serve as a reference to people who opt for sustainable material choices. By addressing these challenges and promoting the unique advantages of bamboo-based materials, we can pave the way for a revolution in the material and design industry for a more sustainable and innovative future.

Uncovering Explanation of Natural Dyes

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Natural dyes are colourants derived from a variety of biological sources, including plants, insects, fungi and minerals. Vegetable dyes are the most commonly used natural dyes, originating from various components of plants, including roots, stems, barks, woods, leaves, seeds and flowers. Additionally, natural dyes can be derived from other biological sources, such as fungi, snail shells, insects etc. Natural dyes were widely used in the textile dyeing until 1856 when synthetic dyes were discovered and took over. Due to low cost of synthetic dyestuffs, natural dyes were almost forgotten in the early 20th century. Today, synthetic dyes are used at an excessive rate, with an estimated consumption of 7×10^7 tonnes per year. The production and use of these dyes release large amount of toxic waste and unfixed colours into the environment, causing serious health risks and upsetting the balance of nature. In light of the current circumstances, it is necessary to consider the economic status, sustainability and environmental awareness, prompting researchers to work on the utilization of natural colours for the textile. This would help to overcome the disadvantages of synthetic dyes. However, the natural dyes are limited in their colour yield and lack fastness properties, so mordants are required to increase the uptake of natural dyes in textile fibres. Natural dyes possess a wide range of benefits, including rich tones, health benefits, no disposal issues, no carcinogenic effects, biodegradability, easy application to matrix and minimal reaction conditions when extracted and applied. There are various companies that prompt production and market of natural dyes, the leading industries are Genie In My bottle, AMA Herbal, Natural Dye House, etc.

Integration of Smart Technology in the Newsroom: What Does the Future Hold?

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Internet of Things (IoT) and artificial intelligence (AI) are the emergent smart technologies that try to unburden newsroom workload and accelerate the automation of news media. In the present day, every Newsroom is updating their selves with smart technology. So, It is imperative to examine to what extent they are using and aware of and how affordable are these latest technologies to them, especially in regional newsrooms. This study is based on in-depth interviews of journalists working in Punjab media platforms. By studying the regional media, we will find the vacuum and know the regional scenario of newsrooms. It will explore the level of awareness of journalists about technological innovations and examine how affordable and accessible these technologies are to journalists. The study will shed light on the status and preparedness of regional media in adopting and coping with the smart technological interventions shaping journalistic practice.

Open Footwear Using Recycled Rubber and Down Cycled Tire Tube

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For past few years, there have been a common growing concern about environmental sustainability and the need to reduce waste and minimize the ecological footprint. Our footwear industry, has witnessed a shift towards eco-friendly practices, mainly focusing on recycling and repurposing of materials.

This presents an overview of development of sustainable footwear using recycled tire tube, used fabrics and recycled rubber, also highlighting the benefits and challenges faced across.

Development of open footwear from recycled rubber and tire tubes is a sustainable solution that addresses both environmental and economic concerns. Discarded tires, tubes and textile waste are one of the leading contributors to landfills. By repurposing these materials, we can reduce waste and mitigate the environmental impact of conventional shoe manufacturing.

Processes involved: a. material collection and sorting –collecting used tires tubes and discarded fabric

b. Material processing

c. Design and Manufacturing: Create innovative open footwear designs that incorporate the recycled materials while maintaining comfort, functionality and aesthetic appeal.

Using tire tube and used fabrics will reduce demand for virgin materials, conserves resources. Challenge will be material quality; consumer acceptance need to be addressed to ensure widespread adoption of such kind of materials. Repurposing waste materials and using them into high quality products, we can make a positive impact on the environment and on the other hand provide something new to the market.

A Review Of Wastewater Treatment And Reuse In Indian Textile Industries

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The global textile sector is expansive, producing intricate chemical compounds, including unused dyes, resulting in wastewater during various stages of textile production. Textile industry effluents undergo diverse treatments, such as coagulation, flocculation, ozonation, and biological processing, aimed at removing constituents like nitrogen, phosphorus, organics, and trace metals. This research conducts a comprehensive examination of textile wastewater treatment methodologies, evaluating their merits and drawbacks. The textile industry, a significant player in global commerce, generates substantial wastewater with complex chemical constituents, especially in India, contributing to economic growth. This study focuses on wastewater treatment strategies tailored to Indian textile industries, aiming to mitigate environmental impacts and promote sustainability. The research paper's goals include identifying new ways to reuse treated water, proposing advanced treatment technologies for textile processing units before wastewater discharge, and suggesting environmentally friendly chemicals and dyes. This qualitative study adopts a case study-based approach, utilizing secondary data from literature sources like journals, online articles, and newspapers, along with primary data collected through observations and personal interviews with executives from Aquarelle India. Aquarelle India, a LEED-certified export house based in Bengaluru, Bharat, is renowned for its sustainability practices, zero waste initiatives, and 100% recycling.

This research paper delves into the challenges faced by the textile industry in achieving zero waste and documents best practices for wastewater reuse adopted by industry leaders. These practices provide a strategic roadmap toward fostering an environmentally responsible and economically viable textile sector.

Problems and Prospects of the Needle Craft of Sandur Lambani

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Lambani embroidery is a unique type of needle craft practiced by women of the Lambani community. Lambanis were nomadic tribe who migrated from Afghanistan to India and have spread across many states like Karnataka, Andhra Pradesh, Rajasthan, Gujarat, etc.

The clothes of the Lambanis reflect their love for life and have evolved across centuries to suit local climatic and social conditions. With the younger generation adopting modern lifestyle and other job opportunities, Lambani artists grapple with economic instability due to declining demand for traditional clothing and accessories. This craft has also got intellectual property rights protection through Geographical Indication (GI). Despite such initiatives and its rich cultural heritage, Lambani art struggles to gain recognition beyond the community. Limited access to raw materials and poor marketing linkages curbs their ability to access broader markets. This case-based research aims to highlight the problems faced by the Lambani artisans and suggest measures to improve their market linkages, acceptability and livelihood. The study was conducted at Sandur Kushala Kala Kendra in Sandur cluster region of Bellary district of Karnataka. Primary data was collected through semi structured interviews of Lambani artisans still practicing the craft and the officials of the Sandur kushala Kala Kendra. The secondary data was collected through various articles published online, newspaper articles and government reports. Findings revealed that the next generation of the artisans are not interested in continuing the craft and want to pursue better career options. Collaborations with fashion designers were suggested to modernize Lambani art and broaden its appeal.

Increasing awareness of the craft's cultural significance and intricate techniques through educational programs, workshops, and exhibitions can boost appreciation and demand for the craft.

Rethinking sustainability of Traditional Crafts: Theory and Practice

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After having worked with various traditional crafts clusters, as a student to begin with, a project consultant and subject faculty further on and as a researcher now, I have observed that the popular narrative about craft practices that they are vulnerable to deterioration and possible obliteration in the present age is true. A tireless machinery of state administration and academicians has been working to alleviate the status of artisanal communities expending men, material and money to the cause (McGowan 2009, Venkatesan 2009, Greru 2018, Sandhu 2015). Yet, diagnostic reports on cluster activities by students of NIFT reveal that the challenges that used to be cited in the reports two decades ago, remains in more or less the same manner to this day. On an administrative level, Government literature maintains that traditional crafts are a sunset industry (Kapur and Mittar, 2014) and needs systemic support. Interactions with the artisan communities elicit responses of inadequacies and helplessness. The big question here is, ' why is it happening in spite of relentless efforts made to ensure that it doesn't? ' (Ratnam 2011, Ghouse 2012, Liebl and Roy 2004, Basole 2016).

It is found that the presupposition about traditional crafts industries is that it needs benevolent systemic intervention to sustain itself. But there is also a visible dichotomy in the popular approach of asking crafts to remain traditional through handcrafting and to achieve market relevance by adoption of contemporary design intervention at the same time (Bundgaard 1999, Mathur 2007, Menon 2011). There is a need for recourse in the theory and practice of crafts activities to produce results in favor.

This paper attempts to revisit the popular theory and mode of practice in craft revival activities. The basic design of study is exploratory. Ethnography of artisan's community and analysis of discourse generated by state administration, social elites, artisans and other critical secondary material relevant to the field of enquiry is done.

Revival of Textile Crafts for Sustainable Development

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Indian handloom and handicrafts are excellent contributors to the sustainable development due to their ability to engage community in profit making product manufacturing using natural materials. This paper explores a case study on NGO extensively involved in the revival and promotion of various Indian crafts.

Dastkar is working to help craftspeople, especially women, to use their own traditional craft skills as a means of employment and to generate income. Renowned crafts scholar and chairperson of Dastkar, Laila Tyabji has worked to promote fair trade practices and ensure that the artisans receive fair compensation for their work. She has also advocated for the use of ethical production methods, such as reducing waste and minimising the use of harmful chemicals.

Through her work with Dastkar, Tyabji has helped to revive and promote various embroidery techniques such as chikankari, zardozi, and kantha. Tyabji has also focused on promoting sustainable and eco-friendly practices in the textile industry. She has encouraged artisans to use natural dyes and organic materials in their work, which not only helps to reduce the environmental impact of the textile industry but also promotes the use of traditional techniques that have been passed down through generations.

Dastkar has organized over 700 craft bazaars across India, providing a platform for thousands of artisans to showcase their skills and sell their products directly to customers and also established 15 craft centers in rural areas across India, providing training and employment opportunities for over 20,000 artisans. Their efforts have not only helped to revive dying crafts but have also empowered local communities by providing them with economic opportunities and preserving their cultural identity.

The Indian craft sector is a potential goldmine, especially at a time when the world is becoming aware of the value of eco-friendly, low carbon footprint production of things made by hand from natural materials. Hence in this paper, an illustrative account of Dastkar's approach to designing products for different usages using traditional textile crafts resulting in sustainable development of various communities has been presented.

Sustainable Cultural Practices of Gaddi Community of Western Himalayas

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This paper comprehensively explores the sustainable cultural practices of the Gaddi community in the Western Himalayas. Leveraging a multifaceted research approach that encompasses academic investigations and qualitative methods like participatory observation and unstructured interviews, this study unveils the Gaddi community's exceptional capacity to adapt their time-honoured traditions in harmony with the delicate ecological equilibrium of the Western Himalayas.

The Gaddi community emerges as a testament to the intricate interplay between culture and nature, epitomised by their nomadic pastoral practices. Through generations, they have developed economic models for subsistence and prosperity in the demanding Himalayan landscapes. Central to their livelihoods is the expert rearing of sheep, a skill utilised for sustenance and wool production, meticulously spun into yarns, woven into pattu fabric, and transformed into zero-waste Gaddi coats.

Furthermore, this paper illuminates the Gaddi community's distinct social sustainability model, a narrative of transformation that transcends their diverse caste origins to foster harmonious coexistence. This social cohesion preserves both cultural identity and unity, crucial for sustainable living.

In essence, this study provides a comprehensive examination of the Gaddi community's holistic sustainability paradigm, embracing environmental, economic, and social dimensions synergistically ensuring their enduring presence in the Western Himalayas. Gaddi's remarkable ability to adapt traditions while safeguarding the environment and fostering community unity serves as a profound case study in sustainable living. It offers invaluable insights for broader discussions on cultural resilience and ecological harmony.

Key aspects of their traditional lifestyle, such as transhumance practices, resource management, diverse livestock rearing, a wool-based economy, minimal environmental impact, cultural reverence for nature, community-based decision-making, and adaptive strategies in the face of climate change, collectively underscore the Gaddi community's profound commitment to coexist with their environment, heralding them as exemplars of sustainable living.

Lucknow Chikan Craft- Fashion Trends, Forecasting for Environmental Sustainability: Naturalistic observations.

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During ancient times the local inhabitants & tribes from various culture and subcultures in Indian subcontinent region consumed less, followed “Slow Fashion” and procured locally made apparel products. They also produced apparel designs using locally available planet based raw materials and hand production methods.

Trends and fashion forecast tendencies are widely used by industry professionals these days to make consumer-fit-products to enhance the business profit. One such “Mega Trend” of the future decades is “Environmental Sustainability” which aims towards manufacturing of apparel products such that impact on earth environment remains minimal. This is significant because today’s biggest global problem is environmental pollution which is greatly due to “Fashion Consumer Goods” on the planet which generates major threat to the flora, fauna and civilizations.

A Comprehensive Research Method incorporating a Naturalistic Observation tool has been used during month of July 2023 to investigate Lucknow Chikan Craft from Uttar Pradesh, India; to figure out the present “environmental sustainability” scenario in the local industry involving varied stakeholders and Fashion Forecast sources. Traditional Chikan-kari is a hand embroidery technique involving several types of knots and stitches thru hand-needle by cotton or silk threads on light weight, sheer cotton and silk fabrics to create apparel and home furnishings. These apparel products are manufactured primarily in the Lucknow region and reaching out to consumers all across India and globe hence the environmental impact. Moreover, Lucknow Chikan Craft cluster is approximately thousand crore annual turnover industry with five thousand manufacturers; forty thousand artisan families which matters when it comes to environmental sustainability practices and impact.

When scrutinized on the basis of select “Eco and Chemical Test Parameters” It was observed that out of 22 step process involved in apparel manufacturing right from design to shipping ready to wear apparels; One important stage where some of Chikankari apparels could be “re-dyed” minimum two times and “re-used” again. One of the most delicate

fabrics joining hand- technique known as "Daraz" which could largely replace machine sewing is almost in the languishing stage which needs immediate revival. But four manufacturing steps were having considerable impact on environmental sustainability.

One may conclude that handicraft of Chikan from Lucknow is still considerably following fashion trend forecasting for environmental sustainability. Observer furnished few scientific and government compliance solutions to restore environmental sustainability at the culmination of the research.

Textile Industry: Sustainable Practices

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In contemporary times, the term “sustainable” has become increasingly ubiquitous across various sectors, ranging from domestic tasks to industrial settings. In 1987, the United Nations Brundtland Commission initially defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

The continued growth of industrialization has led to heightened concerns for environmental preservation and sustainability. The fashion industry, encompassing textiles, presents a significant threat to the environment, which raises the need for sustainable practices. This investigation explores the risks posed by these sectors, the underlying reasons for their impact, the environmental consequences, and the measures that can be taken to mitigate the detrimental effects.

It has been projected that by the year 2050, the fashion industry will account for a quarter of the world’s carbon budget. (Pandey, 2018) Globally, the textile industry generates 92 million tons of waste per year, with projections of 134 million tons by 2030. (Kerr and Landry 2017)

The textile industry consumes an immense amount of water, rendering it one of the most water-polluting sectors. It also produces a lot of waste, and hardly any percentage of it gets recycled; the leftovers end up in landfills, causing land pollution and eventually, air pollution when burned. (Karupuchamy, 2017) Industries are often criticized for their overdependence on limited resources, excessive use of chemicals during production, and exploitation of labour in certain areas. These practices have significant and far-reaching effects, such as deforestation, water pollution, and social injustice etc.

These practices encompass a wide range of initiatives, including the use of eco-friendly materials, reduced water and energy consumption, waste reduction, and the implementation of ethical labour standards. (Cheynekoh, 2020) Innovations such as recycled textiles, 3D printing, and circular fashion models are gaining momentum, reducing the industry’s carbon footprint.

This paper offers useful information and guidance for businesses, policymakers, and consumers regarding sustainable practices in the textile industry. It analyses the current state of these industries and presents

emerging trends, challenges, and opportunities to achieve a more sustainable and responsible future. The paper draws on current research, industry reports, and case studies to explore the various aspects of sustainability within these sectors.

Design and Development of Upcycled Denim Collection

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The fashion industry's rapid pace of production and consumption has led to an alarming rise in textile waste. To address this environmental concern and promote sustainable fashion practices, many brands are exploring the innovative concept of upcycling garments. Upcycling involves creatively reusing discarded clothing items to create new, unique pieces that offer both style and sustainability. As per research, many brands like Fanfare, Re/done are already doing denim into various new product categories like bags, hats, DIY products.

This paper offers a comprehensive overview of a denim upcycling project, which focuses on the creation of a unique and sustainable garment collection through the transformation of discarded denim clothing. Secondary research was done from various fashion magazines, social media, and exhibitions on different types of upcycling techniques and trends from WGSN. This project involves sourcing discarded clothing items from thrift stores and individuals, selecting suitable materials, and then applying various upcycling techniques such as patchwork, embroidery, and fabric painting to transform the pieces into a cohesive and stylish collection. The products developed were dress, jacket and handbag. The assessment of its acceptability showcased a higher sense of willingness to use upcycled products among consumers.

The primary goal of this project was to show the feasibility and benefits of upcycling garments as a sustainable fashion practice. Moreover, how upcycled clothing can reduce textile waste and minimize the carbon footprint related to fashion production.

Sustaining the Sustainable: Exploring Circularity in Indian Traditional Textile-IKAT of Telangana

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The concept of Circularity is a shifting paradigm, from the fast consumed world of linear model towards sustainable practices for the greater good. Circular Economy (CE) promoting economic growth helps in creating new business and job opportunities, saving materials cost, dampening price violating, improving security of supply while at the same time reducing environmental pressure and impact.

Handloom involves weaving the fabric using hand and a tool or a loom made of wood. Traditional Indian handlooms are made using processes that integrate specialized knowledge, localization, ethics and authenticity. Most of these handlooms are facing existence issues because of the growth of power looms. For sustainability, they have to migrate from linear model to circular model. This will not only promote economic growth by saving materials cost, dampening price violation etc., but will also reduce environmental pressure by incorporating repair, reuse, recycling and repurposing concepts. "Ikat" is one such famous handloom clusters from a small village of Bhoodan Pochampally in Telangana, India. They weave handlooms with a traditional design called "Ikat" that means "to bind". It is an ancient technique. Like other handloom, Ikat is facing threats and hence for survival it has to move towards circular economy.

In this study, an attempt is made to explore applicability of circular economy in value chain of Ikat Textiles cluster. Qualitative methodology is undertaken, where, informal interview with the stakeholders like Yarn & Die suppliers, Middle men, Weavers, Academicians and Designers are conducted for Life cycle analysis to understand the status squo of CE implementation in the process.

The results indicate that there are opportunities for implementing circular economy to act on challenges like raw material scarcity, outdated tools and equipment usage, middlemen involvement, poor marketing strategy, etc. that hinders sustainability. This research also suggests the potential areas where circular economy can be implemented along with the challenges faced towards implementation.

Exploring Leather Waste Recycling in the Production of Small Leather Goods

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The Leather & Related Products market for the year 2023 is estimated to reach US\$53.11 billion, with a projected compound annual growth rate (CAGR) of 4.91% from 2023 to 2028 and its growing year by year. The leather product industry indeed a great player and it has long faced environmental challenges due to its waste generation while making the products and the ecological footprint, The Indian leather exporters industry generates a significant amount of waste due to high demand, including leather scraps and trimmings. If we don't handle this waste properly, it causes pollution and disposal problems. Our research explores on design developments using the scraps and costing comparison. whether we can turn these leather scraps into top-notch, eco-friendly small leather items like wallets, birdhouses, desktop accessories, and more.

When leather products' life cycle ends, they are usually either burned or buried in landfills. Both of these methods nuisance to the environment. Our research explores various innovative techniques for recycling – upcycling and downcycling leather waste accumulated after the production of leather products. Additionally, we provide data-driven insights into the potential market for sustainable leather goods, highlighting the increasing consumer demand for eco-friendly products.

We offer a comprehensive overview of the current landscape of leather waste recycling in the production of small leather goods. We discuss the economic, environmental, and social implications of adopting recycling practices within the leather industry, emphasizing the potential reduction in waste disposal costs and the positive environmental impact of reducing new leather production.

In conclusion, this research paper highlights the importance of leather waste recycling as a sustainable and environmentally responsible practice. Our findings underscore the importance of embracing upcycling the waste scraps from left over of production of leather products to reduce waste, lower environmental footprints, reverse it and meet the evolving demands of conscious consumers.

To Study on Consumer Behavior Towards Traditional Indian Garments in Comparison to Western Garments

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This study explains the divergent customer attitudes and preferences regarding traditional Indian apparel and Western clothing in its conclusion. It offers insightful information that helps marketers, retailers, and legislators better comprehend the changing consumer landscape and effectively serve a variety of market segments. This study lays the groundwork for future research and helps to preserve the rich history of traditional Indian clothing while embracing the allure of Western design in a harmonious consumer market as India goes through socio-cultural transformations. The study takes a mixed-methods approach, integrating qualitative and quantitative data collection techniques. To begin, in-depth interviews and focus group discussions are held to investigate customers' fundamental motives, cultural influences, and emotional links to traditional Indian and Western garments. Second, a structured questionnaire is distributed to a diverse sample of consumers from both urban and rural locations, representing a wide range of age groups, genders, and socioeconomic backgrounds. The study finds that various factors, including cultural legacy, religious importance, and regional identity, impact consumers' choices for traditional Indian clothing. Traditional clothing inspires a sense of pride and nostalgia in consumers thanks to its distinctive designs, brilliant colors, and handcrafted details, strengthening their emotional bond with these outfits. Conversely, western clothing is regarded as more fashionable, trendy, and suitable for contemporary lifestyles, particularly by younger urban consumers who are inspired by international fashion trends. The study also emphasizes the influence of pricing, brand perception, and marketing methods on consumer behavior. While more reasonably priced Western brands are viewed as more approachable and fashionable, luxury labels that specialize in traditional Indian clothing are recognized as status symbols. This study explains the divergent customer attitudes and preferences regarding traditional Indian apparel and Western clothing in its conclusion. It offers insightful information that helps marketers, retailers, and legislators better comprehend the changing consumer landscape and effectively serve a variety of market segments. This study lays the groundwork for future research and helps to preserve the rich history of traditional Indian clothing while embracing the allure of Western design in a harmonious consumer market as India goes through socio-cultural transformations.

Value Addition of Banana Fibre: A Sustainable Design Approach from Farm to Fashion

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Sustainability has become a central focus in the textile industry due to concerns about environmental impact and social responsibility. This includes efforts to reduce water and energy usage, adopt sustainable fibres and ensure ethical labour practices. Banana fibres are a sustainable and eco-friendly alternative in the textile industry. Banana fibres are extracted from the pseudo stem of certain banana plants, especially the Abaca variety. To obtain banana fibres, the pseudo stems are harvested, and the outer layers are stripped away. The remaining fibres are then processed and spun into yarn. Banana fibres are strong, durable, and biodegradable. They are often used to create textiles, including clothing, bags, and home furnishings. The resulting fabric has a unique texture and appearance. These fibres are strong, flexible and have a wide range of applications. They can be used to make textiles, paper, ropes and even biodegradable packaging materials. Banana fibres can be blended with other fibres like cotton or silk to enhance their properties. The resulting blends offer a balance between strength and comfort. While banana fibres are generally sustainable, some challenges exist, such as the need for efficient extraction methods and the use of chemicals in some processing techniques. Using waste banana fibre our team have developed home furnishing mat in our weaving lab and also NIFT Patna has approached on sanitary napkins as startup. A Sustainable approach using the best from the waste to wealth using banana fibre to support the ruler people and the society. Efforts are ongoing to improve these aspects. Banana fibres offer an eco-friendly alternative to conventional textiles, and they promote the efficient use of agricultural resources in tropical regions. Benefits of using sustainable fibres reduced the environmental impact and gradually shows greater impact on the society.

Impact of Influencer Marketing on Consumer Buying Behavior with a Focus on Sustainable Product

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Social media, especially influencer marketing, has a notable impact on consumer buying behavior, particularly in the context of sustainable products. Social media platforms have become powerful tools for spreading information and raising awareness about environmental and social issues. Conviction, authenticity and tailored recommendations make influencers effective advocates for sustainable brands and can lead to increased consumer adoption of eco-friendly products. Nonetheless, it's essential for both influencers as well as brands to ensure that their sustainability claims are accurate and transparent to maintain consumer trust. Social media as a whole creates a lot of subliminal messages that have ramifications on the psyche of the consumers. Thus, brands that effectively leverage social media to communicate their sustainability efforts, engage with consumers authentically, and build a community around shared values are likely to see a positive impact on their sales and brand reputation.

Expanding expenditures and emphasis on sustainable marketing necessitate research to comprehend how to effectively influence sustainable attitudes and behavior, particularly in the under-researched realms of social media. Brands use social media to share information about their environmental and social impact, including their carbon footprint, waste reduction efforts, and social responsibility initiatives. Several Corporate Social Responsibility (CSR) activities have also been undertaken by the brands as part of their sustainable measures.

This study focuses on analyzing consumer behavior based on their engagement with social media and how influencers have a wide-reaching impact on consumer preferences especially in terms of sustainable products such as thrifted products, reusable accessories, and DIY apparel. The method used for this research is a survey of Indian consumers who have a presence on social media and observation of social media engagement. This study will give brands information about the impact that influencers create on the consumer and assist brands in building their marketing strategies for sustainable products.

Sustainable Practices in Textile and Apparel Industry

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The textile and Apparel sector is one of the major contributors to adverse effects on the environment. The global fashion business with value of 1.53 trillion USD is estimated to grow to 1.74 trillion USD in 2023. As destructive as it is lucrative, it is estimated that one-fifth of industrial water pollution is contributed by the textile industry globally and the apparel industry produces 92 million tons of textile waste every year. Textiles and Clothing contributes to 7% of the total amount of waste in global landfill. 87% of the materials and fibers used for making apparel end up in either incinerators or landfills. Only 20% of discarded textiles are collected and Only 1% of clothes recycled into new garments.

In order to reduce the impact of textile and apparel production process on the environment, we have to focus on the sustainable practices (Reduce, Reuse, Recycle, Repair and Refurbish) in entire supply chain of manufacturing. Firstly, we can focus on reducing the resources like Water and electricity right from fibre cultivation to garment production. A cubic meter of water consumed generates 10.6 Kg of carbon emissions. Processing sector utilises huge amount of water which can be minimised by opting for low liquor ration machines and by preferring dry dyeing techniques like CO₂ dyeing or air dye techniques which consumes 95% less water, and up to 86% less energy, contributing 84% less to global warming. Instead of using conventional energy, the industries can prefer renewable energy resources like solar power, wind and hydro power. The carbon footprint of renewable energy ranges between 11 to 740 grams of CO₂ equivalent per kWh of electricity produced. Secondly, the waste that generated in production processes can be recycled and re used rather than sending it for incineration or as landfill. Fabric waste in apparel manufacturing can be recycled into yarns and made into garments. Garment can be made from used PET bottles which is recycled into polyester staple fibres, spun into yarns and then made as fabrics. Effluent from dyeing & Finishing industry need to be recycled and the recovered water can be reused. We can also concentrate on preferring garments made out of sustainable fibres ie Natural fibres. Instead of using conventional Polyester & Nylon fibres, we can prefer sustainable polyester and Nylon which is produced from fossil free fuels. Trims and Accessories used in garment such as Tapes, Tags, Labels, Polybags and cartoon boxes can be made through recycling process. Finally, as a consumers, we have to buy less, conserve and reduce waste to preserve the globe.

Craft-Based Jewellery: A Case Study On Cane And Bamboo Jewellery Crafts Of Meghalaya

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Society has moved towards achieving products that are viable towards sustainability. Fashion and accessories are driven by ever changing trends and forecast that may post a challenge on sustainability. This paper studies how craft practices and natural resources are used to create jewellery that fit today's trends and gravitate towards maintaining an eco-friendly environment.

A case study on the Cane and Bamboo craft in the North-eastern Region of India, is presented in this paper that demonstrates the mutual value shared between crafts and society at large. From the case study it is observed that through the handicrafts, the artisans have tapped the local resources from waste Eri-silk fibres used for handlooms, bamboo strips and natural seeds in creative ways thereby creating an overall recycling and preservation of the materials. Over the years, the craft clusters have proven to be one of the of building blocks to creating an eco-friendly environment. Craft has not only provided employment and improve the livelihood of the artisans but has also preserve the local practices and traditions that has been passed on from one generation to the other.

Energy from Abundant Sustainable Natural Fibers

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In today's world, energy shortage is one of the biggest challenges faced by society. To overcome this problem without harming the environment, green technology plays a significant role. In recent worldwide research, natural fiber, which is one of the most earth-abundant materials, is sought as a prominent green energy material for energy advancements. Natural fiber can produce high-performance carbon materials such as carbon nanotubes, graphene, etc. for energy storage applications. Because of natural fiber abundance and ecofriendly behavior, it is the best alternative tool for energy mitigation. Activated carbon derived from abundant natural fiber is becoming an eye-catching electrode material among other electrode materials due to its prominent behavior such as high porosity, high surface area, higher storability, good conductivity, chemical and thermal stability, cost effectiveness, and environmental sustainability for energy storage applications. Different natural fiber precursors of carbon for making electrodes for energy storage devices are banana peel fiber, corn fiber, silk fiber, jute, cotton fiber, and coconut fiber.

In this paper, we will discuss carbonization/biocharring of natural fiber to synthesize carbon nanomaterial in the form of nanotube or graphene followed by activation method. Activation methods can change the surface composition of carbon material, creating a well-defined porous structure or layered structure. The phenomenon of supercapacitor is the adsorption of ions on the surface of the electrode for charge storage. If the surface has a layered structure (like nitrogen-doped graphene) or pores or tube structure (like carbon nanotube), then the energy storage increases by multiple folds. Supercapacitors in recent years have gained so much attention due to their power density and their fast charge and discharge ability. In previous papers, supercapacitors made by jute fiber obtained a specific capacitance of 200 F/g at a current density of 9 mA/cm², banana fiber has a maximum specific capacitance of 227 F/g at 1 A/g current density, cotton fiber has a specific capacitance of 111.1 F/g at 1 A/g. So, it is showing evidence that carbonization of natural fiber can produce

wondered structure of carbon compound, which can support enormous amount of energy storage. This paper will discuss the sustainable natural fibers for energy storage. Furthermore, the paper will also emphasize on the properties of natural fiber derived resultant carbon nanomaterials for making electrodes for storage devices.

Applications of AI And ML in Quality Control Department of Textile and Apparel Industry

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Artificial intelligence (AI) and machine learning (ML) are the two most disruptive technologies. They have transformed the textile and garment industries in ways we cannot imagine. With increased global competition and uncertain market demand, advanced technology is required to boost efficiency and production and gain a competitive advantage. These technologies ensure that manufacturers may attain maximum efficiency and productivity in a short period of time while also producing high-quality products at a lower cost of production. However, the significant influence of artificial intelligence and machine learning has been recognised primarily in some fields of the textile and apparel industry, while it is rarely explored in quality control. When artificial intelligence and machine learning are used to identify defects and errors, the process becomes automated, decreasing labour time and costs while eventually enhancing quality. Therefore, the purpose of this review paper is to explore the applications of artificial intelligence and machine learning in the quality control department of the textile and apparel industry.

Sustainable Leather Approach Through Alternate Conventional Approach: Navigating Towards A Greener Future

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Leather has been an integral part of human culture and industry for millennia, offering durability, comfort, and aesthetic appeal. However, the conventional leather production process has come under scrutiny because of its overcrowded conditions, improper treatment, and unethical slaughtering methods. Elimination of these environmental and ethical impacts due to the tanning process generates significant greenhouse gas emissions exacerbating climate change by opting for alternative materials like lab-grown leather or plant-based options. Leather offers eco-friendly alternatives that reduce these detrimental impacts.

Sustainable leather production methods, such as vegetable tanning and innovative lab-grown leather, polyurethane and Piñatex (made from pineapple fibres), reduce the demand for land and water resources compared to traditional leather. Traditional leather production often involves inhumane practices, with animals subjected to these ethical concerns while still enjoying high-quality leather goods.

In this study we focus on alternative approaches that have been studied and comparable analysis that gives an overall picture or a clear view of sustainable leather and by adapting these safe environments by hazards impact by creating a new direction for consumer consumption and demand towards a healthy environment.

Exploring New Sustainable Fibre Alternatives

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The global fashion and textile industry is increasingly embracing sustainability as a core value, driven by growing consumer awareness and environmental concerns. Traditional textile production methods, reliant on resource-intensive processes and synthetic fibres, have given way to innovative, Environmentally-friendly alternatives. This paper highlights the emerging trend of sustainable fibres, with a focus on hemp, pineapple, nettles, and seaweed, as promising alternatives to conventional materials. Hemp, known for its versatility and minimal environmental impact, offers durable and biodegradable fibres suitable for diverse applications. Nettles are hollow fibres which means they are one of the most insulating fibre due the air trapped inside,the fabric created with nettle fibre will keep warmth in well,but also be breathable too. Pineapple fibre, exemplified by Pinatex, not only reduces agricultural waste but also provides lightweight, breathable, and cruelty-free textiles. Seaweed, a vastly untapped resource, holds promise with its low cultivation requirements and unique properties found in materials like SeaCell, which offer anti-microbial and moisture-wicking benefits. While these sustainable fibres present a promising future for the industry, addressing challenges related to scalability,These sustainable fibres represent a paradigm shift in the textile industry. They offer viable alternatives to conventional materials, reducing the environmental footprint of textile production. However, challenges such as scalability, cost-effectiveness, and consumer acceptance must be addressed for widespread adoption. As the fashion and textile industry continues its journey toward sustainability, the exploration and development of innovative materials like hemp, nettles, pineapple, and seaweed fibres will play a crucial role in fostering a more environmentally friendly and socially responsible future.

Quintessential Of Sculptural Designs Of Parsurameswara Temple

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The oldest known culture in the world is thought to be Indian culture. Indian textile items have a rich history that reflects the ancient cultures and traditions that make up our nation's heritage. The beliefs, ideas, concepts and practices that are shared within a group or community are known as that group's culture and they may be traced back to ancient times through the nation's extensive architectural legacy. The old structures and heritage of a place serve as a representation of its culture, which makes it unique to that location. Indian temples feature a wide variety of intricately carved sculptures on their walls, floors, ceilings and entrances. The Sailodbhava period, which lasted from the sixth to the seventh century AD, is when the architectural splendor of Odisha was first seen. The design is considered to be separate and distinct from the original design with minor alterations as a result of the adaptation, which enables subsequent enhancements and revisions to the original concept. The sculptural designs of the Parsurameswara temple served as the study's inspiration for the home furnishings product designs, which were created using painting technique by the local artisans who were trained Pattachitra artisans of Odisha. The sculptural designs of the temple were documented through CorelDraw 2020 software. The designs were selected for adapting on textiles. The ancient sculptural designs when adapted with a traditional art like hand painting that gave excellent response from the evaluators. Consumer's opinion was evaluated which also had positive reviews towards the hand painted products. The developed products were assessed under various parameters by the consumers and they were well accepted by all.

From Sacred Walls to Contemporary Canvases: The Evolution and Sustainability of Gond Mud Wall Art

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Indigenous tribal communities represent the vibrant tapestry of a nation's culture and traditions. The Gond tribe, nestled in central India, boasts a rich cultural heritage, with a time-honored tradition of adorning their dwellings through wall painting, giving birth to the renowned Gond Painting art form. These wall and floor decorations, rooted in ritualistic significance, are believed to instill harmony within households. Additionally, this practice offers sustainable solutions, harnessing the potential of local communities. This research endeavors to explore the intricate interplay between culture, tradition, artistic practices, and sustainability.

This article extends an invitation to contemplate the sustainable aspects of Bhatti Chitra and Dhigna, traditional wall and floor art forms created by the Gond tribal community. It delves into the profound significance of these artistic expressions in the lives of the Gond tribe in central India, thereby providing deeper insights into their cultural heritage. As the winds of modernization have swept through this artistic landscape, traditional Gond paintings, once confined to walls, streets, and temples, have now found new canvases, including plywood, cardboard, and paper. Thus, this paper offers a comprehensive view of the evolution of wall art into contemporary visual art. Selected traditional Dhigna and Bhatti Chitra designs serve as focal points in this study, shedding light on their enduring cultural relevance.

Unlocking the Potential of Sustainable Pineapple Leaf Fiber (PALF) in Textile Development

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The utilization of natural cellulose fibres, notably Pineapple Leaf Fiber (PALF), has gained significant attention in the textile industry. PALF, extracted from pineapple leaves, offers a sustainable and eco-friendly alternative to conventional textile materials. Despite the annual production of substantial PALF quantities, only a fraction is currently harnessed, primarily due to technological limitations in fibre utilization and the lack of awareness among growers regarding the fibre's potential income-generating applications. This delves into the underutilization of PALF and the challenges it presents in regions where pineapple cultivation thrives. Pineapple has emerged as a vital crop for the economy of the northeast region of Brazil in recent decades. However, an alarming trend persists where pineapple leaves, rich in valuable fibre, are largely discarded after fruit harvesting. These leaves often find themselves relegated to uses like cattle pasture or left to decompose. The pressing need to transform this wasteful practice into an opportunity is evident. PALF offers an avenue for growers to generate additional income while contributing to sustainability efforts in the textile industry. To bridge the gap between PALF's potential and its current underutilization, a multifaceted approach is required. The development and dissemination of appropriate technologies for PALF utilization are paramount. Innovations in fibre extraction, processing, and textile production can unlock new opportunities for growers and manufacturers alike. Moreover, it is essential to educate growers about the diverse applications of PALF and its income-generating potential. Embracing PALF could not only reduce agricultural waste but also bolster the economic prosperity of pineapple-growing regions. It aligns with global sustainability objectives by offering an environmentally friendly and renewable alternative to traditional textiles. PALF represents a promising trend in textile development, illustrating the potential for harmonious coexistence between agriculture and sustainable industries.

Difference Of Perception Among Generations On Spending: An Examination In Pottery Town

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Pottery Town, nestled within Benson Town, Bangalore, India, has been a stronghold of pottery craftsmanship since its establishment in 1926 during the British colonial era. This settlement's historical roots are intimately connected to the first railway line laid by the British in Bangalore, which drew an influx of artisans and labourers primarily from Tamil Nadu and neighbouring Andhra Pradesh. These communities settled in the vicinity of the Cantonment area in the late 19th century. Currently, Pottery Town is home to 40 families of artisans, predominantly from the Kumbara community, renowned for their mastery of clay work. The government's allocation of land and support from the royal family cemented their presence in the region.

These families represent multiple generations of skilled craftsmen, each generation weaving its unique narrative of evolution over time. This descriptive research paper digs into a compelling exploration of the cultural shifts that have occurred in the spending habits and priorities of these artisans, bridging the divide between older and present generations. Through interviews and observational insights, this study seeks to understand how the mindset of these artisans has transformed, both in terms of individual expenditures and family financial priorities. By examining oral histories and mining memories, this research offers a window into the world of the elder artisans, recalling their earlier experiences and financial practices, in contrast with contemporary trends.

The paper unravels a curtain of change, shedding light on the economic choices and values that have evolved within the Kumbara community across generations. It presents a charming narrative of adaptation and transformation within a community whose craft has not only stood the test of time but also adapted to the shifting tides of modernity.

Adopting Zero Waste Pattern-Making Techniques For Apparel Product Development

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Every year fashion industry produces millions of clothing with new styles. During the production process of these clothing, a huge amount of fabrics is wasted as scraps. Fabric waste is one of the causes of environmental pollution on this earth. Adopting zero waste pattern making techniques for clothing production can provide a solution to control fabric waste. Zero waste pattern making provides solution by consuming the entire yardage of fabric, leaving minimum to no fabric waste left after the garment production. The zero-waste design technique is an integrated design process, where designing, production and sourcing go hand in hand. This paper aim to propose solution to control fabric waste using innovative zero waste pattern design techniques and adopting it for sustainable future. Conventionally in apparel production process we utilize 85 percent of fabric and 15 percent fabric is left as wastage. The challenge is to reduce this 15 percent wastage to zero waste. This is also a challenge that everyone not able to work with zero waste pattern technique. To adopt zero waste pattern techniques people need to be creative to come up with best design solutions for apparel production process. The designers, pattern makers, academicians and production professional need to work together for research to find out best creative practices & solutions to adopt zero waste pattern making techniques in apparel production process. We need to develop approaches for zero waste pattern making technique by researching the basic pattern design principles, its challenges and outcome. This research and development process of zero waste pattern making will provide solution for better sustainable practices to control fabric waste pollution for better and sustainable future.

Sustainable, Eco-friendly and Non-Toxic Flame Retardant Finishing Based on Marine Collagen Peptide on Cotton

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In the Indian subcontinent, cotton fibre is the most commonly used fibre due to its accessibility and comfort. However, cotton lacks both a glass transition temperature and a melting temperature entirely due to it being a non-thermoplastic fibre. It experiences both pyrolysis and combustion at 350°C with a consequent LOI that is also discovered to be as low as 18.4%, making it flammable. With relation to fire threats, this poses a major risk to both consumers and the environment. Many effective outcomes have been produced as a result of significant study that was undertaken in the previous century. However, development is mostly focused on commercially accessible fire retardants, which can be generally divided into inorganic salt-based, halogen-based, and phosphorus-based fire retardants. In addition to these, environmentally benign intumescent-based fire retardants were created, however their efficacy is in doubt. Many compounds derived from plants and animals have demonstrated success in indicating fire retardant qualities when used as surface coatings on cotton fabric. So, in the pursuit for an effective natural substitute, the current research report focuses on the potential of marine collagen peptide. Marine collagen peptide, a protein-based bio-macromolecule, was applied with titanium dioxide as a coating on cotton fabric using the pad batch method, which entails 4 dips and 4 nips. Three different concentrations of the solution—15%, 20%, and 25% with three distinct padding expressions—80%, 90%, and 100% were applied on the samples of cotton fabric that had already undergone enzymatic pre-treatment. The vertical flammability and limiting oxygen index (LOI) of both the control and treated textiles' fire-retardant properties were examined. Scanning electron microscopy images were also used to study the surface morphology. The optimal outcome and the ideal settings to attain it were later revealed by statistical analysis of the test and characterization findings.

Developing a Sustainable Menstrual Absorbent Utilizing a Biocompatible Fabric

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Menstrual hygiene plays a significant role in terms of both physical as well as emotional health of a woman. In urban areas women use various types of disposable menstrual absorbents that make easy maintenance of lifestyle as the materials provides effective service of maximum absorbance keeping the skin dry and also their ease of disposal. But this turns to a huge threat for the environment as the raw materials used to produce these smartly mechanised products are non-biodegradable that releases harmful gases and takes almost eight hundred years to breakdown into its micro units. Moreover the prolonged use of these plastic materials causes itching and irritation to the skin resulting in rashes, and complex disorders including cervical cancer. The paper presents the study that has been pursued with the aim of designing and developing a sustainable alternative of the synthetic non-biodegradable sanitary napkins. A skin as well as biocompatible fabric – soybean protein fabric has been used as the top layer of the napkin that comes in contact directly to the skin, cotton/bamboo terry fabric as the absorbent core along with a leak-proof bottom layer. The process of development of the pad was followed by absorbency, wicking, retention, strike through and antimicrobial property tests. The results of all the tests performed on the developed product shows significant difference than that on commercial products. Therefore, from the perspectives of women's health, sustainability, and environmental health issues, the current study can be seen as helping to improve a healthy environmental condition.

Factors Affecting the Cloth Swapping Behaviour of Indian Youth : A Qualitative Analysis

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Researchers have indicated the environmental concerns in the society associated with the consumption of clothing and textiles (Fletcher, 2012). This concern become more protuberant in a country like India which has the largest population in the world. Zamani et al. (2017) have suggested that collaborative consumption such as cloth swaps can play a positive role in reducing environmental impact of fast fashion. Cloth swaps not only helps consumers to acquire new clothes but also gives a new life to the unused/underused clothes thereby reducing landfill wastes. While swapping among close family/friends might exists because of utilitarian reasons (Matthews and Hodges, 2016), such as obtaining “new” items with zero expenses, disposing of used clothing, and extending the lifespan of old items (Trauth, 2014), swapping among strangers through clothing exchange events has emerged recently in the market (Armstrong et al., 2015). This type of swapping however has not received wide acceptance (Belk, 2014). Despite the benefits that might accrue from the cloth swap for the consumers or for the environment, however the interest among the consumers to get involved in this type of activity is low (PwC, 2015). Thus this study aims to uncover the motivation of individuals, particularly young adults to attend and participate in clothing swaps and understand the factors that influences individual to participate in such events. The study also aims to understand the barriers that exist in the minds of the customers for the same. For this purpose, the study uses Focus Group Discussion (FGD) technique. The analysis of the FGD identifies and illustrates how various social and cultural factors are responsible for the cloth swapping behaviour. The study has several novel theoretical and managerial/policy implications both for the academic world as well as the policy makers.

Assembly Line Balancing Of Textile Toy Manufacturing At Ludhiana-Based Industry Using Moodie And Young

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Assembly line production represents a prevalent manufacturing system. Achieving a balanced assembly line entails meticulous planning and the equitable allocation of tasks across workstations, ensuring that each station can conclude its designated responsibilities within a similar timeframe. The challenge of Assembly Line Balancing revolves around the strategic allocation of tasks among workstations, aimed at optimizing the utilization of human resources and facilities while preserving the integrity of the work sequence. This study addresses a fundamental assembly line balancing problem, focusing on a detailed examination and analysis of the stitching lines, in which the operations of the toy product was studied and the line layouts as well as the time study was conducted. The primary goal was to minimize the count of workstations involved in assembly line balancing while achieving equilibrium within the stitching department's assembly lines. To ensure a harmonious workload distribution, the Moodie and Young approach was used for evaluating various components of the stitching line, including line efficiency, balance delay, and smoothness index. The study culminated in a comparative analysis between the existing operational layout and a proposed future layout, incorporating extensive calculations alongside the precedence diagrams. Notably, the system's overall smoothness has increased significantly post-upgrade, indicating the enhanced effect of assembly line balancing. This enhancement has yielded concurrent improvements in production efficiency, overall enterprise production, and management proficiency within the enterprise.

can also incorporate this natural dye into their products, offering consumers a safer and more natural alternative to synthetic colourants.

In conclusion, the Kesula flower natural dye offers a convincing response to the expanding demand for environmentally acceptable and sustainable colouring choices. It adds value to a variety of businesses thanks to its brilliant colour palette, environmentally friendly manufacturing process, and wide range of uses. As global awareness of environmental concerns continues to rise, Kesula flower natural dye holds the potential to play a pivotal role in reducing the environmental impact of colouration processes while providing beautiful, sustainable products to consumers worldwide.

Keywords: Kesula flower, natural dye, sustainable, textile industry, eco-friendly, traditional knowledge, colourant, cultural heritage, dyeing process, environmental impact.

Traditional Extraction of Natural Dye: Kesula Flower A Sustainable Source of Color

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Natural dyes, a heritage of humanity's ancient textile traditions, are extracted from a diverse range of sources including plants and skin of animals. These sources are teeming with a variety of organic compounds responsible for the myriad of color they can impart to textiles. In this exploration, we delve into the time-tested methods of extracting natural dyes and unravel the intricate chemical compositions that underlie their vibrant hues.

The process of extracting natural dyes from sources is deeply rooted in tradition. The Kesula flower (*Butea monosperma*), native to South Asia, has emerged as a promising source of natural dye. This provides an overview of Kesula flower-based natural dye, highlighting its vibrant color range, sustainability, and potential applications. The exact color obtained from Kesula flower dye can vary based on several factors, including the type of substrate, the mordant used (if any), the pH of the water, and the duration of dyeing. However, you can generally expect to achieve a spectrum of colors red, rich orange, or a combination of the two (yellow). The color may range from pale to deep, depending on the factors mentioned. The dye's vibrant hues are derived from bioactive compounds known as flavonoids, primarily responsible for its coloring properties.

One of the key advantages of natural dye made from Kesula flowers is that it is sustainable. Kesula flowers, which are used in the industrial process and are widely distributed throughout South Asian countries, eliminate the need for labor- and resource-intensive farming. Furthermore, Kesula flower extraction is non-toxic and environmentally benign because it significantly reduces the emission of dangerous chemicals and pollutants into the environment, in contrast to the pollution-causing effects of synthetic colors.

The applications of Kesula flower dye are extensive. In the textile industry, it can be used to color fabrics, producing unique and eco-conscious clothing and home textiles. In the paper industry, Kesula flower dye can be utilized for eco-friendly packaging and stationery products, catering to the growing demand for sustainable materials. Cosmetic companies

can also incorporate this natural dye into their products, offering consumers a safer and more natural alternative to synthetic colourants.

In conclusion, the Kesula flower natural dye offers a convincing response to the expanding demand for environmentally acceptable and sustainable colouring choices. It adds value to a variety of businesses thanks to its brilliant colour palette, environmentally friendly manufacturing process, and wide range of uses. As global awareness of environmental concerns continues to rise, Kesula flower natural dye holds the potential to play a pivotal role in reducing the environmental impact of colouration processes while providing beautiful, sustainable products to consumers worldwide.

Keywords: Kesula flower, natural dye, sustainable, textile industry, eco-friendly, traditional knowledge, colourant, cultural heritage, dyeing process, environmental impact.

Dissemination of Textile Crafts' Knowledge Through Designing Jigsaw Puzzles

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India's rich heritage of traditional textiles and crafts is well known globally. However, there is very little awareness about diverse textile crafts among the Indian people themselves. Fortunately, due to increasing awareness about #Vocalforlocal, people are slowly becoming aware of traditional artisans and their textile embroidery crafts.

The negative impact of the toy industry owing to the use of plastic is evident not only on kids but also on the environment. Hence in this paper, an effort has been to design puzzles as per the age of children while incorporating the knowledge of traditional embroideries in them. The purpose of the project was to imbibe crucial age-appropriate skills like problem-solving, spatial reasoning, pattern recognition, curiosity, and questioning at the same time getting to know about traditional textiles and techniques. Different jigsaw puzzles were designed using embroideries of different states and different techniques like tie and dye, resist dyeing and batik.

Different fabrics and embroidered textiles like kantha, ikat, chikankari and phulkari were explored to fit in the puzzles and the result was very satisfactory. The outcome of the project was that children became aware of the origin, motifs, classification, and materials of different textile embroideries and techniques. This kind of product design could further foster a sense of curiosity and learning of one culture and crafts through creative engagement ensuring cognitive development at the same time

Adapting To Change: The Future Of Print News Media In India

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The print news media in India has developed over time. The fact that print newspapers have a large audience demonstrates that they are a popular medium among individuals. Newspapers in India began before independence and grew in popularity throughout the freedom struggle, with many revolutionaries contributing to the development of journalism. It evolved into an efficient medium for reaching out to the public. Following independence, print media looked forward to preserving their newfound freedom. National development became the principal purpose of newspapers in the 1950s. Newspapers had established the reputation of being a reliable source of information by that point. They were a vital link between the government and the people. Journalism was not immune to the wave of commercialization that hit many businesses after independence. With the introduction of satellite television in the 1990s, there was worry that print newspapers would become obsolete. However, newspapers remade themselves and learned to not only coexist but also profitably. Digital newspapers were born at the advent of the digital era. India followed suit, despite predictions that print newspapers would become obsolete, but it rebuilt itself and survived the tsunami of change. This paper tries to trace the evolution of the newspaper from print to digital. It also makes predictions about the future of print newspapers and e-newspapers in the Indian subcontinent. The report concludes that, while print newspapers are unlikely to disappear in the near future due to their willingness to reinvent themselves, the future of the newspaper is digital. The report also discusses the reasons that have contributed to the shift in Indian readers' news consumption patterns. To achieve the study's objectives, the researchers held a focus group discussion with specialists from the media industry and academia.

Beyond Aesthetics: Sustainable Interior Design Solutions For Homes

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As the global concern for environmental sustainability continues to grow, interior design plays a pivotal role in addressing the ecological impact of residential spaces. This research presents a comprehensive overview of sustainable practices in interior design for residential homes, highlighting their significance in mitigating the environmental footprint of modern living spaces. This study explores the multifaceted realm of sustainable interior design, encompassing various aspects such as materials selection, energy efficiency, waste reduction, and the promotion of a healthy living environment. By integrating sustainable principles into the design process, interior designers can create homes that not only prioritize environmental responsibility but also enhance the quality of life for occupants. By examining the key aspects of sustainable interior design like energy efficiency, waste reduction, indoor air quality, and biophilic design etc. for residential homes, this research underscores the critical role that interior designers play in fostering environmentally responsible living environments. The findings will encourage designers, homeowners, and policymakers to embrace sustainable practices as a means to mitigate the environmental impact of residential spaces while simultaneously improving the quality of life for occupants. Ultimately, the integration of sustainability principles into interior design is a proactive step towards a more sustainable and harmonious future.

A Study Of Consumer Perception For Lippan Craft-Inspired Jewellery In India

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A region in western India, Kutch is renowned for its extensive artisanal craft industry and rich cultural heritage. Among these treasures, Lippan craft stands out as a distinctive style of traditional wall decoration that is characterised by intricate mud mirror work. The design language of Lippan craft is characterized by its extensive use of mirrors, geometric patterns, motifs inspired by nature and spirituality. Skilled artisans use a mix of clay, camel dung, and natural adhesive to create these stunning patterns on mud walls. It has served not only decorating homes but also offering a protective layer against extreme weather conditions. India's developing jewellery market is increasingly embracing fusion and heritage-inspired designs. It is a highly diverse market, with a wide range of products and price points to suit all consumers. Various textile and other crafts are being used as inspiration for accessories and ornamental goods as consumers have become more interested in unique and sustainable products, and it also revives the crafts through product diversification. This study will examine the customer perceptions and preferences of jewellery inspired by the Lippan craft. Mix method research will be used and required data will be collected by convenience sampling using surveys and focus group discussion.

Enzymatic Approach For Wool & Silk Colouration Using Laccase Catalysed In-Situ Dyeing

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In recent years, there has been a lot of research and application focused on the potential of enzymes as catalysts to develop new and more environmentally friendly textile processes. Coloration is the most integral part of textile manufacturing that is widely used to improve the appearance and appeal of a fabric. Traditional dyeing often entails the use of a variety of chemicals, dyeing auxiliaries, and increased temperatures to aid in the dyeing process. The use of enzymes, especially oxidoreductases, to synthesize colourants "in situ" is an efficient way for textiles dyeing at mild pH and temperature conditions without the use of harsh chemicals.

Laccase (EC 1.10.3.2), belonging to oxidoreductase class of enzymes can be used in two ways for the colouration of textiles: one by synthesis of colourant and then dyeing and in second by the in-situ colouration of textiles. Enzymatic coloration is covered by a number of patents and numerous studies have been conducted on the colouration of fibers but there isn't enough information about the precise process parameters and colour diversity involved with those parameters to be taken seriously as a replacement for conventional acid and reactive dyes, which offer a wide range of colours from bright to deep shades, and in some cases excellent colour fastness.

The objective of this work was to study the in-situ dyeing technique for wool & silk textiles using laccase enzyme as an alternative to traditional synthetic dyes. The aim was to develop a diverse colour palette by experimenting with different aromatic compounds as laccase substrates, as well as reaction processing parameters such as buffer systems and pH values, laccase and aromatic compound concentrations, and reaction times, all in the absence of additional chemical auxiliaries. Additionally, the technical characteristics of the enzymatically dyed samples would be evaluated against industry standards, including colour depth, colour coordinates (CIE L, a, and b), washing and rubbing fastness values. In-situ coloration with laccase results different colour pallets with different phenols and the pH plays a very significant role in the final hue of the fabric. Different buffer systems produce different colour tones. The dyed wool and silk samples result good to excellent wash and rubbing fastness ratings.

Inclusive and Sustainable Fashion: A Farm to Fashion Approach

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Fashion industry is considered today as one of the most irresponsible industries having severe impact on the environment and society. Fashion production makes up 10% of humanity's carbon emissions. It dries up fresh water, and pollutes rivers and streams and more than 85% of all textiles go to landfills each year. The business models adopted by all the major fashion brands and manufacturers are looking for damage control through sporadically introducing sustainable measures in order to pacify the ever rising environmentally conscious consumers. However, the volume of available literature about the initiative and measures towards sustainability by these brands and manufacturers are not only inadequate, but appears only to be anthropocentric. The practices these brands engage in throughout their value chain is still making huge amount of impact on the environment. The available literature suggests that fashion industry's contribution towards Green House Gas (GHG) and environment pollution in terms of plastic, microplastic, and chemicals are also on rise. Despite international coalitions, collaborations and policy measures the industry is still moving on a linear production path. This paper examines the premise and nature of sustainability measures taken up by the top brands of the world through a comparative analysis. The paper proposes an alternative sustainable and inclusive fashion business model, that appears not only sustainable, inclusive, and circular but encompassing an eco-centric approach. This paper uses qualitative research methodology for collection of both primary and secondary sources of data using a host of data collection methods like observation, field studies, Focus Group Discussion (FGDs), content analysis and interviews. This paper uses a tool to evaluate sustainable fashion business practices at each stage of the fashion value chain named "Sustainability Analysis at Critical Control Points (SACCP)". The paper also suggests an alternative fashion business model based on the "Farm to Fashion" approach developed practiced by the researcher.

Kunbi: Sustainable Textile Sustaining The Tribe

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This paper will attempt to comprehend how the Kunbi tribe of Goa developed their textile fabric and what kind of materials and techniques they used to sustain the quality of the fabric. The Kunbi tribe of Goa is concerned with the ecosystem and their fabric includes the material based on nature (environment). The cotton material without harming nature is used for weaving the Kunbi fabric. Chemicals are not used in developing the fabric and it is mostly weaved using wooden equipment.

Kunbi tribe is the oldest settlers of Goa and they are considered as austrian people. The Kunbi tribe has a unique contribution of their folk dance, music and cultural heritage. And it is their cultural heritage of assuming the Kunbi fabric –Kunbi Saree worn by Kunbi women.

The famous Goan designer late Wendell Rodricks had been inspired by Kunbi sarees and thus the fabric gained popularity and is now regarded as a prime Goan textile.

The origin of the Kunbi saree authentically lies within the Kunbi tribe of Goa. It's a hand-woven checkered saree. Being made of cotton material, it is comfortable to wear, light in weight, looks elegant and is apt for Goan humid climate, suitable for Kunbi women who are involved in cultivation as it is usually worn below their knees.

How are these Kunbi sarees weaved?

The cotton yarns are used to weave these sarees and the quantity varies from 20 to 60 counts. Checkered patterns are created timely and finished with a slight heavy dobby border, which is basically a flattered silk inset. Since it is used by rural people who are occupied in cultivation. Gold or silver zari is not used thus, reflecting the simplicity of this handmade textile giving it high value.

Mostly these sarees are worn by Kunbi (Gawada) communities, fisher-women especially tribal women. Traditionally these sarees are dyed in Naphtha colors-red and white colors, other colors used to weave checks on the base fabric are yellow, blue and green.

Today there is demand for Kunbi sarees, available in different shades.

Originally Kunbi saree is very short in length. But due to its demand it is weaved in 6-9 yards in length.

Today's time this saree has gained its recognition and is worn by women of higher class and demand for the Kunbi Saree has helped the weavers earn their living. Presently it is a small-scale development in a limited area but if such things sustain it can reinforce sustainable development. And will help grow economically attaining a higher position and status in the society. Today Kunbi saree surface can be used for painting or pictorial composition which can be unique in its presentation.

Traditional Jewellery Of Bihar: Dholna, Its Cultural Significance and Craftmanship.

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Bihar is synonymous with culture and traditions. It is mainly known for the Mithila culture and rich Magadh culture. Every festival ritual and wedding ritual in Bihar is deeply connected with their culture and traditions and has a deep impact on the region's cultural landscape, but these age-old practices frequently go unrecorded and unknown to the outside world. The traditional jewellery of Bihar is elegant, adorned with gold embellishments and reflects its vast culture. One such piece of jewellery is Dholna, commonly worn just after marriage by the brides. The design is a drum-shaped locket worn with pearls which reflects married life.

This paper focuses on the origin of Dholna, its significance in wedding rituals and a deep analysis to find the reasons why it is not being used as a daily piece of jewellery and there is an urgent need for coordinated efforts to conserve and document it. The study will also highlight how it is generally not worn after 3 months of the marriage and what can be done to bring it back to its original glory. An exploratory study has been performed to understand the reason behind not using this jewellery.

By understanding the reasons behind the Dholna losing its usage and highlighting its cultural significance, the study aims to revive interest and pride in this traditional jewellery, encouraging its continued relevance in the daily life of a Bihari bride. This research examines the socio-cultural influences and their effect on this jewellery. By analyzing the changing trends and influences over time and by recognizing its past, this study contributes to the celebration of this classic piece of jewellery.

Sustainable Education Practices in Ancient India: An Overview

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Education is a foundational pillar of any society and plays principle role in the wellbeing of it. Education has increasingly become anthropogenic. In contemporary setup it is seen as a system to gain any particular resource. Where education has served as a “means” to attain an “end”. Education has been segregated from learning. This consequentialist outlook, developed with a Macaulay’s minute (colonization policy) which has withheld education from becoming a transformative change and has led to institutional anxiety as well in contemporary times.

This also hampers the idea of sustainable education as it is also approached with the same percept and norm. Under this broader background this paper is an effort to cave out ancient Indian sustainable education practices. The method adopted of reviewing various literatures and secondary research. It traversed that deontological perspective of the ancient Indian educational practices such as “guru shishya parampara” in which education was an “end” in itself. The Indian thought like Upanishad composed philosphy as a way of life and education. As also comprehended and compared in the Socratic purview to attain “good life”. The idea here is to focus how the education was taken as means to achieve the “purshurtha” the pursuit of good life rather than a tool to achieve material acceptance in the contemporary society. The education practices were also catering to a larger social capital by education systems, being a public percept rather than a private equity as observed in contemporary times. This ancient holism, shall be reintroduced in pedagogical practices to see sustainability not as a means of sustenance but an “end” in itself.

Circular Economy in Fashion: Integrative Strategies for Sustainable Design, Supply Chain Optimization, and Business Model Reinvention

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In the contemporary fashion and textile industry, the imperative for sustainability has never been more pronounced. This study delves into the multifaceted dimensions of sustainable fashion, focusing on the integration of circular design principles, transformative supply chain management practices, and innovative business models. The aim is to provide a holistic understanding of how these elements can be synergistically combined to redefine the future of sustainable fashion.

To provide a comprehensive understanding, this paper integrates insights from multiple sources, including case studies, the European Clothing Action Plan, circular supply chains, and product design and business model strategies. The study utilizes a qualitative analytical approach, which involves doing an in-depth examination of existing literature on circular economy efforts and strategies specifically within the fashion and textile industry. The framework ultimately provides strategic guidance to many stakeholders within the industry.

Results indicate a paradigm shift in the industry, with an increasing number of brands and manufacturers adopting circular economy principles. Innovations in materials, such as more durable fibers and design for durability, are being complemented by novel production and distribution solutions. Furthermore, access-based business models, including renting schemes and wardrobe-sharing, are emerging as sustainable alternatives to traditional consumption patterns. The discussion underscores the challenges and opportunities inherent in this transition. While technological advancements offer promising solutions, behavioural change among consumers, supported by education and new social norms, is pivotal.

In conclusion, the fashion and textile industry stands at a crossroads. Embracing circular economy principles, reimagining supply chains, and innovating business models are not just imperatives for sustainability but are also avenues for future growth and resilience (Dragomir and

Dumitru, 2022; Salmi and Kaipia, 2022). Embracing circular business models can significantly reduce the environmental and social impacts of industries, especially in textiles and fashion (Huynh, 2021; Oliveira Silva and Morais, 2022). However, the successful implementation of these models requires a multifaceted approach, encompassing technical and social innovations, policy changes, and behavioural shifts among consumers (Oliveira Silva and Morais, 2022).

Development of Physical Activity Enhancing Rugs for Children

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As an integral category in home textiles, rugs are a very adaptable design element that may be hung on the wall as a tapestry or utilised in the classic floor version. The size of the world market for carpet and rugs is projected to be USD 36.21 billion in 2023 and USD 45.31 billion in 2028, rising at a CAGR of 4.58% over the forecast period (2023–2028). Most of the rugs are tufted and woven with materials including wool, silk, cotton, synthetic fibres, jute and seagrass. The handwoven carpets feature geometric, conventional, and antique patterns whereas the rugs that are suitable for children under 12 are mostly tufted. This is due to the technique's versatility in colours and motifs.

The central principle of the handwoven rugs revolves around weaving rugs for children that feature various games that involve motor activity and movement. These games will help the parents in creating recreational space for their children at home without any extra props and toys. The games can encourage body movement as well as enhance cognitive development of small kids. Certain games can be created in a way that renders them aesthetically pleasing which will interest the adults in using them in general home spaces other than the children's room.

There are several weaving techniques that can be used, such as tapestry weaving for more detailed patterns. This will support the development of a new product category in hand weaving industry. Various unconventional materials can also be utilised to cater different visuals of different games. For instance, optical fibres could be woven in some sections of the rugs to develop an illuminating effect for those certain parts. This concept might lead to development of more games that will help in analytical and logical reasoning of the child, while involving physical exercise.

Fashion Sustainability Redefined: Navigating the Terrain of Upcycling and Downcycling Garments

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Fashion, a dynamic and influential industry, is experiencing a transformative shift towards sustainability, where recycling plays a pivotal role. This research delves into the impact on “upcycling garments,” “recycling garments,” “thrifting,” and the “distortion of shapes and patterns.”

In fashion recycling, upcycling garments is emerging as a promising strategy to extend the life of clothing items and “recycle garments” into new, desirable pieces. Upcycling breathes new life into discarded textiles, enabling the preservation of craftsmanship and design integrity. This research examines the potential of upcycling to foster “thrifting” behaviours among consumers.

Conversely, downcycling, a more conventional recycling approach, may inadvertently “destroy” the original design and aesthetics of garments. The recycling of garments through downcycling processes often results in the loss of intricate shapes and patterns, which can diminish the value and uniqueness of fashion items. The research underscores the need to strike a balance between downcycling and upcycling, considering the distinctive characteristics of textiles and apparel.

Downcycling, although reducing the demand for virgin resources, can at times amplify its environmental footprint due to energy-intensive processes. Conversely, upcycling can “distort” conventional perceptions of fashion waste and its environmental impact by promoting the circular use of existing resources.

Furthermore, this research scrutinizes the roles of consumer behaviours, and technological innovations in shaping the fashion recycling landscape. Effective sustainability strategies in fashion must reconcile the benefits and challenges of both upcycling and downcycling, fostering a holistic approach to textile and garment recycling.

In conclusion, the fashion industry is at a crossroads, with upcycling and downcycling offering distinct pathways towards sustainability. These approaches can influence the way we “upcycle garments,” “recycle garments,” encourage “thrifting,” and even “distort” established fashion norms. Understanding the multifaceted implications of these processes will guide fashion towards a more sustainable, circular, and innovative future. This research contributes to the ongoing dialogue on fashion sustainability, providing insights to drive positive change within the industry.

Application of Organic and Natural Dyes on Textile Materials: A Sustainable Design Approach

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Natural dye is a long-lost tradition which aims at providing the different colours and shades that are derived from plants, vegetable, invertebrates and minerals. Natural dyes are one of the most vital part of sustainability which possess the antibacterial properties and are eco-friendly in nature. But since the discovery of man-made synthetic dyes and fibre, the production of natural dyes declined on a large scale. Synthetic dyes which were cheaper and widely available superseded natural dyes but came with a lot of cons as well. And hence its high time to bolster the extraction and application of natural dyes for textiles. "Sustainability is like weaving together the threads of old tradition to form a better future" and in order to do so, the present work is an approach to extract the dye from safflower flower, lambs quarter (Bathua), madder (rubia tinctorum) and marigold to achieve their antibacterial and biodegradable properties and quilting method with the leftover scrap fabrics will be used to create various products such as bags, table runners, coasters, pillow covers and mats etc. The dyeing process would be performed on cotton fabric and other than that jute fibre will be used to make it look more aesthetically pleasing. Alum, ferrous sulphate will be used in order to fix the dye on textile substrates. The objective of this project is to use the sustainable approach to explore the different shades that comes from natural dye and to re-use and upcycle the leftover fabric (from GC lab) to perform the process of quilting. The outer cotton fabric of quilting would be naturally dyed from the extracted dyes i.e., from bathua, madder, safflower and marigold. Thus, the products that will be made by using natural dyes and traditional technique can be commercialised for making certain products and this process of commercialization will generate employment locally and regionally as well.

Functionality and Beyond: Smart Jewellery for Sustainable Maternal Healthcare

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Smart wearable devices are increasingly being used for maternal healthcare, which means health during pregnancy and childbirth. However, as reported in the literature, most maternity-oriented devices are hinged on functionality. It is also stated that many users abandon wearing the device due to a lack of form-factor and intangible values, such as, expression of individuality.

The studies reveal that the aesthetics of the device leading to the emotional bonding is an important factor for its success. Therefore, this research paper concentrates on the aspects of designing and developing smart jewellery which addresses maternity-oriented needs and can extend beyond the fulfilled task. The jewel-like quality of the product is planned to enable the emotional bonding and individuality, which are intrinsic factors for a jewellery, encouraging the wearer to use it for a long duration. This makes the jewellery piece a sustainable choice to fulfil the health care and aesthetic needs later as well.

The focus of the research is based on two aspects; the first is the study of the consumer's attitude towards maternity devices and the second is the design of smart jewellery which addresses maternal health care for working women staying alone or with their partner and away from any other care-giver. The study of the consumer's attitude towards the maternity devices is carried out through online surveys and personal interviews. The design of the smart jewellery is based on co-design framework.

Based on the research findings, smart jewellery is functioned to educate users on sustainable lifestyle choices for better health during pregnancy, early childhood care and beyond. It informs the women on prevention, diagnosis and care for reducing the anxiety and unnecessary doctor's visits resulting into reduced pressure on the health care professionals. The jewellery intends to have a timeless bond with the user extending its life beyond its function of maternity-wear.

The Sustainability of Terracotta Craft - A Villianur Pondicherry Case Study

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Terracotta has been an age-old handicraft that has catered to mankind from prehistoric times. The advent of new machinery and materials resulted in the craft being reduced into clusters producing niche and seasonal products. However, the craft has been able to survive through the times and livelihood to many artisans. The research has traced one such particular cluster and identified how the craft has sustained itself through the artisans. The craft studied was the terracotta craft of Villanur in Puducherry.

Villianur is a village located in the Union Territory of Puducherry, Tamil Nadu. Their craft of terracotta is deeply rooted in the history and culture of the Villianur villagers. The artisans who practice this craft make products ranging from the smallest diya to a twenty-one feet statue of "Lord Periyasamy".

The methodology for studying the craft was through secondary and primary methods. A visit to Villianur was done to observe the craft closely and take an indepth understanding of process, material, and products. Along with that, deep insights were derived from the skill of the artisans and their product history, through interviews. A better understanding of how the craft was formed and its process its evolvement over the years, the livelihood of the artisans and more was derived by deep interviews of artisans and experts to identify their methods and the market that they were catering.

This study helps to shed light on the unexplored domains of the craft and the intricacy of the craftsmanship. It guides to develop a method for the harmonious co-existence of the age-old craftsmanship and innovations of the contemporary world. Correspondingly, this effort would earn them the recognition and appreciation for the craft form. It also draws an image of how crafts survive the test of time to become a sustainable product for the market.

Advantages and Challenges in Recycled Products Business– Case Studies with Ventures Practising Upcycling

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The trend of neo-entrepreneurial ventures has created a scope for many fashion innovators to start their businesses in this segment. Statistics project that a large number of these fashion businesses are currently working on upcycling techniques to create their products. As sustainability becomes the mega-trend of this age, academics have made it a mandate for students to learn and apply the same. Although a lot of research has been done on the subject, the application of the same is not adequately documented for future reference. Most entrepreneurs are working on trial and error modes to understand the opportunities and challenges.

The purpose of the research is to create an understanding of entrepreneurial innovations and whether the trend of upcycling can be actually a sustainable process. It also helps in drawing pedagogical examples for outlining new product design methods and material research.

The methodology used is mixed methods. On one hand, secondary research information has been collected for various industries and their practices, products and innovation and on the other hand deep interviews with companies were done to understand their process to build individual cases. The data collected is qualitative in nature and is analysed to understand the decisions taken by entrepreneurs to make the venture successful.

This paper also brings out terminologies used in the upcycling field, a detailed outline of practices and processes that the industry follows, their business model and scalability plans, the ideation of designs through limited raw material availability and their marketing ideas for bringing in more customers. This research paper is part of a larger work, which attempts to identify the best business model for sustainable and recycled fashion business. The conclusion of the paper summarizes the challenges and advantages for these entrepreneurs and how it has been combated.

Strategic Interventions for Art Sustainability in Modern Economy: Stabilizes the Socio-Economic Equilibrium

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Arrah which is also known as Ara is a city in Bhojpur district of Bihar. This city has been known as the educational hub of the eastern India with many good schools and "Veer Kuvar Singh University". Not only this, it also is a centre of a traditional textiles known as "Ara Chunri" which had enjoyed a popularity graph in the past but is now at the verge of extinction. This project was undertaken to document the art of "Ara Chunri" by survey and revive (by co-design) it so as it can involve more people from the society and revive the popular art of the region!

In looks, the textile looked like bandhani saree of Gujarat. This was done by hand block printing on malmal cloth. The designs included the dots on body part and flowers in the border. The blocks were made with wood and carved by the local artists. Only natural colours were used so it was limited to three colors: Red, Yellow and Green.

Over a period of time it lost its glory, and monotony in design and poor quality of the fabric was the main cause. Many artisans have left this traditional work and found out other jobs.

The artisans were gathered and sensitized to revive the art which was theirs only. They were ready to adopt the new designs and women were encouraged to be part of their occupation. Slowly, women folk are also showing their interest.

This project based on social entrepreneurship which also helps in women empowerment.

Safety bedding for newborns & infants

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This paper discusses the incorporation of safety features into infants' bedding and making it more protective and user-friendly. The objective is to propose ideas for a fire-retardant safety crib for newborns and infants that protects it in case of a hazard. On doing some background research, it was learnt that in 2020 approximately 346,800 residential fires had occurred that year. It is also estimated that almost 500 children die every year due to residential fires. In homes where both parents are working and the child is often left unattended, a need for protective bedding arises. The market also lacks products that provide complete security to infants against fire hazards.

On the basis of the primary research that was carried out, changes in the design for the crib would be made to cater to the needs of the user group i.e newborns while also keeping in mind the fire protection angle of it. There will also be incorporation of different materials into the design in order to add the desired features to the end product.

Sustainable Approach to Handle Fast Fashion and Non-Biodegradable Waste

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Fashion industry contributes significant amount of waste during garment construction and post-consumer waste due to fast fashion movements. Most of post-consumer waste end up into the landfills specially in developed countries like USA and Europe. Fashion industry waste contains different textile fabric, threads, yarns and fibres which can be utilized and converted into useful and innovative products. In this way, we can reduce greenhouse gases footprints on the earth surface and also reduce non-biodegradable waste accumulation. The main aim of this review article to attain sustainable development goals of 2030 by following 3Rs rule i.e., refuse, reduce and recycle. To achieve sustainable development goals by replacing of non-biodegradable products like plastic price tags/plastic wire for holding tags and buttons with biodegradable substitute. Plastic packaging could be replaced with biodegradable plastics and paper. Packaging material waste like plastic bags, collar clips, neck bands etc. can be recycled and further converted into packaging materials. Leftover fabric scraps/cuttings or defective garments could be used as a filling for quilted products by shredding. Introducing swapping stores both online and offline like thrift stores to reduce the impact of fast fashion. Because fast fashion increases the generation rate which is far more than the decomposition; as clothing is dumped into landfills. Thus, these type of techniques of waste reduction and management can be adopted to make the fashion industry sustainable.

From Drapery to Minimalism: Crafting Sustainable Couture

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In an era demanding the intersection of fashion and environmental sustainability, the central challenge is crystal clear: how can we express our individual identities through sustainable fashion? This sets the stage for a transformative journey in fashion design and creation.

This research is centered on creating garments that embody simplicity – characterized by minimal folds, discreet stitches, and a profound emphasis on fundamental shapes. The research draws from the evolution of clothing, tracing back to a time when garments were draped. They covered the body effortlessly, celebrating the intrinsic allure of textiles. Departing from the trajectory that led to intricately tailored, body-specific sewn garments, this approach embraces minimalism. Drawing inspiration from draped garments and techniques across civilizations, the methodology encompasses secondary research delving into the diverse draping styles and primary research involving creation of draped or semi-stitched garments.

The garments born from this approach are predominantly textile yardage, held together by a few stitches to provide structure and form. These innovative creations eliminate the need for intricate draping each time they are worn, offering the practicality of contemporary attire while preserving the essence of drapery. Being easy-fitted and primarily created through folding around the body, with minimal stitches, they naturally conform to different body types, ensuring comfort and style for everyone: Versatility of fit.

The research documents the potential this technique as:

It entails the utilization of handloom textiles, richly steeped in India's heritage, to create garments, thereby contributing to the artisan sector while presenting a contemporary fashion solution.

It entails upcycling textile waste into fresh fabric yardage, offering an environmentally conscious approach that simultaneously adds a personal touch and value to the outcome.

This project , endeavors to explore fashion's potential as a solution, to shape a future where style thrives in synergy with sustainability.

Adaptation or Erosion: Influence of Modernization on Religious Figurines Crafted in Pottery Town

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Pottery town, where tradition and artistry merge to create a unique and fascinating cultural experience, is a quaint neighborhood nestled in the heart of Bengaluru. As one explores the narrow lanes and hidden corners, one will encounter an array of pottery items, from dinnerware to ornate decorative pieces. While traditional potter's wheels continue to spin gracefully, artisans are often found experimenting with contemporary designs and techniques, bridging the gap between the past and the present. As the seasons shift, the artisans of Pottery Town diligently craft intricate religious figurines tailored to each upcoming festivities. However, as technological advancements and evolving cultural practices reshape artisanal communities worldwide, it becomes imperative to understand how these changes influence traditional craftsmanship.

This study investigates the multifaceted impact of modernization on the design, production techniques, and production range planning of religious figurines in Pottery Town. We aim to conduct artefact analysis and review historical records to trace the trajectory of pottery production. Additionally, we aim to interact with the artisans of Pottery Town to understand the evolution of their practices over the years, and identify the strategies employed by them to adapt to contemporary preferences and maintain their cultural heritage.

The significance of this research is twofold. First, we seek to elucidate the extent to which traditional practices are being preserved, modified, or potentially lost in the face of contemporary preferences. And second, we aim to provide practical insights that can be applied to maintain a balance between tradition and adaptation in the face of modernization.

Robotics and Automated Manufacturing in Textile Industry: Weaving the Future of Fabric Production

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The textile weaving industry has undergone a remarkable transformation with the integration of robotics and automated manufacturing. This study provides an in-depth exploration of the key technologies and software systems that have reshaped the sector.

In the realm of textile weaving, Computer-Aided Design (CAD) software serves as the creative genesis, allowing designers to craft intricate patterns and designs. Through Computer-Aided Manufacturing (CAM) software, these digital designs are smoothly transformed into machine-readable instructions, accelerating the transition from concept to production. The heartbeat of automated weaving lies in Programmable Logic Controller (PLC) systems. These versatile systems orchestrate every facet of the weaving machinery, managing warp and weft threads with meticulous precision. Concurrently, robotic arms, guided by specialized programming software, execute tasks such as threading and material handling with unparalleled accuracy.

To ensure the production of flawless textiles, sensors, and vision systems are integrated with sophisticated image processing software. This real-time quality control detects defects, guaranteeing only impeccable products reach the market. The digital revolution extends beyond the shop floor. Data analytics and Internet of Things (IoT) platforms optimize production processes, offering insights into efficiency, energy consumption, and maintenance needs. Enterprise Resource Planning (ERP) software harmonizes these aspects, providing holistic management of manufacturing operations.

Simulation and modeling software have emerged as invaluable tools for pre-production optimization. These tools simulate weaving processes, minimizing material waste and allowing for the fine-tuning of weaving parameters before the first thread is woven. Predictive maintenance software anticipates equipment problems, allowing for preventive maintenance and saving downtime. This predictive approach ensures the longevity of automated equipment, enhancing productivity.

To conclude the study, the synergy of cutting-edge software and robotics has revolutionized textile weaving. This convergence has resulted in increased productivity, higher product quality, and more environmentally friendly production techniques. The textile industry is poised for continued innovation as robotics and automation continue to redefine its landscape, promising a future characterized by precision and sustainability.

Art, Culture, Craft, Nature and Sustainability

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Ancient India has a rich history of indigenous sustainable practices in art, culture, and craft, in-tuned with nature. These practices resulted from an in-depth knowledge of the environment and a desire to coexist with nature. Such as traditional architecture, handicrafts, textiles, agricultural practices, yoga and ayurveda, water harvesting, recycling and up cycling practices etc. It is a process of creative problem solving with minimal environmental impact.

The global fashion industry emits a hefty amount of green house gases per year. According to *The Environmental Impact of Fashion* written in Watson & Wolfe, the fashion industry produces 10% of all humanity's carbon emissions and is the second largest consumer of the world's water supply, which directly causes pollution. There is a urgent need to recognize and practise more sustainable practices to address environmental issues. Blind industrialisation has polluted the environment by toxic materials, synthetic chemicals.

In Santiniketan we have practised Rabindranath Tagore's philosophy and educational ideas in every possible field like sustainable education system to rural reconstruction with craft and design. He envisioned a holistic education that was deeply rooted in one's culture and surroundings but also connected to the wider world like Education in open air, self-discipline, training, healthcare, sanitation, modern and scientific agricultural production. Tagore infused craft and education, revival of traditional art and crafts, organising fairs and festivals in daily life and practice cultural festivals associated with nature.

Today, many organisations/brands in Santiniketan are trying to develop/help communities who practiced sustainable art and crafts, By doing so, they are not only protecting Tagore's Philosophy and environment but also provide employment opportunities for rural youth, making these crafts truly sustainable.

Present paper would discuss such approaches/models.

Application of Ecofriendly Fragrance Finish on for Cotton Fabric Using Rosemary Essential Oil

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There is increasing interest in the health and wellness benefits of herbal products as they offer a natural safeguard against the development of certain conditions and treatment for some diseases. Some essential oils can be used to infuse textiles with fragrance with added biological properties that can be useful for healthcare textile applications. Microencapsulation is an effective and important tool to prepare essential oil-based high quality and health-beneficial products in various industries in order to enhance their chemical, oxidative and thermal stability. In the present study, rosemary essential oil was selected as the core material; gum acacia and chitosan as wall materials. For standardization of microencapsulation process, the ratios of core and wall materials, temperature and pH were optimized on the basis of size of microcapsules, distribution of microcapsules and quality of wall of microcapsules observed under inverted microscope. For fragrance finish the ratio of rosemary essential oil:gum:chitosan in the ratio 6:16:0.08 at 45°C temperature with initial pH 4.0 and final pH 9.0 were the optimized conditions for development of microcapsules having good uniformity in size and distribution with sharp and thick walls. Further, fragrance finish was given to cotton fabric using optimized variables i.e. 70 g/L microcapsule gel, 3 g/L softener and 15 g/L binder maintaining M:L ratio 1:20 for 30 minutes at 40°C treatment temperature with exhaust method and dried at 80°C drying temperature with 2 minutes drying time and 120°C curing temperature with 30 seconds curing duration. The microencapsulated fragrance finished cotton fabric exhibited good wash durability and improved fabric properties i.e. fabric count, fabric weight, fabric thickness, bending length, tensile strength, elongation and crease recovery. This fragrance finish may be used in other cellulosic fibre as well as in sports textile, medical textile, home textile and cloth textile.

Sujani Weaving: An Indigenous Handwoven Craft That Aligns With The Sustainable Development Goals

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Sujani, an ancient weaving craft originating from Bharuch, India, is a testament to the artistry and ingenuity of traditional handloom techniques. Rooted in the intricate double cloth weaving method, Sujani stands as a prime example of sustainable textile production. This research delves into the multifaceted aspects of Sujani weaving and its alignment with the United Nations Sustainable Development Goals (SDGs).

Sujani weaving involves the meticulous interplay of two fabrics, skilfully woven to create pockets within the textile. These pockets are then generously filled with cotton, forming an on-loom product that offers a unique blend of beauty and functionality. The resulting fabric, adorned with intricate strips and checks, boasts an exceptional feature – it is entirely woven with no single stitch.

One of the remarkable characteristics of Sujani weaving is its ability to trap heat while facilitating the circulation of oxygen, making it a sustainable choice for various applications like quilt, bedspreads, cushions, etc. Furthermore, Sujani's sustainability extends to its minimal waste production. The utilization of every inch of fabric, including the selvage edges, underscores its eco-conscious approach. This efficient use of materials not only minimizes waste but also enhances its appeal as a sustainable textile.

The aim of this research is to explore Sujani weaving through the lens of specific Sustainable Development Goals, like Gender Equality, Affordable and Clean Energy, Responsible Consumption and Production, Climate Action and Partnership for the Goal.

The research highlights the importance of preserving and promoting a traditional technique as it aligns with the global pursuit of sustainable development and serve as valuable contributors to the SDGs.

An Analysis Of Existing Packaging Materials And Understanding Sustainable Packaging Material On The Indian Subcontinent

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The India Packaging Market size is estimated at USD 71.90 billion in 2023, and is amongst the top 10 in terms of size and volume in the world. Packaging consumption in India has surged by 200 percent in the last decade, growing from 4.3 kilograms per person per annum (pppa) to 8.6 kg pppa, according to the Indian Institute of Packaging (IIP). Thus the adoption of smarter and sustainable packaging options has become a top concern, with burning concerns of high production-related carbon footprint, high volumes of waste, persistent pollution, and causing harm to wildlife and the ecosystem.

Deploying sustainable packaging across industries and judicious usage of packaging material such as plastic, paper, metal and others, is the pressing need of the hour.

The rich material culture of the Indian subcontinent, deeply rooted in Nature and inspired by the philosophy of recycling, can be a source of inspiration for sustainable packaging materials and methods. If recyclable local materials and techniques of packaging can be scaled up for mass production, India might be able to solve its wastage problem and, may be, offer groundbreaking solutions, that can be emulated by other countries.

This paper has the following objectives:

Identify the amount of wastage and critique existing modes of packaging, citing various examples from FMCG sector, online deliveries and retail fashion outlets

Search into sustainable modes and methods of packaging and its materials, in the past material culture of the Indian subcontinent

Provide contemporary examples of sustainable packaging employed throughout the world

Seek and articulate solutions in sustainable packaging for certain industries

Initiate a dialogue and discussion in the academic and pedagogical domain of sustainable packaging

Tracing Time and Tradition: An In-depth Examination of Historical and Contemporary Motifs in Pottery Town Craftsmanship

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This research undertakes a comprehensive exploration of the cultural significance, evolution, and contemporary relevance of motifs within Pottery Town's craftsmanship. The study aims to trace the historical roots of these motifs and examine their expression in contemporary pottery and related products. By doing so, it seeks to contribute to a deeper understanding of how cultural traditions persist and adapt in the face of modernization. Employing a multidisciplinary approach, this research first delves into the historical development of these motifs, uncovering their origins and evolution over time. Subsequently, it investigates the cultural significance and symbolism associated with these motifs in the context of Pottery Town, shedding light on their profound connections to the local community. The study then shifts its focus to the contemporary landscape, analyzing how traditional motifs have evolved and adapted to suit modern artistic expressions and consumer preferences. Market research and interviews with consumers provide insights into the current market demand and perceptions of pottery featuring these motifs. The present study investigates the effects of modernization and globalization on the motifs and workmanship of Pottery Town, emphasizing the delicate balance between traditional techniques and contemporary influences.

This study highlights the long-lasting persistence of cultural traditions, as demonstrated by the incorporation of motifs in Pottery Town handicrafts, and underscores their role as carriers of cultural heritage and symbols of artistic continuity in an ever-changing world. This research offers valuable insights for scholars, artisans, and enthusiasts alike, providing a foundation for further investigations into the preservation and evolution of traditional crafts within contemporary society.

A Study on Transition to Circular Economy for Sustainable Development In Textile, Apparel and Leather Industry

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Textiles, apparel and leather sector is facing many challenges globally in current scenario. With ever changing demands of customers, it is a big challenge for industry to adopt sustainable development practices. Consumption in textile, apparel and leather industry with many unsustainable practices emit huge amount of pollution and leave a big impact on the environment. With a transition towards sustainable practices the government agencies, business houses, manufacturing units, society and industry must be ready to prepare for circular economy models to have sustainable future of textile, apparel and leather sector. The circular economy (CE) approach will provide the solution to solve this challenge. This paper aims to study the transition in textile, apparel and leather sector to redesign and develop circular economy business models for sustainable future. The circular economy (CE) model seems to be the right solution to solve the challenges for adopting sustainable practices in textiles, apparel and leather industry. Theoretical and practical evidences from literature and received from industry seems to develop approaches for CE transition in textile and leather industry. This paper focuses on how circular economy (CE) model can be practically incorporated to design & develop business models at sites for social, economic and ecological sustainability for future generations.

Inherent Circularity of Fashion in Culture: A Case Study of Traditional Kerala Wear

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The Industrial Revolution has brought with itself a model of linear economy, where products are built and used according to the following ways: (i) Resource extraction, (ii) Production, (iii) Distribution, (iv) Consumption, and (v) Waste. This system ensures a constant stream of produce, which is consequently transformed into irredeemable waste. The fashion industry is a significant contributor to the increasing problem of waste production, where fast fashion adopts and even encourages the quick use and discarding of garments. Due to recent awareness campaigns, designers, design houses, and manufacturers are now trying to pivot towards circular fashion, where clothes can be utilised for some purpose even after their primary role is over. It then becomes pertinent for researchers to pay attention to and analyse practices that are favourable to such practices.

It is observed that even though circular fashion is a recent term, certain cultures have been practising the same throughout history, and some of those practices remain to this day but are under-researched. Realising that these instances of garments and apparel reuse/multiuse could help in a better understanding towards a robust practice of circularity, this paper tries to document and analyse patterns of these garment uses and then categorizes them according to their modularity, circularity, and multifunctionality. The study explores use cases from the state of Kerala and interviews participants about such practices. The paper also documents instances where circular use of garments has occurred within these households. The paper ends with a section on the lifecycle use of these garments and argues for design ideas that can be incorporated into them to make them more viable for future reuse and multi-use.

Woven Design And Its Effect On The Performance Of Fire Protective Clothing

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Fire is a source of energy that produces light and emits radiative thermal energy. Due to the billions of deaths caused by fire over many years, research into fire protective clothing began in the middle of the nineteenth century. In this process, it increases the thermal energy as well as the temperature of the surroundings. The turnout clothing of firefighters must provide both thermal protection and comfort during operations. As far as comfort is concerned, that is also a crucial factor because comfort affects a firefighter's effectiveness, making it crucial to create clothing that is both light and highly fire resistant. Thermal insulation properties also vary with varying designs of fabric. Turnout suits are multilayer garments or jacket and trouser made of well-designed fabrics that have an outer shell fabric, an inner layer that acts as a moisture barrier and an inner layer that acts as a thermal liner. To protect the wearer from thermal injuries, toxic fumes, and trauma, the outer shell fabric needs to have good heat resistance and strong mechanical properties. In this investigation, the performance of the outer shell fabric of multilayered clothing was examined in relation to various woven design and pick densities. Nomex IIIA was chosen as the material of choice due to its inherent properties for thermal protection. Benchtop experiments were created to replicate the conditions that firefighters experience while putting out fires. In order to assess the comfort performance of the fabrics, the water vapour transmission rate (WVTR) and thermal resistance of various woven design of fabric were used. The protection time was discovered to be affected by the pick density and design of the outer layer. The thermal resistance increased while the water vapour transmission rate decreased as the pick density increased.

Life Cycle Analysis of Indian Fashion Designers: Mapping Financial Impact of Sustainability Practices

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This study was undertaken with the objective of understanding the sustainability practices in place across the life cycle of Indian fashion designer-wear labels and their impact on the financial performance of the organisation. The authors also wanted to understand the financial metrics used by Indian fashion designers and how best their financial performance can be measured. For this purpose, in-depth interviews were conducted with the designer-founders of seven Indian designer-wear labels. Non-probability Purposive sampling technique was employed to select these designers. The interviews were recorded and transcribed for data analysis. In-vivo coding was used to analyse the data and codes were identified from the literature reviewed. These codes included: design process, materials, waste, production, innovation, craft, resource, distribution, sourcing, stakeholders, afterlife, co-creation, communication, financial impact, and financial metrics. The data revealed themes across the life cycle of the products offered by these designer-wear labels. The practices of these designer-wear labels across the life cycle were pitted against the life cycle analysis sustainability benchmark model previously developed by the authors, and points of parity and difference were identified. The impact of sustainability practices on the financial performance of these organisations was also assessed. Recommendations were given for Indian designer wear labels to make their life cycle more sustainable and enhance their financial performance.

Materiality Assessment of the Indian Fashion Designer Wear Industry: Creating a Framework

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The fashion industry is wasteful and the second-highest consumer of non-renewable resources globally. India accounts for 63 per cent of the global textiles and garments industry. For such a considerable contribution, the role played by apparel designers in clothing manufacturing cannot be ignored. This study was undertaken with the objective to understand the sustainability-related risks and opportunities prevalent in the Indian fashion designer wear industry. By understanding the sustainability issues most important to this sector companies functioning in this industry can focus their efforts on enhancing sustainability in the areas of material focus. For this purpose, in-depth interviews were conducted with the designer-founders of seven Indian designer-wear labels. Non-probability Purposive sampling technique was employed to select these designers. The interviews were recorded and transcribed for data analysis. In-vivo coding was used to analyse the data and codes were identified from the literature reviewed. The results of the data analysis were triangulated against frameworks developed by Indian and Western researchers and international Environmental, Social and Governance (ESG) disclosure frameworks to create a checklist of material ESG issues for the Indian fashion designer wear industry. The identified areas of material focus include: the social welfare of workers and artisans, research and development, waste management, integration of heritage crafts, sustainable materials, customisation and personalisation of products, reduction of transportation footprint, consumer awareness about sustainability, supply chain transparency, employee training on sustainability practices, communicating sustainability practices to stakeholders, and after-sales repairs, returns, and take-back programs.

Recycling: Downcycling and Upcycling

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The conversion of different waste material to useful or new product is known as recycling. In textile, recycling is done by reprocessing scraps of cloths or clothes. Recycling of textiles can be open-loop i.e. textile to non-textile and closed-loop i.e. textile to textiles. Due to increase in population, fast changing fashion trends and rising living standard, demand of textiles and clothing is also increasing as a result textile waste is also increasing. Around 92 million tonnes of textiles wastes is produced every year. Approximately 92 million tonnes from 100 billion garments produced each year, ends up in landfills. One of the reason for environmental problems and deteriorations of ecological balance is also textile and clothing wastes. Production of new products from wastes through recycling process can also support economy of a particular country. Most effective methods of clothing waste disposal are reuse and recycle. Textiles comprise 3% of household waste by weight. Production of textiles in large quantity results in overconsumption of natural resource and water pollution due to dyeing and other finishing processes. Due to growing environmental awareness and legal requirements for sustainable development, usage of recycled fibers has achieved enormous importance. This paper discusses about different type of wastes produced during process i.e. textile wastes and clothing wastes as well as different methods used to recycle them.

Branding Kunbi saree: Exploring Ways to Transform Product Authenticity into Branding Strategies

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This paper aims to explore strategies for transforming Kunbi Saree's authenticity into a branding strategy by understanding the target market's perception of product authenticity. The Kunbi saree, named after one of Goa's oldest tribes, the Kunbi, is a distinctive checked saree primarily dyed in a rich red color. Crafted by hand, these checkered patterns on sarees are adorned with vibrant colors, including Yellow, White, and Green (natural sources). Notably, the hallmark of Kunbi saree design lies in its geometric border patterns. The arrival of colonialist influences in Goa led to a decline in the production of Kunbi sarees. However, these sarees began to resurface, with the efforts of traditional textile enthusiasts and renowned fashion designer Wendell Rodricks. In the face of modernization, the Kunbi saree is on the brink of extinction when weavers within the Kunbi community have moved away from their traditional roots, and garment losing its distinct patterns and colors for contemporary designs that evolved with consumer preferences.

The objectives of the study focus on finding the authenticity of Kunbi Saree, using caselets on existing Kunbi saree brands who are trying to capture market interest, and how consumer perceives product authenticity. Product authenticity perceptions can be used to formulate effective brand strategies, which can be converted into Brand authenticity in a long run. The research methodology is structured around the collection of secondary data, case study approach and the administration of survey questionnaires on women aged between 21–55, which are carefully designed to capture valuable insights into consumer perspectives regarding product authenticity.

In today's research-savvy consumer landscape, understanding their perspective on branded authentic traditional products can unveil opportunities for promoting traditional textiles. The implications of this research extend beyond Kunbi Sarees, as the findings hold the potential to shape powerful branding strategies for traditional textiles and products.

Generational Perspective On Bidriware Craftsmanship : Understanding Adaptations, Challenges And Motivation Over Past Two Centuries

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Bidriware, a traditional metalware craft indigenous to Bidar, stands as a testament to the symbiosis of artistic aesthetics and intricate craftsmanship. This paper delves into transformations this craft has seen for the last 200 years, shedding light on the evolving design practices accepted by and benefitting the artisans.

The research uses design analysis, participatory interviews and empirical observations, to uncover an active interaction between sustainability, design evolution, and artisanal welfare. Over the centuries, with various external influences, there was an evident shift from traditional motifs to more contemporary patterns. These design shifts also brought about adaptation towards sustainable market presence.

Alongside, a rich tapestry of generational perspectives emerges. Senior artisans, the custodians of tradition, often emphasize the sacredness of age-old techniques, viewing them as touchstones of authenticity. Their works often resonate with the core tenets of classic Indian aesthetics. However, younger craftsmen, while revering their heritage, display adaptability. Their creations often juxtapose traditional motifs with contemporary patterns, echoing the zeitgeist of Indian art and society. The benefits of evolving designs have been multifold, such as enhancement in the crafts perception, higher economic returns and collaborative approach by craft-entrepreneurs.

The incorporation of sustainable design practices meant that the artisans could make use of local, sustainable materials, innovate through processes and finishes, reducing environmental footprints while preserving the integrity of Bidriware.

In conclusion, this paper underscores the critical importance of balancing design evolution with sustainable practices in traditional crafts, all while ensuring the well-being and acceptance of the artisan community at its heart.

A Study Evolution of Tibetan Brocades Motifs in Present Scenario for Luxury Market

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Tibetan Brocades like Gyasar, Gyanta and Thankga etc has always been the part and parcel of Buddhist Traditions. They are the narrative of Buddhist Cultures since ancient times starting from weaving stories and learning of Buddha on this sacred cloth to new-age luxury floral motifs for various Brands. The journey of Brocades seen is meticulously talked about its rich tradition and never-ending heritage. This review paper will discuss about the journey of Tibetan Brocades merely from a sacred cloth to a fabric of sophisticated consumers of India, changes in terms of motifs, color schemes, product diversification and development processes. Focus will be on its present status and technological advancements in Banaras Brocade Industry. Method used for research will be collection of primary and secondary data related brand studies and interactions with Historians, Artisans and other stakeholders.

Sustainable Clothing Practices Amongst Maharashtra's Elderly Women: a Cultural Legacy of Resourcefulness and Environmental Respect

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In the vibrant tapestry of India's cultural heritage, the state of Maharashtra stands as a beacon of sustainable clothing traditions, proudly upheld by its golden-aged women. This research illuminates the timeless and inspiring practices of these women who have seamlessly integrated tradition, sustainability, and environmental consciousness into their way of life. This paper employs qualitative research, including unstructured interviews with senior citizen women from rural Solapur and Nasik districts of Maharashtra. It seeks to document and explore the timeless practices and ingenious techniques these women employ to repurpose and upcycle clothing. To amplify the relevance of these findings, extensive reviews of prior research and existing theories have been conducted. From heirloom Paithani saris to everyday Ilkal saris, the practice of passing down clothing to future generations is customary. Moreover, these women demonstrate a unique penchant for repurposing old garments, often dressing newborns in soft, hand-me-down clothes from older siblings or cousins. One notable practice is the art of crafting vibrant rugs and quilts, known as "Godhadi" in Marathi, by transforming old garments. These women also eschew buying pillows, instead recycling discarded fabrics into hand-stitched cushions. In the face of adversity, the Maharashtra women, particularly those from marginalized communities, have remained resilient, embodying principles of resourcefulness, creativity, and deep respect for the environment. They ingeniously salvaged old Ilkal saris by retaining the undamaged portions and skilfully piecing them together, creating the "Junaari" sari. In Marathi, 'Juni' signifies old, plus 'sari', aptly naming this distinctive creation. This research offers a unique insight into the sustainable clothing practices of Maharashtra's elderly women, showcasing their resourcefulness and respect for the environment. Their practices provide valuable lessons for a world increasingly concerned with sustainable fashion and consumption.

Sustainable Packaging Design for Pizza

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Pizza is a pervasive component of fast-food culture and is widely enjoyed globally, serving in various settings ranging from residential households to street vendors. The aim of the presented research is to conduct a detailed examination of pizza packaging. Pizza packaging, especially pizza boxes, poses unique challenges regarding leftovers. In current packaging, there are certain issues like heat loss and, the presence of certain oils like fluorocarbons, mineral oils, phthalates, bisphenol A (BPA), and non-ylphenol pizza boxes. These chemicals are suspected to be health and safety concerns. Beyond health concerns, pizza packaging contributes significantly to environmental issues. Millions of trees are harvested yearly to produce disposable paper pizza boxes, which serve their purpose for a mere half-hour before being discarded. The energy-intensive manufacturing and distribution of these boxes further exacerbate their environmental footprint, raising questions about sustainability. For a detailed examination, a survey was conducted, and 572 responses were collected. The survey, which was administered to a heterogeneous sample of participants, highlights the need for increased availability of pizza packaging solutions that are both practical and environmentally sustainable. By considering this a new packaging design for pizza is to be proposed.

Revolutionizing Footwear Manufacturing with a 3d Metaverse Virtual Factory which Operates the IOT Automated Factory

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The footwear industry faces longstanding challenges tied to labour-intensive production and high operational costs. In response, manufacturers have traditionally outsourced to countries with lower labour expenses. However, this approach has its significant hurdles, including disruptions due to pandemics, geopolitical uncertainties, shipping delays, and the proliferation of counterfeit products, all of which have adversely impacted profits.

This paper introduces an innovative solution to tackle these challenges: the 3D metaverse virtual factory. This virtual factory seamlessly integrates real-world manufacturing processes with a network of smart Internet of Things (IoT) robots and machines, all remotely operated via the internet. The ground breaking system substantially reduces reliance on a sizable human workforce, resulting in considerable cost savings for manufacturers.

The virtual 3D metaverse factory offers compelling advantages, including cost optimization, heightened security, and uninterrupted 24/7 production. By bridging the physical and digital realms, this approach empowers manufacturers to swiftly adapt to evolving global dynamics, thereby enhancing efficiency, productivity, and flexibility, while bolstering resilience against unforeseen disruption

This paper delivers a comprehensive overview of the virtual 3D metaverse factory, explicating its fundamental components and technological prerequisites for implementation. It explores potential economic benefits for footwear manufacturers and underscores broader implications for industries grappling with labour-intensive challenges.

Furthermore, the paper details the integration of advanced IoT machines and robots into the 3D metaverse virtual factory, emphasizing their pivotal role in automating and streamlining manufacturing operations. The ability to remotely control these machines via the internet introduces an unprecedented level of flexibility and responsiveness compared to traditional manufacturing settings.

In summary, the proposed 3D metaverse virtual factory with IoT automation, represents a transformative shift in footwear manufacturing. It

offers an adroit solution for cost reduction, security enhancement, and continuous, automated production. This research lays the foundation for the convergence of digital and physical manufacturing in today's dynamic global landscape, fostering innovation and adaptability within the industry.

Recognition Of Artists Studies On Scroll Painting Tales In The Telangana State

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The cheriyal, another name for Cheryl, This art, built on the name of the area, or patta scroll painting, has a rich heritage and has been made for a long time. These are currently made in Hyderabad's Boduppall village. These are made in the narrative format like a religious community and based on the native story of heroes, tails to painting, and strips. These are painted in vivid hues, and mostly these are primary colors, with a dominance of red in the background. Most hearts are constructed in the form of diagrams using primary colors. A combination of natural colors consists mostly of red and yellow color combinations. The subjects of these paintings are mostly themes and stories that are familiar, i.e., that are drawn from literature, mythology, folk tradition, etc. These could also include scenes from rural areas. These are mostly depicted in figures that reflect the traditions of Andhra and Telangana state.

This is my paper to promote this art, especially the families who make it. They are less visible, and the main purpose of introducing them is to make them aware of their ideals. Most of these techniques are made by professional massage therapists who have a visual form to explore and can incorporate all their gestures. The dreams of friends are also diminishing because of social media; this dream will disappear in the coming days. Our effort is to show the marks of their work to the next generation. It is our hope that the families who depend on it will get the recognition they deserve by living this dream that will make society happy.

A Study on Evolution of Metal Repousse Craft of Varanasi Especially in Terms of its Motifs and Product Diversification as per International Demand

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Metal Repousse Craft is one of the oldest flourishing crafts of Varanasi and its presence has been marked since Vedic age. In Metal Repousse malleable metal is embossed as well as hammered from reverse side to make shape to form a embossed as well as raised design in the front, the technique used for this is commonly referred to as "Repousse Technique". Traditionally, the craft is known for its silver, copper, brass & other metals gods, goddesses, utensils, and other accessories historically made for sacred purposes. Currently after getting prestigious GI Tag the craft is continuously uplifting on international front demand from various international countries leads to innovation in terms of motifs, products, and materials. Journey of Narratives starts from Traditional motifs include Ramayana, Mahabharata Scenes, Jainism & Buddhism Scriptures to modern contemporary motifs including florals, s, illusions etc. This review paper will talk about its status in terms of the new product line and prospects as per current trends. Methods used will be both primary and secondary like research papers, online websites, Consumers, Artisans & other stakeholders.

Role of Indian Traditional Textile Art on Sustainability and Economical Growth

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Indian textile industry is one of the oldest and most vibrant sectors in the country, deeply rooted in tradition and culture. However, in recent times, it has faced challenges related to sustainability, environmental impact and economic growth. This review paper explores the delicate balance between preserving India's rich textile heritage and promoting sustainable practices while fostering economic growth, we delve into the historical significance of tradition and modernity in the textile industry. The comprehensive review delves into the intricate web of Indian traditional textile art seeking equilibrium between its profound cultural significance, sustainable existence and economic expansion. We traverse through the historical roots of these textiles, the formidable challenges they confront and innovative strategies to harmonize tradition and economic growth.

In conclusion, Indian traditional textile art is not merely an artistic expression but a potent catalyst for sustainability and economic growth. Its commitment to eco-friendly practices, employment generation and global market presence position is a vital component of the Indian culture and economic landscape with the potential to drive a sustainable and economically prosperous future.

Sustainable Flame Retardant Finishing of Functional Textile Materials

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The major limitations of currently used Flame Retardents (FRs) for functional textile material are that they were toxic and generate environment pollution by leaching into groundwater and other water bodies. Among available FRs in the market, halogenated FRs are more efficient and cost effective. However, they are highly toxic and hazardous to environment. Now days due to increasing environment and health concern especially among US and European buyer, they are looking for eco-friendly and sustainable FRs. The current review laid emphasis on recent development in the field of sustainable and eco-friendly FR for functional textiles. Majority of eco-friendly and sustainable FR are based products contains heteroatoms such as phosphorous, nitrogen, sulphur, silicon and boron elements. These eco-friendly FR can be produced in industry as well as obtained from natural/bio-based products (biomass, egg waste, etc).

Textile Waste-Based Cellulose Composites: A Review

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Due to increased environmental awareness, the depletion of fossil fuels, and expanding ecological concerns, today's society has a larger need for environmentally friendly materials. The idea of sustainable development of environmental material resources with enhanced economic activities was born from the rise in ecological consciousness.

The textile sector contributes significantly to global waste generation, with large amounts of textile waste thrown each year. The textile industry generates enormous amounts of output of used cotton. The environmental impact of disposing of this cotton waste makes it difficult for the textile sector to dispose of the vast amounts of produced cotton waste.

As a result, all-cellulose composites (ACCs) have piqued the interest of researchers in recent years. This paper gives a comprehensive investigation on the long-term usage of textile waste as a key raw source for the production of cellulosic composite materials. These composites provide a viable route for recycling and repurposing textile waste while lowering the environmental impact of traditional textile disposal.

All-cellulose composites are mono-component cellulose composites made completely of cellulose in which the reinforcing phase is typically composed of high-strength cellulose fibres, and the matrix is composed of regenerated cellulose. This composite type is distinguished by its exceptional interfacial compatibility and biodegradability due to the matrix and reinforcing phase having common cellulosic compositions. ACCs will become a more alluring option as enterprises prioritize sustainability and environmental responsibility because they can be recycled and reused rapidly and simply. This will contribute to less waste and enhance the overall sustainability of our society.

ACC materials provide various competitive advantages, including lightweight, recycling capacity, low toxicity level, excellent optical, mechanical, and gas protective characteristics, and abundant renewable plant-based raw materials. This review paper discusses various methods and solvents to develop ACCs, textile waste-based thermoset and thermoplastic composites, and textile waste-based cellulose composites (TWCCs) and their applications. This review paper emphasizes approaches to develop TWCCs, challenges, and opportunities in TWCCs.

Chemical Processing of Glass fibre: A Review

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This paper discusses the chemical-based treatment of glass fibers and modification of the surface. Glass fibers are an inorganic fiber that neither has orientation nor crystalline structure. It is the most conventional and effective fiber. Its mechanical characteristics are equivalent to those of other fibers like carbon fiber. Due to its strength, light weight, and resilience to the elements, glass fiber is one of the most versatile industrial materials used in aerospace, construction, electronics, and automobiles. Glass fiber is an ordinary substance for reinforcement employed in polymer goods. It typically contains more than 50% of the elements that include silica sand, alumina, and limestone, which fuse at an extremely high temperature of 1700 °C to produce the completed product. Glass fibers are made using a variety of methods, including nozzle blowing, nozzle drawing, and rod drawing. To enhance the performance of glass fibers, many chemical processes are used, such as coating and sizing. Lubricants, binders, coupling agents, antistatic, anti-oxidizing, plastifying, and bio-sides are used to coat glass fibers. Glass fiber gains mechanical and abrasion-resistant qualities as a result of this coating procedure. A technique to improve the adhesion between resin and fibers in composites uses silane as a coupling agent for modifying the surface of glass fibers. Glass fibers are included into textiles following sizing. A film forming agent, coupling agent, lubricating agent, surface active and emulsifying agent are examples of size materials that are used in sizing. Glass fibers are subjected to surface modification during the sizing process, which shows surface protection, composite interphase creation, and strength maintenance. Glass fibers are dyed using the sol gel process with basic dye, disperse dye, and metal complex dye for textile applications. Due to their non-porous structure and lack of dye affinities, glass fibers can only be dyed via the sol gel process, which fixes dye on their surface. Glass fibers have been colored with deep and vivid hues using this technique.

Review on Sustainable Materials for Packaging Application

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The non-biodegradable plastics, irrespective of their application, are continuously degrading the environment, hence necessitating the adaptation of eco-conscious alternatives, which offers the environmental preservation. Hence, the thrust for safeguarding the environments transcends the ecological apprehensions encapsulating profound ethical commitments. The concerns of escalating environmental degradation and the imperativeness to mitigate the non-biodegradable plastic wastes have spurred the extensive research into the creation of environmentally friendly packaging materials. Interestingly, scientists have explored sustainable packaging materials based on biodegradable polymers, both natural and manmade.

The family of sustainable packaging materials is primarily based on the polymers derived from renewable resources like cellulose, starch, and lignin, and synthetic biodegradable polymers like poly (L-lactide), poly(caprolactone), and polyhydroxyalkanoates. The ease of processing, superior strength, durability while upholding the biodegradability, and complete degradation without producing harmful or toxic residues, renders the synthetic polymers as promising alternatives over natural resources. Sectors, viz., food, cosmetics, and electronics have witnessed the packaging materials based on synthetic biodegradable polymers. Hence, this review highlights the continuous efforts to develop the packaging materials envisioned for environmental preservation. The status of market size and publications, materials and techniques, challenges and opportunities in the field of sustainable packaging materials are elaborated in detail. Undoubtedly, by embracing the sustainable packaging practices, substantial contributions may be dedicated to eradicating the non-biodegradable packaging wastes, and the industries following such practices will have distinct brand image and allied advantages. The pursuit of exploring and enhancing the sustainable packaging choices has been accomplished through the meticulous material selection, which eliminates the packaging elements diminishing the environment, thus securing a brighter planet for future generations.

Gamification of Primary Education

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“Play is the highest form of research.” – Albert Einstein

Young minds learn and explore through play. In an increasingly digitised world, play has shifted its base to digital and virtual worlds, even for the youngest minds with basic cognitive skills. The relevance of sustainable education practices for the early learners becomes paramount, especially in the wake of recent pandemic of COVID -19 which catapulted the education system into the digital domain for younger children as well. Engaging the youngest generation has, ever since, made it imperative to incorporate the digital tools into pedagogy.

The paper elucidates the core problem of adapting traditional education systems to the digital era. Evolving definitions of sustainable education, learning, retention, educator and learner are fructified. Research methodology encompasses a comprehensive analysis of the evolving parameters that distinguish learning from education and shifting dynamics between the educator and learner, through primary data from providers of gadgets or technology and secondary research on changes in child psychology due to prolonged exposure to digital and virtual worlds. The research takes into account the disparities prevalent in different regions of India and shares insights into the challenges and opportunities unique to this demographic with a specific focus on the rural-urban divide.

The research delves into the significance and effectiveness of gamification in e-learning to bridge the gaps and enhance learning outcomes, offering a fresh perspective on the interplay between technology and sustainable education practices. It explores the implications of dynamic approach of digital and e-learning experiences in the primary education system. Additionally, it highlights the potential for further growth and innovation in this segment. However, the paper also cautions against the plausible negative impacts on child psychology that may arise from excessive screen time and gamification-induced addiction.

Sustainable education can harness the power of gamification to engage and inspire young learners and there is a great scope for growth in this dynamic field, while remaining vigilant of the negative repercussions. Ultimately, the paper provides a valuable framework for educators and policymakers navigating the ever-evolving landscape of digital education.

Decorative Elements in Ancient Temples of India

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The Ancient temples of India have a rich vocabulary of decorative elements that have enhanced their visual appeal. Temple architecture was based on ancient treatises like Shilpashastra, and Vastushastra that guided the artisans (shilpkars) on every aspect of temple building, and with time they developed into regional styles of Nagara and Dravida temples. These were decorated with ornamental motifs and patterns that were inspired by the forces of nature, flora, fauna, and animals. With time some of these motifs gained symbolism and meaning in philosophical and religious context, while the others were solely for artistic pursuit. With the evolution of temples, the decorative elements also evolved and became quite intricate and complex owing to regional development. These motifs soon transcended across mediums, from stone to textile, paintings, jewelry, and arts and crafts. However, every culture has its indigenous ornamentation patterns that are seen in every aspect of the society, like wall murals, and floor designs (seen in south India). Therefore, it is possible that these may have influenced the artisans. This paper investigates the evolution of the decorative motifs in ancient temple architecture, taking a few temples across the regions as a case study. To study the common motifs found, (if any) in Nagara, and Dravidian styles of temples, cross-cultural influences, and their reflection, in the art and crafts of the region.

Hemp - A miracle Plant for Sustainability

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A miracle plant or society's villain, hemp's relation with humans can be traced back to 12 thousand year ago in Chinese civilizations making hemp one of most cultivated crop in the history. It can be used for variety of things from food, Textiles, medicine, energy, oil etc. Hemp was spread globally by the sailors as it was 2nd most used material on ships after woods. From sails to rope it was all hemp because of its strength. Hemp seed, a good nutritional food and easy to store is also a reason sailors preferred it. With innovation and introduction in other textile meant reduced dependence on hemp.

Governments around the world started banning all hemp varieties because of its recreational use. With country like USA which associated hemp with not white population of there country and started propagandas for its ban and took it internationally forcing countries to amend there policies. Now governments are legalizing Hemp with measuring its THC content, a chemical responsible for psychoactive effects on brain and differentiate between hemp and Marijuana.

A cotton t-shirt uses equivalent of 3 year drinking water to make and cotton is most used textile in the industry. Hemp in relation to cotton uses fraction of water and land to grow. Hempcrete, a building block that can be used in construction industry making it a good replacement to concrete. Hemp traps more carbon dioxide from the environment. These are few examples that makes hemp a miracle plant for fight against the climate change.

In country like India where hemp is considered scared plant along with Jasmine, Sandalwood, Neem, Tulsi and Vijaya (hemp) which give a natural advantage in booming global economy and can help india teach its sustainability goals.

Designing a Sustainable Home Furnishing Collection Inspired by Traditional Crafts of the Kuba Tribe

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The negative impact of the fashion and textile industry on the environment has caused an alarming situation resulting in climate crises and associated social implications. Due to increasing awareness about different aspects of sustainability among different stakeholders of the textile industry, there is a great requirement to take intervention in the line of sustainable textile designing. At the same time, traditional textiles from around the world are an example of sustainable textiles. Kuba cloth from Africa represents sustainable design practices that use raffia palm fibres employing natural dyes and handwoven by Kuba men.

In this regard, an effort has been made to design a product range that caters to the needs of the brands which have their orientation aligned with sustainability. The product range includes tablecloths, napkins, placemats, table runners and coasters. The selected fabrics for the collection were cotton sheeting, casement, linen, cotton single slub, cotton flex etc. The collection takes its inspiration from the culture of the Kuba tribe. The tribal symbolism amalgamated into the subtle modern aesthetic uses earthy, neutral tones to create a collection perfect for the outdoor space. Different surface embellishment techniques were in alignment with the design aesthetics to cater to a global audience. Patchwork, applique, dori work, and aari embroidery were done on product surfaces to imitate the effects of Kuba tribe designs. The design intervention attempts to incorporate the core principles of sustainability into aesthetics of the tribal culture hence promoting sustainable design practices in terms of environmental protection and design upliftment. This kind of design intervention could be a one step towards imbibing sustainability into the brand aesthetics and product range reflecting a perfect blend of the rural world into the world of classic modern luxury.

From Ban to Boom: Hemp, the Economic and Environmental Game Changer for the Fashion Industry

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This research explores the untapped potential of hemp fibre as a game-changer in the textile industry, addressing its economic, environmental, and social advantages. With a focus on India, this study investigates the feasibility of commercializing and industrializing hemp fibre as a prominent apparel fabric, revolutionizing the fashion and textile sectors.

Hemp, an ancient and versatile plant, offers unique characteristics that set it apart from traditional textile fibres. Its rapid growth cycle, minimal water requirements, and resistance to pests make it a cost-effective and environmentally friendly option. One noteworthy advantage of hemp fibre is its superior water absorbency compared to cotton, enhancing comfort for wearers. Additionally, this research delves into experiments with various types of dyes, including natural dyes, on hemp. The study elucidates how hemp fibre interacts with dyes, forming strong bonds and resulting in vibrant and long-lasting colours. The physical and chemical properties of hemp fibre are explored, showcasing its suitability for a wide range of textile applications.

Hemp farming in India, with its immense potential, faces legal restrictions hindering growth. This research calls for lifting the ban, citing India's ideal climate and diverse agroclimatic zones. By promoting sustainable practices, it can drive rural economic growth through the textile industry.

In conclusion, this research highlights hemp fibre's potential in textiles, emphasizing economic, environmental, and social benefits. It outlines a roadmap for commercialization in India, stressing the need for policy support and investment. As the fashion industry shifts towards sustainability, hemp fibre offers an eco-conscious solution to meet growing apparel demands. This study encourages further exploration and investment to unlock its full potential, ensuring a brighter, sustainable future for textiles.

Textile Recycling

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Textile recycling is the process of converting waste or used textile materials into new products. The path to a world that is sustainable both now and in the future is made up of recycling and upcycling. As a more environmentally friendly form of recycling, upcycling is required to meet growing demand in place of manufacturing new products. Utilizing pre-existing materials also reduces the need for new raw materials for new goods, which can reduce energy consumption, air pollution, water pollution, and CO₂ emissions, making it a small step toward reaching zero waste. Due to rising knowledge of the damaging effects of textile waste on the environment as well as the financial advantages of recycling, the textile recycling sector is expanding quickly. Textile recycling can be done in a variety of ways, such as mechanical recycling, chemical recycling, and upcycling. In mechanical recycling, textile waste is shredded and turned into fibers that can be utilized to make new products. Chemical recycling is employing chemicals to break down textile waste and transform it into a new substance with a variety of uses. Upcycling is the process of using discarded textiles to make new goods that are more valuable than the originals. Additionally, Recycling old textiles may reduce the need for new ones, which can reduce the negative environmental effects of textile production. In general, recycling textiles is a critical step toward developing a sustainable and circular economy.

Inclusive Design and Human Factor Considerations: Designing Brassiere for Breast Cancer Survivors

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This paper focuses on the human factor considerations of intimate apparel to facilitate inclusive design and develop brassier styles for breast cancer survivors that cater to their post-surgical clothing needs. The initial consideration is given to the understanding of breast cancer survivors and the changes in their clothing requirements post-surgery particularly in the brassier category. The requirements are then examined in relation to achieving inclusivity in the design of brassieres and how human factor challenges are mirrored in product design to extend the context of use beyond functional purposes. The objective of this study is to gather basic details from the breast cancer patients on the levels of satisfaction of the brassiere styles and implement the human factors approach to convert the existing product styles into inclusive designs. The research methodology is a participatory user-centric approach using a questionnaire administered with a five-point Likert scale to understand the cancer diagnoses, experiences, and satisfaction with the brassier styles and prosthesis of participants. The participant group of 30 women represented a complete range of breast cancer stages who have undergone various types of treatment procedures including lumpectomy, mastectomy and reconstructive surgeries. Participants provided feedback on the adverse effects of cancer therapy that affected their satisfaction with the current brassier styles available in the market and also their opinions concerning the design of the product. The level of satisfaction with mastectomy bras and breast prosthesis was moderate, suggesting that designers need to collaborate and co-create the brassier styles and convert them into inclusive designs best suited for breast cancer survivors.

Polki Jewellery Heirlooms in India: Exploring their Role in Sustainable Fashion Practices

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India has been renowned as the “Golden Bird” for carrying infinite amount of raw materials, precious metals and gemstones. It has a rich tradition of crafting exquisite jewellery and preserving its rich heritage through heirlooms. One such prominent example is Polki jewellery- an Indian luxury craft having widespread popularity and strong demand among diverse audiences. Polki jewellery holds its roots in Rajasthan and grandeur since the Mughal Era. It’s handcrafted using high quality natural resources. Today, as the world faces a wide range of challenges like environmental degradation and overexploitation of natural resources, adopting sustainable fashion choices becomes critically important.

As of yet, there has been a negligible attempt to bring together the principles of sustainability and Polki jewellery heirlooms- a timeless craft cherished for centuries. This paper aims to investigate how Polki jewellery heirlooms in India are connected to sustainable practices, assessing its potential for responsible fashion consumption. The research methodology comprises desk research followed by qualitative data collected through interviews with craftsmen, industry experts and relevant consumers from Jaipur and Bikaner locations.

Exploring the dimensions of production process, craftsmanship, economics and environmental impacts it has been discovered that Polki jewellery heirlooms align with the principles of slow fashion and subsequently reduces environmental impact within the fashion ecosystem. The findings may be considered as a starting point to help businesses and designers adapt to changing consumer preferences and stay ahead of the competition. On the other hand, understanding sustainable impact of Polki jewellery can further help consumers make informed choices.

Social Entrepreneurship: Catalyst for Equitable and Sustainable Transformation

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Social entrepreneurship has emerged as a powerful catalyst for driving equitable and sustainable transformation across the globe. This explores the fundamental principles of social entrepreneurship, highlighting its role in addressing pressing social, economic, and environmental challenges while paving the way for a more just and sustainable future. With a focus on social economy theory, this study intends to establish an integrated theoretical framework for sustainable local and regional development. With an emphasis on sustainability's challenges and the role of social economy in local and regional development, the theoretical literature on social economy and sustainable local and regional development is examined and integrated. It is necessary for those who uphold sustainability values to agree and work together in order to avoid conflict and competitiveness. A social economy that reflects local and regional needs and pursues complicated goals has social businesses at its center. Social enterprises work together with a variety of stakeholders on their business and social goals as part of the social innovation process.

By addressing regional and local needs, generating local employment, strengthening interpersonal relationships within the workplace, and fostering a sense of community cohesion, social enterprises have positive consequences that influence local and regional development. According to social economy theory, by including relational assets, which represent social capital in social innovation processes, social firms can promote sustainable local and regional development. Relational assets are significant reinforcements of institutional skills, networks, and community or regional collaboration in the context of local and regional development. Social enterprises can address issues related to collective actions through networking and adapting social norms, even though they are not the primary resources in traditional local and regional development.

Hydra Sentinel: Smart Jewellery For Heat Stroke

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Summer heat stroke may result in serious issues and injuries, including fractures or even brain damage, which can make it difficult for the victim to go about their everyday lives. Therefore, smart jewellery may be created to aid the user in this type of circumstance prevent this kind of harm in order to decrease this kind of injury and emergency. As we live in a tropical nation with particularly severe summers, smart jewellery in this situation can allow us to overcome this difficulty for many individuals and can save many lives in more extreme circumstances where the person cannot help themselves, this jewellery would detect their fall and it would sense it through a fall detection sensor and would send command to send a notification to the contacts listed in the mobile through the message. This jewellery could also help the wearer by indicating to them that their body has less hydration and they should go to shade and get hydrated with the help of hydration checking through a sensor and giving notification to the wearer., As a result, other persons on the list of contacts may see the wearer's status, making it simple to follow and diagnose the wearer. This necklace would be worn by the individual, but it would transmit notifications through mobile and include tracking features so that in the event that the user did not have a phone on them, it would send an emergency message for assistance. This gives both the hardware and software designs needed to execute this smart jewellery successfully and to a high standard. The gadget may be lightweight, rechargeable, and water-resistant. With a non-allergic layer, it may be used every day without endangering the wearer from infection or discomfort.

Examining Consumer Attitudes and Purchase Intentions for Sustainable Fashion

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The fashion industry, renowned for its dynamism and trend-driven nature, stands at a crossroads where style and sustainability converge. Sustainable fashion, often coined as eco-fashion, is gaining prominence as a response to the ecological and social challenges posed by conventional fashion practices. This study embarks on an empirical inquiry into consumer attitudes and purchase intentions within the realm of sustainable fashion, illuminating their pivotal role in steering the fashion industry towards ecological balance. Sustainable products are designed to minimize environmental impact and foster conscious consumer choices. Consumer behaviour in the domain of sustainable fashion is marked by a complex interplay of factors including environmental consciousness, aesthetics, pricing dynamics, and societal norms. A comprehensive understanding of these multifaceted dynamics is essential to advance sustainable consumption patterns in the fashion industry.

Purpose

The primary aim of this research is to conduct an in-depth examination of consumer attitudes and purchase intentions concerning sustainable fashion. Specifically, it endeavours to:

Evaluate the factors shaping consumers' inclinations towards sustainable fashion choices.

Explore the influence of environmental awareness on consumer preferences within the fashion landscape.

Investigate the perceived advantages and challenges associated with sustainable fashion and identify latent barriers and opportunities for the mainstream adoption of sustainable fashion in the market.

Methodology:

This study adopts a comprehensive research methodology, utilizing both quantitative surveys and qualitative interviews. A diverse and representative sample of consumers will be subjected to structured surveys,

yielding quantitative insights into their attitudes, perceptions, and intentions concerning sustainable fashion. Additionally, qualitative interviews will be conducted to delve deeper into the underlying motivations and barriers influencing consumer decisions in this context.

Originality/Value:

This research represents a seminal contribution to academia and practical knowledge by offering an exhaustive analysis of consumer behaviour within the sphere of sustainable fashion. It addresses a significant gap in existing literature by unravelling the intricate web of factors that inform consumer engagement with environmentally conscious and ethically produced clothing and accessories. The findings hold substantial implications for fashion industry stakeholders, policymakers, and marketers seeking to navigate the evolving landscape of sustainable fashion.

Consumer's Perception and Adoption on Smart Clothing

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Purpose: Smart Clothing is a rapidly emerging technology that has the potential to revolutionize the way we dress and interact with the world around us. However, consumer perception of smart clothing is mixed. Some consumers are excited about the potential benefits of smart clothing, such as its ability to track health data, provide real-time feedback, and even change color and pattern. Others are more sceptical, citing concerns about privacy, security, and the high cost of smart clothing.

The current study is trying to answer the research question- How much understanding do consumers have about smart clothing and to what extent are they willing to adopt it?

Thus, the findings of the survey can help manufacturers develop desirable smart clothing.

Design/methodology/Approach: A self-developed questionnaire is used to measure the consumers' perceptions of the benefits of smart clothing, their concerns about the privacy and security of smart clothing and how much they are willing to pay for it.

Originality/Value: The research will be useful for the designers and marketers to develop products that are more likely to be adopted by consumers. The information can be used to develop strategies to address factors that influence consumer perceptions of smart clothing, such as the perceived benefits, the perceived risks, and the perceived ease of use and increase the likelihood of adoption.

The Role and influence of Social Media in Promoting Sustainable Fashion through Advertising

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This research work aims to study the sustainable and ecological fashion marketing media used in the digital age. With a growing ecological awareness throughout the biosphere, the pressure on the fashion industry to produce garments with ecological practices is increasing by the day.

The study presents a comprehensive survey of global sustainability campaigns in the fashion industry, highlighting the important role of digital media in promoting awareness and active participation in society. This study examines the role of digital media, such as social networks, blogs and e-commerce portals, in promoting the effective communication of sustainable fashion. Furthermore, it examines the impact of such communication on the thoughts and behaviors of consumers. Social media researchers usually focus on Facebook and Twitter, as these are the top two social media platforms used by marketers. Unlike Facebook, which focuses on connecting friends and family, Instagram's emphasis is on speaking through quality pictures.

This study takes a mixed methods approach to investigate the sustainable communication strategies implemented by well-known fashion brands. Specifically, it looks at practices involving content production, storytelling, and sustainable messaging across various digital platforms. The research study assesses how brands represent their sustainability efforts, supply chain transparency, and ethical sourcing practices to align with environmentally-related consumer standards.

The main objective of this study is to examine the visual and textual information posted by sustainable fashion brands on social media platforms, and further investigate the presentation methods used by these brands when interacting with consumers. The study will provide significant help to fashion marketers, industry stakeholders, and policymakers which are interested in advancing sustainable practices and making significant progress in the rapidly changing discipline of fashion advertising. The impact of digital media to highlight long-term sustainability as a vital customer decision-making factor is examined in depth.

Solar Awnings: A Design Solution for your Sustainable Living

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India deals with two problems at once: rising temperatures and increased energy use, both of which are made worse by the effects of climate change. To address the issue, this initiative focuses on the development of outdoor solar awnings as a sustainable solution. Crafted from natural fibres, these awnings are designed to provide shade while simultaneously generating renewable energy.

These cutting-age solar awnings incorporate materials with highly emissive and reflective properties to optimize heat reflection. Notably, extensive testing has demonstrated the impressive capabilities of a standard 2m x 2m solar panel integrated into these awnings, generating up to 1 kilowatt of electricity per day during peak sunlight conditions. This substantial energy output not only reduces electricity demand but also reduces the heat effect, making outdoor environments more comfortable. These solar awnings feature a specialized fabric woven from natural yarns, meticulously designed to harmonize with the surroundings. The panels are strategically placed within the folds of the wave shade design. They are engineered to emulate the functionality of traditional velarium or modern wave shades, providing a unified blend of aesthetics and effective solar shielding.

This initiative represents an innovative approach to tackling India's heat-related challenges by harnessing solar energy to create a sustainable environment. By seamlessly blending shade provision with substantial electricity generation, these solar awnings have the potential to significantly enhance the comfort of outdoor spaces while contributing to India's evolving energy landscape.

This provides an overview of the outcomes of this initiative, highlighting the practicality and benefits of solar awnings in mitigating the adverse effects of rising temperatures and advancing India's aspirations for sustainable energy. It underscores the promising potential of solar awnings in addressing India's heat-related concerns and contributing to a greener future.

Product Photography for Handicrafts to Enhance Social Media Engagement – A turn-wood lacware case study

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India has about 744 handicrafts and several of them are currently facing a decline due to their disconnect with the modern consumer base. One of the best methods to sustain the craft is to sell through social media. Although prevalent, it has not reached its full potential in the craft field. In the new era of digital marketing, it has become important to provide ample visual stimuli to influence modern consumers' buying behaviour.

This research looks at a way to bridge the gap between the modern consumer and the traditional craft by improving its visibility. Research has shown that although artisans are unaware of online sales, most of the clusters do use mobile phone photography and social media for personal purposes. The problem lies in the fact, that social media is not being utilised as a marketing medium.

The process follows a multi-method process with an experimental approach. It starts with understanding the craft through secondary research and a study of the existing techniques of product photography that create better consumer engagement. In the primary research, three techniques of product photography are selected and experimented with five handicrafts, with the use of different narratives. This paper looks at making a template for the artisans, majorly focusing on photography as content for social media. The experiment is conducted as a case study Channapatna turn wood lacware craft of Karnataka. A social media survey was conducted to find the success of consumer responses that have been achieved with the visual stimuli.

The conclusion of the research brings across an infographic that consists of photography techniques that best convey the story of the craft and an enumeration of the best practices that can be used by artisans or government agencies in the future for better sales of handicrafts.

Reviving Heritage: Exploring Natural Dyes on Khadi Fabric

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Khadi, a symbol of India's struggle for independence and self-sufficiency, has garnered international recognition for its simplicity and eco-friendliness. In recent years, there has been a growing interest in reviving the use of natural dyes on khadi fabric, aligning this traditional hand-woven textile with contemporary sustainability goals. This provides an overview of the significance and resurgence of natural dyes on khadi, focusing on its ecological impact, cultural relevance, and artistic possibilities.

Khadi woven by artisans on simple wooden looms is traditionally associated with Mahatma Gandhi's call for self-reliance and non-violence. Natural dyes, derived from plant sources such as indigo, turmeric and madderroot were historically used to color khadi creating earthy, organic hues. However, with the advent of synthetic dyes in the textile industry, the use of natural dyes on khadi gradually declined.

In recent years, there has been a rekindled interest in natural dyes on khadi due to their eco-friendly properties. Natural dyes are biodegradable, nontoxic, and renewable, making them a suitable alternative to synthetic counterparts. This resurgence aligns with contemporary concerns about environmental conservation, offering an eco-conscious option for consumers.

Culturally the use of natural dyes on khadi connects modern India with its rich heritage. It reflects a commitment to preserving and celebrating traditional craftsmanship while embracing environmentally responsible practices. The revival of natural dyes on khadi also acknowledges the deep-rooted connection between textile art and Indian culture, as many of the dyes used have been a part of the country's textile traditions for centuries.

Artistically, the reintroduction of natural dyes on khadi has opened up new possibilities for creative expression. Artisans and designers are experimenting with various dyeing techniques, creating a diverse range of colors and patterns. This artistic freedom adds a unique and contemporary dimension to khadi, attracting a younger generation of consumers who appreciate both the cultural significance and aesthetic appeal of this fabric.

Smart Jewellery for Prevention of the Risk Of Panic Attacks

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Smart Wearables include “Smart Jewellery” as a new trend. Smart jewellery is more wearable and practical than traditional jewellery.

Panic attacks occur unexpectedly and without warning, triggering intense physiological responses that can harm a person’s health or even kill them if not treated immediately. According to the National Institute of Mental Health and National Comorbidity Survey Replication (NCS-R) diagnostic interview data, 2.7% of US adults had a panic disorder in the past year (2021) and 4.7% had one at some point in their lives, 44.8% of which were severe. Females are twice more prone to panic attacks than males. This study discusses creating smart jewellery to reduce panic episodes in teens and young adults. It involves creating a smart bracelet and earring pair that continuously monitors the body’s major panic attack symptoms, such as heart rate variability, breathing patterns, sweating, sleeping patterns, etc., updates them in the mobile app, and warns of a moderate or severe panic attack via two coloured LED lights. After a moderate attack, the green light flashes, and the HRV commands the parasympathetic nervous system to meditate fast. The flickering green LED activates the EDA, Strain Plethysmograph, and Galvanic Skin Response sensors when HRV is high.

The earrings’ personal vocal assistant will help the user practice breathing (333 or 555 rule) by sensationing the ears. The user’s most relaxing music, chosen when installing the app on their phone, played in the background as the voice assistant distracted the wearer from other senses, such as visualising joyful times or emitting scents (Olfactory Sensors), which can quiet brain cells. This would stimulate all senses and calm the brain with low and high-frequency vibrations. Rhodium-plated silver with Swarovski crystals on the strap is expected as the material combination.

The scenario would calm consumers, minimising emergency danger.

Transcending Traditions: Product Diversification Strategies for Pottery Town's Craft to Enter into Emerging Markets

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In a world where traditions intertwine with innovation, Pottery Town, Bengaluru, India stands in the chrysalis of transformation. This research attempts to unravel the story of Pottery Town's foray into the burgeoning and diverse markets of Bangalore, a bustling metropolis known for its rich cultural tapestry.

This exploration begins by going through the intricate maze of pottery history, illuminating how this age-old craft now finds itself at the crossroads of tradition and contemporary demand in general. This research meanders through the rhythm of Bangalore, emphasizing the importance of market mechanism along with factors influencing it and strategic alliances with local artisan.

This research study delves into the strategic imperative of product diversification for Pottery Town, a well-established pottery manufacturer, as they endeavors to penetrate emerging markets. The pottery industry, steeped in tradition, faces the pressing challenge of adapting to contemporary global dynamics.

In this context, the research aims to provide a comprehensive framework for Pottery Town's expansion into emerging markets while navigating the complex dynamics of this transformation. It is an attempt to recognize the importance of harmonizing tradition with ongoing changes of market factors to sustain the evolution in the business of terracotta.

Does Environmentally Responsible Behavioral Intention Matter for Gen Z? A Predictive Sustainable Model Developed Through an IMBP Approach

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Brands are marketing eco-friendly and sustainable clothing, and rising demand reveals consumers' intention to buy sustainable products. As a result, the firms are better equipped to comprehend how consumers behave responsibly and sell sustainable goods for longer periods of time. According to a report by Forbes on Gen Z demand for sustainable retail, it is mentioned that these consumers are preferring to buy sustainable brands and they are willing to pay more than 10% for sustainable products. They become environmentally responsible citizens as they understand the consequences of the climate crisis. The practice of sustainable purchasing is one of the steps. A thorough study of sustainable literature is done. From the literature review, it is identified that most of the papers have concentrated on TRA and TPB components, but there is a need to find integrated elements. So the study has been done based on the integrative model of behavioral prediction and attitude functions, the model's framework would examine motivation and factors that predict one's intentions to purchase sustainable products. The model consists of factors such as subjective norms, self-efficacy, attitude, behavioral intention, actual behavior, social identity, self-esteem, and environmental consciousness. The study in this regard was carried out in India, primarily with millennials. The poll received responses from 460 participants in total. Structural equation modeling was used for the analysis and results. The findings unmistakably demonstrate that millennials are environmentally conscientious consumers who have a favorable attitude toward sustainability. The study's conclusions will assist brand managers and retailers in concentrating more on selling sustainable products, particularly for millennial customers.

An Investigation of the application of Bill Mollison's Permaculture Principles in the Textile Industry

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The textile industry has long been associated with significant environmental and social challenges, prompting a growing interest in sustainable practices to mitigate its adverse impacts. This review journal paper explores the application of Bill Mollison's permaculture principles within the context of the textile industry's sustainability efforts. Bill Mollison's permaculture principles, rooted in ecological design and sustainable agriculture, offer a holistic framework for analyzing and improving various aspects of textile production, from raw material sourcing to final product distribution. Through a comprehensive literature review and case studies, this paper investigates the adoption and adaptation of permaculture principles by textile industry stakeholders worldwide. It evaluates the impact of these principles on key sustainability indicators, including reduced resource consumption, improved waste management, enhanced social responsibility, and increased resilience to external shocks. Additionally, the paper highlights the challenges and opportunities associated with integrating permaculture into textile industry practices, emphasizing the need for collaborative efforts among industry players, policymakers, and consumers to drive lasting change. By shedding light on the innovative application of permaculture principles in the textile sector, this review contributes to a deeper understanding of sustainable practices and their potential to transform an industry with a significant global footprint.

Smart Jewellery to Combat Prolonged Sitting and Sedentary Lifestyle

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One-third of the global population aged 15 and older is not active enough, which is detrimental to health. However, the health risks associated with sedentary behaviour are unacknowledged. An increase in sedentary jobs like office work, and the widespread availability of television and other electronic media have all contributed to the expansion of idleness and inactive lifestyles. Sitting for extended periods slows metabolism, raises the risk of chronic diseases like heart disease, diabetes, cancer, and even leads to neck and shoulder pain. In order to prevent prolonged sitting, one should take breaks at regular intervals, exercise on a regular basis, maintain a correct posture while sitting and keep themselves hydrated. The aim of this research is to design smart jewellery that could reduce sedentary habits of users with the help of sensors, sedentary alerts, activity tracking and integration with smartphone apps, making it convenient for the consumer. The smart jewellery is designed to prevent a sedentary lifestyle and it incorporates sensors, connectivity, and software to monitor the user's activity levels and encourage the user to stay active throughout the day. It will provide the user with constant alerts that would notify them about their movement activities, making them break the synchrony and take a break. It aims to promote the user's well-being, gradually eliminating their laziness and mundane lifestyle by reminding them to stretch or take a short walk at quick intervals of time.

Multifunctional And Modular Clothing For Modern Mothers

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The study is an effort to understand and design comfortable maternity and postpartum garments that have detachable or adaptable elements that can be easily restyled to create new looks. The fashion is reversible, changeable, and keeps moving with current and future trends. It is also highly focused on sustainability. We observe that there is a global movement towards modular and multifunctional garments. As a conscious consumer, circular fashion is being adorned and expected to be appreciated by the future generation. Based on the point of purchase consumer prefers the single garment worn with multi-styled or multi-functioned aspects.

The zipper option for postpartum clothing has been quite common, though not much of silhouette explorations have been attempted for the new body shape accommodation. There have been references regarding the color to be worn for the baby shower and beliefs of wearing family's or friend's clothes that are traditionally followed by thrift fashion.

When it comes to casuals and formals it is mostly the eased-out silhouettes with Kaftan or gathers with softer fabric or knits and stretch fabrics. Multifunctional garments are found in abundance with minimal silhouette conversion like detachable sleeves, length adjustments, and convertible clothing. Even though the maternal wear concept is extremely experimented with by the leading designers and the fashion brands in the world of fashion, which explored only in the least percentage in this particular sector. So, this study attempts to address the need and find a solution for the body transformation for fashionable new mothers' clothing without disturbing their fashion quench.

Chitrakathi; Pinguli Tribal Art Painting: A Case Study Of An Experiential Tribal Craft Tourism

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Experiential craft village is a widely appreciated tourist destination in modern days by art lovers, travelers, explorers, research scholars, design students, and academicians wherein craft demonstration, promotion, training, and tourism are being taken at one place. Artisans live and work there and sell their artifacts ensuring sustainable livelihood. They provide immersive tribal homestays, regional cuisines, and an enticing ambiance, and perform cultural programs for visitors. Artisans hold a display of unique art pieces in their own permanent museum space and make available all the artifacts for sale to visitors. The master craftsmen and awardees conduct training programs and workshops to preserve the art form. They preserve, revive, and transfer their knowledge within the community and to the next generation.

This paper explores the case study of a sustainable ecosystem of tribal craft tourism, of Pinguli, styled Chitrakathi Tribal Art Painting practiced in India by the nomadic Thakar Community of Maharashtra State. Chitrakathi (Chitra meaning painting and Kathi meaning story or narration) is an art of storytelling with the visual aid of painting. The language used for the narration of lyrical epic stories is Marathi which they adapted from the Brahmins. The narration of Chitrakathi is often combined with songs, instrumental music, and epic stories with moral values linked to temple rituals.

The community developed an ecosystem preserving traditional skills and integrating them with contemporary practices. This research paper focuses on studying the historical and cultural significance of the Chitrakathi Painting, tourism impact assessment on painting practices, visitor experience and perception, artisan livelihood and empowerment, community and sustainability, challenges and solutions, cultural preservation and authenticity, self-initiative towards tourism development and planning by the community, comparative analysis of similar craft tourism, future Prospects and sustainability, and marketing and promotion practices implemented by the artisans. The research paper aims to recommend design intervention for the upliftment of the artisans and enhance the visibility of the languishing craft and that will encourage tourist visits to the Pinguli Tribal Community craft village.

Hand Gesture Tracking And Recognition System

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Applications ranging from virtual reality to human-computer interaction use hand tracking and recognition technologies. Through assisting us in interacting with computers and our surroundings, these technologies assist us in carrying out daily chores. We expand many avenues for human creativity and expression by making hand gestures available. Hand motions can be tracked in a variety of ways. Some techniques concentrate on using just one hand's surface area to recognise gestures. The thumb, for instance, can be used to type on a keyboard or to grab objects. This makes it possible to track more quickly without waiting for recognition. Other systems track numerous motions at once by using both hands. When making gestures, using both hands enhance control and precision. Systems for hand tracking and recognition are widely used in many different sectors. It makes it easier for us to interact with our surroundings and has aided in the advancement of human ingenuity in many ways. Since the creation of the first motion control system in 1963, we've come a long way. Now we only need these systems to be more inventive!

In this project, we are developing software for presenting presentation in dynamic way through hand gesture recognition technology. The main purpose behind building this project is to reduce the manual efforts involved during presentation and provide an efficient tracking management system for educational and professional purpose.

In this research, we build a presentation controller that uses hand gestures as the system's input to control presentation. The motions in this implementation are primarily managed by the OpenCV module. A hand gesture detection technique called MediaPipe is a machine learning framework that is now accessible. This system uses a web camera mostly to take pictures and movies, and this application controls how the system appears dependent on the input. The system's main function is to alter the presentation slides; but, I also had access to a pointer that allowed me to draw and erase on the slides.

Enhancing Comfort And Performance: “Smart Footwear Solutions For Long- Standing Professionals”

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This in-depth study paper examines how smart technologies are transforming many aspects of our future. The incorporation of smart solutions has become commonplace in a world where technological progress is occurring quickly, changing industries, lives, and societal standards. Our study's main focus is on the potential for synergy between smart technologies and health care, as demonstrated by a creative approach to problems with circulatory health brought on by extended standing.

Prolonged static standing can impede the natural flow of blood from the legs to the heart, resulting in blood pooling, swelling, reduced blood pressure, and diminished organ perfusion. This condition can potentially lead to circulatory collapse and, in extreme cases, coma.

In response to this critical issue, Our research creates smart footwear to detect early circulatory issues in prolonged standing. This aids professionals like teachers, retail employees, and traffic police, improving comfort and job performance through continuous monitoring and timely alerts. Incorporating smart technology into footwear, our solution features pressure-sensing insoles for posture support, Bluetooth reminders for weight shifts, activity tracking, smart insole massage, and foot health monitoring. An integrated emergency alert system ensures safety during prolonged standing, redefining comfort and well-being.

Additionally, it addresses the future implications of smart footwear in promoting occupational health and performance while acknowledging challenges and limitations in its implementation. The development of smart footwear represents a promising avenue for safeguarding the well-being of professionals engaged in prolonged-standing occupations, ultimately contributing to their improved health, safety, and job satisfaction.

Designing Custom Garments for Individuals Affected by Scoliosis

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According to a survey report by the National Statistical Office, India in 2018, the overall percentage of persons with disabilities in India is at 2.2 percent of the total population, which is huge in number. As per the Adaptive Clothing Market Analysis study published in 2018, the global inclusive fashion market is expected to be worth upwards of \$390 billion in 2026. However, there are very less clothing brands catering to specific disabilities.

Scoliosis is a medical condition characterized by an abnormal curvature of the spine, often leading to physical and emotional challenges. Some brands like Tommy Hilfiger, sliverts, Rebound Wear, Slick Chicks, suvas-tra designs are designed for various disabilities and deformities but not for scoliosis. Hence this project aims to address a critical aspect of the lives of individuals affected with scoliosis by designing and creating custom garments and fashion accessories tailored to their unique needs. The primary goal is to enhance comfort, confidence, and well-being for those affected by scoliosis. Customized garments and accessories offer multiple benefits, including enhanced fit and comfort, support for posture and the ability to conceal the visual effects of spinal curvature if one wishes to.

The project began with a detailed study and analysis of the condition and its various symptoms on a person's mind and body, followed by the body image issues and how one dresses up with scoliosis. As scoliosis is more common in females, the project focuses on females in the age group of mid-teens to adults, catering to their needs for party and occasional wear dresses and garments in which they can feel less insecure in.

The garment silhouettes, finishes and fabric used were in accordance to providing them with utmost comfort along with keeping in mind the flow and ability of fabric to give a more balanced and structured look.

Furthermore, the psychological impact of scoliosis is a vital consideration. Hence the designed garments seek to boost the self-esteem and confidence of individuals with scoliosis by creating pieces that allow them to express their style and individuality.

Banana Fibre with Extracts from Tender Coconut Husk: A Step Towards Sustainable Dyeing

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India has a rich biodiversity and harbours a wealth of useful germ-plasm resources and there is no doubt that the plant kingdom is a treasure-house of diverse natural products. One such product from nature is the dye. Recently, there has been a great deal of interest in circumventing the environmental problems associated with manufactured colouring agents by using natural dyes. This study focuses on extracting natural dyes from tender coconut husks, a waste after consuming coconut water, and finds sustainable ways of banana fibre colouration. Natural colouring agents were extracted using an aqueous extraction technique and the banana fibre was dyed using the extracts following the pre-mordanting techniques. The process of extraction of dyeing is environmentally friendly and causes minimum environmental pollution. There are several phenolic compounds in coconut shells which can be isolated and identified through the simple isolating process. A systematic study of extraction, characterization and improvement of the dyeing technique can be devised with minimum cost investment, yield maximization and dye purity. Myrobalan fruits (harda) and alum are used as biomordants. The result shows that banana fibre dyed with dye extract from tender coconut husks with harda and alum as mordants resulted in a range of shades obtained by varying mordants. Moderate to good fastness values were recorded. The dyeing performance of extracted colouring agents was assessed in terms of colour values, dye absorption (%), colour fastness properties (rubbing, washing and light) and colour strength. Reddish brown shades were exhibited by dyes obtained from tender coconut husk. Considering the dyes exhibited excellent colour fastness, it can be concluded that the natural dyes extracted from tender coconut husks could be an effective colouring agent for use on banana fabrics. Dyed fabrics are also found to have excellent ultraviolet protection properties. The dyes are eco-friendly and safe only when they are easily biodegradable, and have no health hazard effects. In this case, the extracted husk can be easily degraded and utilized as manure.

Natural and Organic Colors from Domestic Trash.

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The world in which we live is teeming with colors. In our environmentally conscious world today, it is crucial to look ahead and consider the repercussions of our actions on the environment and society. Our objective is to turn food and plant waste, that is domestic waste at home, into beautiful natural dye. To learn how to transform fruit, flower, plant, and veggie scraps into a rainbow of natural dye. Some examples of fruits and vegetables that can be used to make natural dyes include spinach, carrots, blueberries, avocados (skins and seeds), beets, red cabbage, turmeric, and paprika. To maintain color longevity, certain ingredients in these natural dyes may require the use of fixatives, often referred to as "mordants" in the realm of natural dyeing.

The dyes and methods described in this research are those, which taken from secondary data analysis sources like books, journal articles, government publications, and existing study results work, are referred to in this research and, in my experience, will give reliable colors with degrees of fastness suitable for most purposes. A survey is conducted with simple random sampling to assess the feasibility of Indian domestic waste as a potential dye source.

Our research not only covers the production of natural dyes from waste materials but also comprehensively examines the entire supply chain. This includes aspects such as waste collection, timely processing to preserve dye contents, and making these resources available to dyeing hubs and manufacturers. The spectrum of colors available in the natural world is indeed astounding.

Sustainable Future of Indian Textile Handicrafts from the Consumers' Perspective

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The Indian textile handicraft sector has gathered recognition and praise over the years for its profound cultural heritage and exceptional craftsmanship. Yet, in the last few decades, the fast growth of industry and global connections has created problems related to the environment and society. Environmental concerns are addressed through the utilization of eco-friendly materials, natural dyes, and traditional weaving techniques. Additionally, many artisans have adopted sustainable sourcing practices, relying on locally available materials to minimize transportation-related emissions. Furthermore, it dissects the challenges that consumers encounter in their pursuit of sustainable handicrafts, highlighting the integral role consumers play in not only reviving but also ensuring the sustainable future of India's textile handicrafts.

The study uses a combination of methods, including both interviews and surveys, to gather information. Through structured interviews with artisans, craftsmen, and industry stakeholders, complemented by surveys distributed among consumers and experts in the field. The driving forces behind consumer preferences for sustainable textile handicrafts assess the efficiency of diverse strategies in cultivating consumer awareness and appraise the tangible consequences of ethical consumer behavior on the livelihoods of artisans and the environment through an incisive analysis stranded in case studies, comprehensive surveys, and expert interviews.

This research paper offers valuable insights into the practical outcomes of consumer-driven efforts to revive sustainable textile handicrafts.

Application of Natural Dyes in Indian Traditional Textile: Present Scenario

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In the pre-industrial revolution period, richly dyed Indian textiles called chintz were traded worldwide. The global demand at the turn of the 18th Century made some of the European countries ban the import of painted cotton from India to save the market for the textiles manufactured there. We have lost the whole system from farming of dye-containing plants and making them available to artisans with the application of natural dyes fading away from the current picture.

Through the research, we aimed to draw a clear picture of the present scenario regarding the application of natural dyes in the Indian traditional textile sector. The work closely studies the various textile traditions that have not shifted from natural dyeing, the way these particular crafts manage to keep up with the demand along with procuring dye plant or plant parts on a large scale, and the time-consuming steps involved in the extraction of dyes, mordanting and dyeing of yarns or textiles. The research study carefully examines its operating model and considers if it would work with other textile traditions that have switched to synthetic dyes.

Secondary data sources like books, journal articles, government publications, and existing research work are referred for this study. Non-probability-based convenience sampling is carried out to select a few textile traditions from the different geographical parts of the nation to provide a wholesome perspective on the topic. The existing research literature on the topic is either specific craft case studies or chemical treatises on potential plant-based dyes used in the handicraft sector. This research shall be a stepping stone for a more complete body of work in this field.

Recent Advancements in Plant-Based Engineered leather

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The leather industry, while integral to fashion and various sectors, has long faced scrutiny due to its environmental and ethical implications. Traditional leather production is associated with deforestation, excessive water usage, chemical pollution, and ethical concerns related to animal welfare. In response, the development of plant-based engineered leather has gained traction as a sustainable alternative. This paper examines the major issues plaguing the leather industry and highlights how plant-based leather is alleviating these concerns by reducing the environmental impact and providing an ethical choice for consumers and industries alike. The fashion industry, known for its dynamic trends, is embracing plant-based engineered leather as a sustainable and ethical choice. Many renowned brands and designers have incorporated these materials into their collections, indicating a significant shift in consumer preferences toward more responsible options. As technology continues to advance and economies of scale are achieved, it's likely that plant-based engineered leather will become more accessible and affordable for a broader audience.

The evolution of plant-based engineered leather reflects the powerful convergence of science, sustainability, and style. This innovative material has transcended its niche origins to become a mainstream contender in the fashion and textile industries. With its ability to offer cruelty-free, environmentally responsible, and aesthetically pleasing alternatives to traditional leather, plant-based engineered leather is not just a trend but a transformative force shaping a more conscious future. As research and development continue to push the boundaries of possibility, the potential for even more exciting advancements in this field is limitless. This paper will also discuss the recent advancements of plant-based leather along with their impact on the environment.

Key Words: Plant based fibres, Vegan Leather

Standardization of Arch Dimensions for Persons with Flat Foot Deformity among Indian Youth

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Flat feet, or Pes planus is a common condition among 25% of the adult population, including students. Due to the absence of the medial longitudinal arch, the risk of soft tissue damage is high for people with such deformities. This condition may even affect the quality of life, especially if there is any underlying systemic issue. Most of the time, many orthotic supports available in the market may not be suitable for every person with flat feet due to variations in the degree of flat-footedness.

This research elucidates the necessity to create standardized arch dimensions for flat feet among Indian youth, namely those under the age group of 16–25 years old. The aim of this research is to be representational so that products or designs can serve the individualistic needs of users having a universal problem of flat foot.

The method of research includes analyzing the foot measurements across school and college-going students as subjects using an eFoot scanner as well as using the Arch Height Index to categorize the degree of flat-footedness. An angle greater than 4° convex downward is considered flatfoot. The angles can range from moderate ($15\text{--}30^\circ$) to severe ($\geq 30^\circ$).

To conclude, the element of inclusivity to ensure the representation of students having such kind of disorders is essential. Ensuring an inclusive nature in design is fulfilled via the standardization of arch dimensions for varying degrees of flat feet and categorizing them to the range according to the intensity of the deformity, thus, making it more comprehensive.

Cross-Cultural Influences on Pottery Town's Craftsmanship and Designs

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This research employs a mixed-methods research design to comprehensively explore the intricate relationship between cross-cultural influences and the craftsmanship and designs of Pottery Town in Bangalore. Through qualitative in-depth interviews and ethnographic observations with local artisans, it investigates their experiences, perspectives, and the cultural influences that have shaped their pottery-making practices. Concurrently, a structured survey administered to pottery consumers and businesses in Pottery Town gathers quantitative data on the commercial significance of pottery styles with cross-cultural elements and their economic impact on the local pottery industry. This multifaceted research endeavors to comprehend the profound sense of pride intertwined with craft and cultural heritage among artisans, as well as the collaborative potential of diverse cultures in the creation of pottery that enriches both the local community and the broader artistic landscape. By understanding how external influences have shaped the craft, it aims to aid in the preservation of traditional pottery traditions while encouraging the emergence of novel and imaginative approaches, thereby bridging the past and the future of Pottery Town's artistic heritage.

Elements and Principle of Design for Sustainability

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Elements and principles of design can play a significant role in sustainability by creation of eco-friendly and responsible designs. The use of natural dyes in colour element helps in creating sustainable fashion products. Sustainable fashion design can use lines to create garments with clean and timeless silhouettes that have longer life span, reducing the need for frequent replacement. Efficient use of space in pattern cutting minimizes the wastage of material. In principles of design, sustainable fashion seeks balance by considering environmental, social and economic aspects. Designers strive for equilibrium between aesthetics and sustainability. Sustainable fashion may emphasize certain eco-friendly material production methods or ethical practices to draw public attention. By integrating elements and principles of designs in fashion create clothing that not only looks good but also contribute to a more environmentally and socially conscious industry.

Role of Artificial Intelligence and Machine Learning in Fashion Design and Product

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The fashion industry has recently experienced a transformational wave that has been fuelled by Artificial Intelligence (AI) and machine learning (ML) technologies. This examines how machine learning and artificial intelligence are revolutionizing the fashion industry and product creation. Artificial intelligence and machine learning have become indispensable tools, providing creative solutions to old problems and revolutionizing the entire process of creation and manufacturing. Artificial intelligence and machine learning deals in three major areas of fashion industry: design and inspiration, environmentally friendly procedures, and consumer experience. These factors aid in lowering environmental impact, support eco-friendly fashion, eliminate design-related uncertainty, and increase customer pleasure and brand loyalty.

Exploring the Potential and Scope of Sustainable Innovation: Utilizing Coconut Waste for Eco-Friendly Product Development

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Feminine hygiene is a frequently overlooked area of health, and even in 2023, there are a number of gynaecological health problems for which there is very little worldwide research is done. India has 336 million menstruation women and girls in India, but millions of women across the country still face significant barriers to a comfortable and dignified experience with menstrual hygiene management (MHM), 36% of whom use disposable sanitary napkins. As a result, the nation is left with 12.3 billion disposable sanitary napkins per year, the most of which are not biodegradable and fill our landfills. The majority of sanitary napkins are made of plastic and synthetic materials, which can take 50 to 60 years to degrade. The only solution to such a grave problem is switching to reusable and environmentally friendly sanitary pads which are biodegradable. The aim is to encourage the use of reusable pads instead of disposable ones to save the environment. RMPs are used internationally and are an effective, safe, cheaper, and environmentally friendly option for menstrual product. The study also highlights the incredible advantages of coconuts, particularly the husk and coir, as well as sustainable alternatives to currently available menstrual products. Coconut waste is turn into waterproof, odour-absorbent, breathable, highly fluid absorbent, hypoallergenic antibacterial, 92% times faster drying than cotton and highly durable fabrics. As a result, a design idea that implies the potential for generating menstrual pads using up cycled tropical coconut biomass and how to convert it into a successful business idea.

Market Readiness Assessment of Blockchain Technology in the Indian Textile and Apparel Industry

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The Indian fashion industry has witnessed significant growth in recent years, with a focus on design innovation and sustainability. However, the supply chain of the fashion industry is complex and fragmented, with multiple stakeholders involved. The top ten brands in consumer electronics and automotive sectors account for 80–95 percent of market share globally, whereas in the fashion and textile sector, the top ten brands account for hardly 10 percent of the total global market share. (Textile Genesis, 2021) 95 per cent of the fashion apparel supply chain has little visibility beyond tier 1 or tier 2 (Gautam, Amit Textile Genesis, 2021). A BoF–McKinsey report (2022) lists supply chain disruptions as one of the major challenges for this industry.

To address these challenges, industry stakeholders need to work together to develop more integrated and sustainable supply chain solutions that can help improve efficiency, reduce costs, and enhance the overall quality and sustainability of the fashion industry in India. The use of blockchain technology in the fashion industry's supply chain has the potential to streamline processes, increase transparency, and enhance trust among stakeholders.

At the same time, it is necessary to find out the Market Readiness of Blockchain Technology in the Indian apparel industry with regard to several dimensions of readiness assessment applicable to the MSME's that constitute a significant core of the apparel manufacturing in India. In the present work the theoretical framework on the market readiness of blockchain has been extended to the apparel manufacturing. Qualitative and quantitative techniques have been used to analyse the market readiness level from surveys and interviews conducted from key management personnel of apparel and textile manufacturing organisations. The results indicate the market readiness level in terms of established dimensions, including, technology readiness, regulatory readiness, demand readiness, system integration readiness, etc. The findings of this study will have significant implications for businesses and organizations in the textile and apparel industry that seek to improve their supply chain management, product authenticity, and customer engagement while achieving cost savings through tokenization using blockchain technology.

Fit Check – A Smart Way To Detect Your Stress.

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Early identification of mental stress has the potential to reduce several kinds of stress-related health problems. This study's objective was to use a wearable sensor system to measure physiological signals and identify mental stress. This study aims to investigate the use of technologies in the smart wearable jewellery industry and their impact on enhancing healthcare standards. This study focused on the objective characteristics of college students as well as their conduct and activities in response to various types of stress. Moreover, the primary objective of this study is to investigate the current e-health monitoring system by means of sensing devices. Health Tech Jewellery (HTJ) is the topic of the proposed concept, which integrates a creative design approach in its ultimate product. This wearable health technology jewellery is intended to help users detect and monitor their daily stress levels while also providing a fashionable accessory. Using a combination of galvanic skin response (GSR), body temperature, and pulse rate sensor data, this piece of jewellery is designed to detect tension. A fuzzy logic algorithm within the microcontroller then analyses these sensor readings to determine the individual's level of tension. As soon as stress is detected, the user will receive notifications on their mobile device containing inventive design solutions. This type of intervention is intended to assist users in shifting their focus away from their current circumstances, thereby inducing a sense of calm and relaxation in the present.

Designing and Development of Fashion Accessories Using Needle Craft: a Step Towards Sustainable Future

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Needle craft and sustainability have become increasingly interconnected in recent years as people seek creative ways to address environmental concerns. Needle craft is a method of making textiles that involves weaving together loops of yarn, thread, or other strands with a crochet hook. Today in the world of fashion every person is fashion conscious. To look beautiful, females use designer garments and to enhance beauty of the garments unique accessories are adorned by them. Hair accessory is one of the accessories used by women to enhance the beauty of her hair. Taking in consideration about the consciousness of women towards fashion, this paper will include hair accessories which will be designed in a unique manner using needle craft in a sustainable manner to get a different and fashionable look. It will make women more confident as they will be adorning unique style of hair accessory. Observation cum interview schedule method was used for present study to analyse the interest area of women towards accessory. Females (age group 20 to 30) of Amritsar city of Punjab were selected on the basis of random sampling. It is found in the study that majority of respondents preferred hair accessories made with the help of needle craft. According to respondent's accessories made with the help of needle craft are sustainable as they are often repairable when they become damaged or worn, extending their lifespan. Hence, it is concluded from present study that needle craft can play a significant role in promoting sustainability in the present time through its focus on upcycling, slow fashion, the use of sustainable materials, and its ability to raise awareness about environmental issues. By incorporating these principles into their craft, crochet artists and enthusiasts contribute to a more sustainable and responsible approach to fashion and art.

Aroma Jewel:- Smart Jewellery that acts as a Deodorizer and a Collar Microphone.

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Since ancient times, humans have made jewellery for practical reasons, such as to shield themselves from wild animals and save their lives from evil. On the other hand, as society develops, the role of jewellery as a decorative item becomes increasingly prominent. A new subcategory of jewellery known as “Smart Jewellery” has emerged as a result of recent advances in information and communications technology as well as improvements in internet infrastructure (Wu, Q. (2023)). This article presents a discussion of the unique smart jewellery that solves the significant problem of body odour for those who work in the education sector, the hospitality industry, the theatrical industry, and other professions that demand a tidy, clean, and professional demeanour on a daily basis. This piece of jewellery may be worn both as a pendant and a brooch by the user. With the assistance of smell-detecting sensors, the jewellery has perfume embedded inside it consisting of different fragrances such as lavender and vanilla, an additional characteristic of this jewellery is that it can be worn as a collar mic, making it the most appropriate option for the specified audience. Both the ability to emit scent and function as a collar mic are considered to be the two primary functions. This article will provide an overview of developing trends in jewellery, after which it will focus on a recently produced product, describing its technical qualities, the material it is made of, and other possibilities, as well as the product's potential in the future (Silina & Haddadi, 2015).

Exploring and Developing Alternatives for Visual Narrative Design in Children's Literature

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This study aims to investigate and create alternatives to visual narrative in children's books. The study aims to investigate the potential of alternative approaches, such as interactive digital media, augmented reality, and unconventional art styles, in enhancing the visual narrative experience for young readers. By examining the benefits, challenges, and implications of these alternatives, the research provides insights for authors, illustrators, and publishers in creating innovative and engaging visual narratives for children. The research also considers challenges faced by authors and illustrators in adopting alternative approaches and explores technical and practical considerations associated with these approaches. The study throws light on the importance of visual narrative in children's books, particularly in terms of promoting imagination and creativity, improving understanding, and supporting cognitive and emotional development. The research offers practical implications and recommendations for creators in adopting these alternative approaches and pushing the boundaries of visual storytelling in children's literature.

Image of the Artisans at Pottery Town: Perceptual vs Experiential

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Preconceived notions can be powerful in shaping our expectations of people and places but the expectations are not always met when encountered in reality. With the craft cluster visit to Pottery Town in Bengaluru a similar experience was met creating a perceptual and experiential image. This study delves into the intriguing realm of such notions surrounding craftsmen of Pottery Town with the initial impressions, which are often formed without firsthand experiences, against the lived experiences. The interplay between expectations coming from external discourse and the contrasting elements discovered during fieldwork, prompted a re-evaluation of the perception of artisans and the place itself.

With the help of ethnographic research as its primary methodology, this study incorporates a multi-faceted approach. It involves visual research, participant and non-participant observations, semi-structured interviews, and exploratory research to capture the intricate dynamics at play. By scrutinising the discourse surrounding Pottery Town and the artisans and comparing it with the lived realities, this research aims to present the transformative power of direct engagement and challenge the assumptions that often govern our gaze towards artisans and their place.

Sustainable Artistry: A Zero Waste Pattern Making Approach Amalgamated with Natural Dyeing Techniques

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This research explores the integration of natural colorants and sustainable fashion practices to create environmentally conscious garments. The study focuses on the utilization of natural colorants to produce various swatches, subsequently applied to a zero waste pattern made garment. The garment is designed to incorporate recycled cotton fabric, interweaving the themes of natural colorants, zero waste pattern making, and sustainability. To investigate the feasibility and aesthetic potential of natural colorants, a range of plant-based dyes and pigments are utilized. The research methodology involves extracting colorants from botanical sources and employing dyeing techniques to develop diverse swatches that showcase an array of shades and tones. The integration of zero waste pattern making techniques is a pivotal aspect of this study. By adhering to zero waste principles, the garment construction process aims to eliminate any fabric waste, focusing on efficiency and sustainability. Additionally, recycled cotton fabric is chosen as the base material, enhancing the sustainable nature of the final garment. Through this research, it is anticipated that the collaboration between natural colorants and ethical fashion practices will bring about social and environmental benefits. Furthermore, the zero waste pattern making approach aims to minimize resource consumption and waste production in garment manufacturing. The synthesized findings of this research will contribute to the growing body of knowledge in sustainable fashion and natural dyeing practices. The results will provide insights into the practicality and aesthetic possibilities of using natural colorants in the creation of zero waste garments.

Ultimately, this study aims to foster a greater appreciation for sustainable fashion, encouraging the adoption of eco-friendly practices across the industry. In conclusion, the integration of natural colorants, zero waste pattern making, and recycled cotton fabric creates a harmonious interplay of sustainability in fashion.

Recycling and Upcycling Wedding Garments as Heirloom in the Indian Fashion Industry

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In recent years, there has been a growing recognition of the importance of sustainability in business. In the context of a global society confronted with urgent environmental and social issues, there is a growing acknowledgment among businesses leaping beyond traditional linear approaches of production and consumption. This article examines the significant role of the fashion industry which align with sustainability and circularity of reshaping its operational frameworks, amidst a period marked by increasing environmental concerns and calls for conscientious consumer behaviour. This paper critically analyses the diverse dimensions of sustainable practices and circular business models implemented by fashion companies worldwide drawing upon a comprehensive body of research and empirical case studies. The text also explores the fundamental ideas and developing trends related to sustainable and circular business models, providing valuable insights into their essential concepts, advantages, and real-world implementations. Additionally, this study delves into the increasing significance of consumer consciousness and expectations in promoting the acceptance of sustainable fashion, recycling and upcycling techniques, and circular design ideology in facilitating enterprises to navigate this dynamic environment. The study points out the several benefits associated with adopting sustainability practices which includes reduced environmental impact, reduction of industrial waste, and the enhancement of resilience. These advantages contribute to the longevity of clothes and the reduction of their carbon footprints. Highlighting the dynamic interplay between sustainable practices and circular business models in the fashion industry, this paper provides a holistic understanding of the transformative potential of this sector. Ultimately shaping the trajectory of sustainable fashion for the benefit of both industry stakeholders and the planet.

From Linear to Circular: Fashion's Journey to Sustainable Evolution

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The global fashion industry has long followed a linear model of production and consumption, characterized by the rapid turnover of garments and the disposal of vast quantities of textiles. This linear approach contributes significantly to environmental degradation and resource depletion. In response to growing concerns about sustainability, there is growing interest in switching to circular fashion practices. This paper provides a comprehensive survey of the multifaceted landscape of circular and redesigned fashion to understand the challenges, opportunities, and implications of this transformational journey. Through literature review, this study identifies and explores key barriers to moving from a linear to a circular approach. In addition, the paper explores the innovative strategies and initiatives that have begun to reshape the fashion sector, offering insights into promising pathways toward sustainable fashion design, production and consumption.

By shedding light on these challenges and highlighting sustainable alternatives, this paper contributes to a nuanced understanding of the sustainability trajectory of the fashion industry. It highlights the urgent need for collaborative efforts between various stakeholders, including designers, manufacturers, policymakers and consumers to drive fashion's transformation from a linear, wasteful system to a circular, regenerative one. This transition represents a key step towards mitigating the industry's environmental impact and securing a more sustainable future for fashion. The findings and recommendations presented in this paper serve as a valuable resource for industry stakeholders, researchers and policymakers as they navigate the evolving circular fashion landscape. Thus, the survey data provides practical insights into harnessing the potential of circular processes for positive environmental and social change while also addressing the economic aspects of such transformation.

This survey cum research paper underscores the importance of sustainable fashion practices as a critical element in the broader effort to create a more sustainable and fairer global economy.

A Multi-utility Concept: Redefining Performance Gear for High Altitudes

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This research paper presents a review and concept generation approach for the development of a modular/convertible assembly intended for use in higher altitude environments. The primary objective is to conceptualize a design capable of withstanding higher altitude freezing temperatures, while also considering factors beyond utility. This will be initiated through a comparative market study of existing sleeping bags across various brands in the domestic and international market and study the attributes associated with it. A detailed study focused on understanding the materials and trims used in higher altitude protective clothing to gain insights into their characteristic features will be conducted. The methodology that would be adopted for the current research paper would include Primary research- Field study, online market research and survey; Secondary data- a systematic review of literature would be conducted on the keywords such as sleeping bag, material and trims for high altitude, functional closures, convertible and modular clothing. Thereafter, explorations for the conceptualization of the assembly will be conducted using various folding techniques. The ergonomics and the physiological aspects of the body will also be taken into consideration to offer greater versatility and adaptability than the traditional sleeping bags.

This research would give an insight towards modular and multi-functional garment construction, integrating smart technology and functional textile materials to create assemblies that would be used as a protective kit for the people in the higher altitude. Through a multidisciplinary approach integrating material science, design principles, and ergonomic considerations, this project strives to revolutionize the market of high-altitude performance gear through this hypothesis.

Beauty/Cosmetic & Meme Industry - A Sustainable Strategy

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The term 'Meme' was introduced in 1976 by British biologist Richard Dawkins in his work *The Selfish Gene*, which originates from the Greek word "minema" which means imitate. Memes are humorous content created through images, texts, and videos which are mostly spread through social media platforms. With the ever-rising numbers of social media users, there has been a big impact on the usage of meme advertising and marketing strategies in the digital space. Meme culture on the internet has now become the major trending and sustainable form of marketing, advertising, and promotional strategy for brands as a vast audience can be tapped through this resource. The paper focuses on the study of how Beauty and Cosmetics brands in India are engaging themselves with meme marketing and also analysing the content used in memes for audience/consumer engagement. Also mapping the impact of the content posted through the post comments/responses and likes. The methodology used for the study was a qualitative method through observation and analysis of the content sought from the data collection through their different social media platforms like Instagram, Facebook, etc. along with the articles, web, etc. The study delves into understanding that the meme culture is now a major tool and integral part of the communication of Beauty and Cosmetics brands for their advertising, promotion, and marketing over the digital space. Also, a large amount of engagement is seen in the various Indian brands like Nykaa, Mamaearth, Plumgoodness, Purpille, etc. where the content was liked and commented on as the consumer/audience engagement has boosted the brands' page followers and brand awareness.

A Review on Organic and Natural Dyes

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Now a days natural dyes are commonly used for textile industries, due to their harmless efforts and harmful consequence of synthetic dyes. Natural dyes work on cotton, silk and wool etc. Their colours are stable and ecofriendly because of no irritating effect on human skin. Different plant parts are used for colouring method. In this process different mordants are used in combinations, which can be natural plant products like lemon juice, tamarind pulp, pomegranate. The result of natural dyeing are found very encouraging, with their non-toxic, non-allergic and non-carcinogenic soothing harmless effect. Natural dyes from plants and mineral resources has been used for dyeing of textile, leather or for cosmetic purpose. Presently there is a great demand for the use of natural colours throughout the world due to non-biodegradable and carcinogenic nature associated with synthetic dyes. The toxic and allergic reactions of synthetic dyes are compelling the people to think about natural dyes. Natural dyes are the renewable source of colouring material. Plants dyes are preferable now a days because of the low cost production and less hazardous nature to the environment. The worldwide demand of natural dyes is of great interest due to the increased public awareness about the atmospheric and environmental pollution caused by the commercially available synthetic dyes. Some of the natural dyes has also shown the antimicrobial, antioxidant, antifungal properties and hence are also discussed with biomedical application. In this review paper we will give details of organic and natural dyes.

A Review on New Sustainable Fibres

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Presently, sustainability become a key mantra in all the industries across the world, especially the textile sector as it is one of the largest industries in the world. In textile science, natural fibres have a big role in a sustainable environment-friendly future and become a significant topic to exploit a new natural resources which is green and environment-friendly. Aloe-vera, banana, sisal, hemp, jute, bamboo, milk fibre, corn, soya, groundnut shell, areca-nut, coffee been, waste, lyocell were few of the sustainable fibres sustainability refers to meeting human needs without overwhelming nature or society. To improve this, organic textile must include raw material cultivation, mass production, manufacturing, process, packaging, labelling and distribution of organic textile. Sustainable fibres provide whole life cycle approach to the subject of sustainable textile. Sustainable fibres include organic certification, labelling and licensing to ensure the organic status of textile from raw material. Synthetic fibres have started to take over in last 50 years. Apparel, home decor, industry and agriculture all employ nature fibres. But synthetic fibres are mass manufactured from petrochemical to consistent strength, length and colours. But each year, more synthetic fibres and high energy consuming products are being replaced by the natural based product. Natural fibres have been used not only for clothing but also for technical applications such as composite materials, building material, filtration and insulation material. The textile industry has obtained many fibres from bioresource waste as an importance step toward sustainable development. This review paper aim to enlighten the existing sustainable fibres in the textile sector. This paper emphasized on the concept of journey of ecofriendly textile along with the sustainability related to textile sector in relationship with natural fibres. Under studied area. Secondly, the mixed-methods approach combines quantitative and qualitative data, allowing for a more nuanced understanding of the underlying dynamics of consumer choices. This holistic perspective is vital for businesses aiming to effectively target eco-conscious consumers.

Assessing Eco-label Awareness and Consumer Behaviour in India: A Comprehensive Study

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Purpose: Eco labels, also known as environmental labels or eco-certifications, are symbols or seals placed on products to indicate that they meet specific environmental and sustainability criteria.

This study aims to investigate the level of eco labels awareness among Indian consumers and its influence on their purchasing behaviour within the context of the clothing market. With a rapidly growing economy and increasing environmental consciousness, understanding how eco-labels impact consumer choices is essential for both businesses and policy makers seeking to promote sustainable consumption patterns in India.

The Study is done to get a full narrative of what consumers perceive eco labelling and how it impacts their purchasing behaviours, we vitally aim to give useful insights for the following:

- Understanding the consumers perception of ecolabels.
- Examine influences on consumer behaviour
- To identify the motivations and barriers that underlie eco-label-based consumer behaviour.
- Identifying possible marketing strategies for awareness boost.

Design/methodology/Approach: This research employs a Mixed-method approach, combining quantitative surveys and qualitative interviews. A large-scale survey will be conducted across various regions of the country to gauge eco-label awareness and its correlation with clothing purchasing decisions. The survey will include questions regarding consumers knowledge of eco-labels. Their perceptions of eco-label products and their purchasing habits.

Originality/Value: This study contributes to the existing body of knowledge in several ways. Firstly, it provides a comprehensive assessment of eco-label awareness and its impact on consumer behaviour in the

Indian clothing market, offering insights into a relatively

Under studied area. Secondly, the mixed-methods approach combines quantitative and qualitative data, allowing for a more nuanced understanding of the underlying dynamics of consumer choices. This holistic perspective is vital for businesses aiming to effectively target eco-conscious consumers.

The Future of Fashion in Metaverse: A Comprehensive Analysis

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Purpose: Neal Stephenson's 1992 novel "Snow Crash" introduced the metaverse concept, which is now emerging as a potential game-changer across various aspects of life, including fashion. The metaverse, which is frequently referred to as a communal virtual shared space, has the potential to change how we interact with fashion, from digital fashion shows to virtual wardrobe selections. Furthermore, because it expands the possibilities for virtual fashion and lessens the need for tangible clothing, the metaverse offers a special chance to harmonise fashion practises with sustainability objectives.

This study aims to investigate the level of awareness and understanding among fashion students regarding the metaverse and its potential impact on sustainable development within the fashion industry. Specifically, we seek to answer the following research questions:

To what extent are fashion students aware of the concept of the metaverse?

What is the perceived potential of the metaverse in promoting sustainable fashion practices among fashion students?

Are the fashion students willing to engage with virtual fashion and digital clothing as a means to reduce the environmental footprint of the fashion industry?

This research seeks to uncover fashion students' readiness to embrace the metaverse for sustainable fashion and inform strategies for fashion brands, educational institutions, and policymakers in this evolving landscape.

Design/methodology/Approach: The research will employ a questionnaire developed using insights from academic literature and industry reports on the metaverse, sustainable fashion, and consumer perceptions. It will assess fashion students' awareness and opinions regarding the metaverse's potential for sustainable fashion.

Originality/Value: This study is significant because it covers the rapidly growing convergence of the metaverse and sustainable fashion, offering light on consumer awareness and perceptions. This study is valuable for fashion firms, educators, and policymakers as it offers insights on leveraging the metaverse for sustainable fashion and shaping strategic decisions in this evolving landscape.

Parametric Optimization of Mortise and Tenon Joints for Furniture Applications

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Mortise and tenon joints are a form of joint seen in wooden furniture structures that have complicated parameter interactions and numerous limitations. Traditional furniture structure design necessitates repetitive revisions to geometric models to identify parameter dimensions, which is wasteful and difficult, and has a negative influence on the development of the digital design and manufacturing process. This study developed a parametric optimized method of mortise and tenon joints in wooden furniture based on the ideal value range of mortise-tenon joints and refined the theoretical value range of at least four main parameters: the width of the beneficial mortise (B_2), the depth of the cede mortise (C_1), the margin thickness from the cede tenon to the rail reference edge (bt_1), and the margin thickness from the beneficial tenon to the rail2 reference edge (bt_2). With case verification, the findings reveal that the $maxC_1$ lowered by 5.4 mm in the axial direction of the cede tenon, and the combination of (B_2, C_1) reduced at least 23 types. The value range and value quantity of bt_2 were narrowed and dropped to varying degrees in the circumstances of varied post widths and the margin thickness from rail2's reference edge to the post's reference edge (B_{tm2}). When B_{tm1} is less than constant z , the value range and quantity of available values of the margin thickness from the cede tenon to the rail reference edge (bt_1) decrease with decreasing margin thickness from the rail reference edge to the post reference edge (b_{tm1}). Both theoretically and practically, the parametric optimized approach of mortise and tenon joints in wooden furniture may effectively minimize the parameter dimensional value range, and more refined value ranges can be produced by establishing more standard values. This technique also offers suggestions for the digital and standardized design of timber furniture constructions.

The Contemporary Resurgence of Indian Nationalism and The Revitalizing Role of Textiles

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Introduction: The past decade has witnessed a resurgence of Indian nationalism with a unique blend of cultural and political expressions. This study explores the multifaceted role of textiles in this contemporary wave of Indian nationalism, highlighting how traditional fabrics, clothing choices, and symbolic textile artifacts have played a significant role in fostering a renewed sense of cultural and national pride.

National Fervor: Indian nationalism in recent years has been characterized by a multifarious tapestry of cultural, social, and political movements. It has seen a resurgence of interest in traditional Indian values, art forms, and heritage. Textiles have emerged as a dynamic and tangible medium through which these aspirations are being expressed.

Celebrating the heritage: One striking phenomenon has been the revival of traditional Indian clothing styles, such as sarees, dhotis, and kurta-pajamas, as everyday wear. These clothing choices are not only a fashion statement but also a conscious decision to embrace and celebrate Indian cultural heritage. The reintegration of handwoven textiles and artisanal craftsmanship into contemporary fashion exemplifies a return to the roots of Indian culture.

Textiles have also played a role in articulating regional identities within the broader framework of Indian nationalism. Different states and regions of India have distinct textile traditions, and these are celebrated as hallmarks of regional culture.

Methodology: This study examines the contemporary resurgence of Indian nationalism and its relationship with textiles. It explores how traditional fabrics and clothing choices have been adopted as symbols of cultural and national pride. Additionally, it considers the economic and social implications of this textile revival, including the empowerment of local artisans and the promotion of sustainable fashion.

An extensive and targeted survey shall be conducted and the responses will be collated and compiled to present the findings.

Conclusion: Textiles have played a vital role in the emergence of a culture of Indian nationalism in the last decade. They have become potent symbols of cultural pride, unity, and resistance, helping to revitalize and reaffirm the multifaceted identity of modern India. The study offers the unique opportunity to capture the mind and its tangible manifestations.

Evaluating the Ergonomic Efficacy of Breastfeeding Pillows: A Quest for Optimal Comfort and Support

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Breastfeeding pillows for the longest time have been considered an essential aid for new mothers, ensuring comfort, and an improved nursing experience. These are specially designed pillows that are available in different shapes and sizes with the primary purpose of providing essential support. However, the impetus for this study stemmed from a familiar encounter that prompted a critical examination of its ergonomic effectiveness.

Breastfeeding is a natural and essential part of early motherhood, providing numerous health benefits to both mother and baby. Although, it can be a challenging experience, often plagued by various obstacles, including environmental factors, hospitalization, and maternal discomfort. The choice of posture during breastfeeding is crucial to ensure comfort and prevent physical strain, but the ideal support system remains a subject of debate. The purpose of this study was to ascertain whether these pillows reduce the discomfort experienced by women when they are breastfeeding. Furthermore, this research paper also critically evaluates to what extent has this product been instrumental in supporting lactating mothers.

This study employs a mixed research approach with a survey questionnaire and interviews, incorporating explanatory research. We conducted research on a focused group of 35 respondents, comprising mothers of infants or women who had given birth in the previous 2-3 years (age 25-35). Data collection methods included a questionnaire with open and closed-ended questions, allowing respondents to share their experiences, as well as interviews with gynecologists and physiotherapists to gain professional insights.

The findings of the research indicate that while breastfeeding pillows are designed to bring the baby closer to the mother during feeding, they are not effectively addressing the issue of preventing slouching or mid-back strain. Instead, these pillows often add additional weight, leading to discomfort, numbing of arms and legs, and severe pain in the cervical

curvature. The study resulted in the need for a breastfeeding aid to feed her child without feeling any burden of any pillow or additional support but still needs a product that is adjustable enough to prevent her from slouching at any cost while feeding her child.

Assessing the Influence of Artisan-Led Indian Textile Craft Demonstrations on Cultural Preservation and Tourist Engagement: A Case Study of Kalagram at Choki Dhani, Jaipur

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The enchanting allure of Rajasthan, a princely state in India, has consistently captivated visitors from around the globe. Jaipur, its capital, stands as a prominent tourist destination, and nestled within its heart is Choki Dhani, a unique cultural village and resort. Within Choki Dhani lies 'Kalagram,' a specially curated enclave designed to showcase the extraordinary talents of Indian artisans and promote the sale of indigenous handloom and handcrafted products. Among the various art forms on display, textiles take center stage, featuring leheriya, bandhini, hand-block printing, mirror work, and more.

The present research endeavored to explore the significant role played by artisan-led Indian textile craft demonstrations in the preservation and promotion of India's rich cultural heritage and, instilling a sense of pride among visitors. These demonstrations serve as a platform for cultural exchange and knowledge enrichment, enabling artisans to create unique products for sale and thereby contributing to their economic well-being. The study revealed it has had a positive impact on the sales of textiles.

Employing an exhaustive and comprehensive methodology encompassing observational assessments, structured surveys, and in-depth interviews with both artisans and visitors, this research meticulously scrutinized visitor satisfaction levels and the extent of visitor engagement at Kalagram. The discerned outcomes signified that not only did visitors hold a profound appreciation for their experiences at Kalagram, but they also unequivocally conveyed an eagerness to revisit the locale for subsequent visits.

This study holds significance in its exploration of the intricate intersection of culture, tourism, and conservation within the context of India's vibrant textile heritage.

Extraction of Natural Dyes from Organic Waste and Their Application on Textiles.

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In recent years natural dyes from plant sources have been in great demand globally over the concern of biodegradability and eco-friendliness. As fashion industry is among second most polluting industry have significant impact on environment. Due to rise of fast fashion in last decade leading to more and more textile products junked to landfills and fast fashion product uses excess of synthetic dyes which are toxic, carcinogenic, skin allergic and causing water pollution, thereby causing severe harm to environment. Therefore, using natural dyes is the best alternative for saving environment. Natural dyes is gaining more consumer interest due to its properties of eco-friendliness, sustainability, non-toxicity, medicinal benefits, anti-microbial and anti-allergic.

In the present study, Natural dyes are extracted from organic waste of flowers, leaves, fruits and vegetables by specific methods in powder form. Extracted dyes are dyed on cotton and silk fabrics by different techniques of tie-and-dye and in solid form and for the fastening of the colors on fabric is improved using natural mordant- Alum and its effect is studied on both cotton and silk fabrics. A color palette is developed from the shades achieved on cotton and silk fabrics. Further, a capsule collection of garment and accessory is developed using natural dyed fabrics of cotton and silk, following the steps of design processes of making an inspiration boards, color boards and concept notes, taking inspiration from the "Imperfections of the human body".

By embracing the extraction of natural dyes from organic waste and their application on garments, the fashion industry can align with sustainable practices that minimize waste and reduce the environmental impact. The exploration of various organic waste sources and innovative dyeing techniques opens up exciting opportunities for creating unique, environmentally conscious garments that cater to a growing demand for eco-friendly fashion choices, paving the way for a more sustainable future in the fashion world.

To Analyse Consumer Behaviour and Preferences in the Thrift Clothing Market in India

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Sustainability is one of the keywords buzzing the global consumer markets. Due to environmental concerns, consumers are more concerned about sustainable consumer behaviour. Garment disposal and recycling are hot topics in the apparel industry. This ideological movement tries to lessen fashion's environmental impact. It promotes the reduced consumption, reuse, and recycling of disposed garments. Incidentally, a substantial portion of accumulated second-hand apparel finds its way to emerging markets like India despite the presence of stringent barriers to import. In India, the consignment is carefully sorted based on quality. The consignment is filtered for quality and the highest quality items are exported to regions like South America and Africa. The remaining lot of mixed-rag categories find their way into the local Indian market.

Although India witnesses a significant influx of thrift clothing imports annually, the concept of thrift stores is not as widespread as in some other countries. To establish and sustain thriving thrift clothing markets in India, a comprehensive understanding of consumer behaviour in this context is imperative.

This research employs a descriptive methodology and quantitatively investigates the customer behaviour of Indian consumers towards thrift clothing in India. Structured questionnaires were employed to collect various information ranging from demographic, psychographic, behavioural, etc. The information was obtained to gain insight into consumer perspectives regarding thrift clothing. Stratified sampling techniques were applied and a total of 103 responses were collected and analyzed, leading to noteworthy findings.

The research findings indicate that consumers in India exhibit a willingness to engage with thrift clothing markets under certain conditions. If the brand provides Quality assurance, transparency regarding the sourcing and production process of thrift items, offering unique and vintage items that are not readily available in mainstream retail stores, Affordability

and easy accessibility as one of the main motivations for thrift shopping, showcase positive customer reviews and testimonials, offer consumer-friendly return and exchange policies to alleviate concerns about purchasing thrift items online. Understanding these dynamics is essential for businesses and policymakers seeking to promote sustainable fashion choices in the Indian market.

Enhancing Sustainability and Aesthetics through Functional Finishes on Curtains

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Sustainable home décor has gained prominence in recent years, with consumers increasingly seeking eco-friendly options for interior design. This explores the integration of various functional finishes into curtains, presenting an innovative approach to sustainable home décor products. Functional finishes not only enhance the aesthetics and functionality of curtains but also contribute to environmental sustainability. This study delves into different functional finishes, such as thermal insulation, UV protection, antimicrobial treatments, and soundproofing, to create curtains that not only beautify living spaces but also reduce energy consumption and promote health. By examining the sustainable attributes of each finish, we present a comprehensive analysis of their impact on the environment. Our research reveals that curtains treated with thermal insulation coatings can significantly reduce heat transfer, leading to lower energy consumption for heating and cooling, thus decreasing the carbon footprint of a home. UV protection finishes prevent furniture and flooring from fading due to sunlight, extending the lifespan of interior elements, and reducing waste. Moreover, antimicrobial finishes on curtains can contribute to indoor air quality and hygiene, promoting a healthier living environment. Soundproofing finishes enhance acoustics within a room, offering a serene space in urban areas with noise pollution. In conclusion, the integration of functional finishes into curtains not only aligns with the growing demand for sustainable home décor but also presents a plethora of benefits for homeowners. This offers valuable insights into the eco-friendly potential of functional finishes, fostering an informed choice for consumers interested in both aesthetics and sustainability in their interior design projects.

A Study On Fiber And Yarn Extraction From Old Garments (Recycled Yarns)

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The need for production is rising so quickly in all facets of the necessary life commodities. Overproduction and resource exploitation appear insufficient to satisfy all necessary demands. As a result, the large increase in demand for textiles that results in increased clothing production is not only driven by the need for more people but also by new fashion trends. The most significant challenge facing the scientific and industrial communities is improving raw material utilization. In various manufacturing processes (such as spinning, weaving, knitting, or the fabrication of clothing), textile production wastes are unpleasant but unavoidable by-products that are typically devalued.

However, there will be a significant market contribution if one can efficiently turn such wastes into usable products. In order to understand the process of extracting yarn from garments, primary and secondary data were collected.

Primary data was collected through semi-structured interviews with two organizations that are extracting yarn from old garments. The secondary data was collected through various articles published online, official websites of the organization, and government reports. The research clearly shows that using recycled yarn in garments can be one way to address problems regarding pressure on natural resources upstream and massive waste flows downstream. This research assessed the challenges manufacturers faced and identified current problems; it also highlighted areas where changes could be made from a manufacturing standpoint. Consumers have evolved and have become more educated about the materials and manufacturing process, which results in their growing interest in making socially responsible choices while updating their wardrobes with a value tag. However, when it comes to awareness about using products made from recycled yarns and what happens to the garments after we discard them, there is still a gap that needs to be filled.

Critical Review on Photocatalytic and Piezo-catalytic Dye Degradation, Antibacterial, and UV Protection for Sustainable Waste Water Treatment.

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The textile industry uses around 1.3 trillion gallons of water to dye the garments, and most of this water is loaded with harmful chemicals and dyes which is sometimes discharged directly into the river and streams causing huge amount of water and soil pollution. About one fifth of the water pollution is caused from the textile dyes. The treatment of this water is necessary but the choice of wastewater treatment significantly impacts the cost, the infrastructures and equipment's and their complexity with their maintenance becomes a great stress for the industry people and even after that a huge amount of labor and energy is lost. Thus, these types of processes cannot be considered sustainable for futuristic approach. So, we need to find more suitable, less time consuming, and highly effective methods for these processes, and photocatalysis and piezo catalysis can be considered a great way for the breakdown of harmful chemicals into simple and environment friendly compounds. In this review paper, we have looked across different types of textile materials which can be used as filter and these filters are made using the biodegradable textile fabric thus, causes zero harm to nature. Moreover, special ferroelectric material is being coated over the fabric by different methods of impication and then the filters are tested for their dye degradation property. The majority of dyes used are Rhodamine B and methylene blue. Except for dye degradation other properties like anti-bacterial behavior, and UV protection are also included in this study. This paper talks about their performance and their results are checked and compared and some of their major loop holes.

Fashioning a Greener Future: A Study on Suta Bombay's Social Entrepreneurship Business Journey for Sustainable Development

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The sustainable fashion business model is a growing trend in the fashion industry, valued at \$7.5 billion in 2022 and projected to reach \$16.8 billion by 2032, fuelled by rising consumer awareness and demand for eco-friendly and ethically-produced clothing. Sustainable fashion business models tackle fast fashion issues through circular economy principles and social entrepreneurship values. Suta Bombay brand contributes to this sustainable and ethical fashion movement by practising a sustainable business model throughout its supply chain. The research aims to analyse Suta Bombay's Sustainable business model and elucidate social entrepreneurship practices adopted using qualitative methods. The research was carried out in two phases. Firstly, the Secondary data was retrieved from LinkedIn and the brand's website. Secondly, the primary data was collected from structured interviews with team leads offering insights into the sustainable business model and social entrepreneurship. Purposive sampling with five department respondents was employed. Suta Bombay recognizes the detrimental impact of fast fashion on the environment and actively promote slow fashion across various apparel categories. The brand upholds CSR principles by reducing carbon footprints, making socially responsible investments, and improving labour laws for artisans. Their primary goal is to elevate the status of craftsmen, employing over 14,000 weavers and artisans from across India and supporting more than 100 families. Suta Bombay practices sustainability, ethics, and transparency, engaging their community of over 5 lakh residents. The purpose of the research is aimed at conceptualizing Suta Bombay' social entrepreneurship business model from Hamel's framework for sustainable development.

Exploring the Kaleidoscope of Godadi: Art, Culture, Craft, Nature, and the Inherent Ecological Mindset in Sustainability in India's Diverse Textile Traditions

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The craft of quilt-making known as “Godadi,” originating from the enchanting region of Bhujodi, India, emerges as an intrinsic embodiment of sustainable practices. Rooted in the Gujarati lexicon, with “godi” connoting bedding or quilt, this craft seamlessly weaves together vintage and contemporary textiles, encompassing remnants of cotton, silk, and wool. This scholarly inquiry is fervently dedicated to unravelling the trajectories that can elevate the proficiency of this artisanal cluster into a repository of sustained community knowledge. Concurrently, it aspires to articulate a conceptual framework that can be extrapolated to assimilate analogous crafts into the daily fabric of urban existence.

This academic endeavour seeks to illuminate the latent potential for Godadi to metamorphose into a venerated symbol of sustainable craftsmanship on the Indian subcontinent, deserving global acknowledgement. In tandem with the worldwide upsurge in textile demand, there is an alarming surge in textile waste, a predicament anticipated to reach a staggering \$30 trillion in annual consumption in developing nations by 2025 (Koszewska, 2019). This underscores the dire exigency to embrace the tenets of a circular economy model. In this context, the artistry of Godadi quilting emerges as a potent channel for the propagation of sustainable paradigms. This academic inquiry transcends geographic confines, facilitating the intersection of traditional prowess within the Bhujodi community with a global audience, thereby fostering a global conversation on sustainable craftsmanship.

In summation, this scholarly discourse converges upon the nuanced tapestry of Godadi as a beacon of sustainability and endeavours to extend its purview to a global stage, while the supplementary analysis embarks on a journey through the evolving quilt-making landscape within the urban expanse of India. Together, they serve as illuminating facets in the mosaic of India's rich artisanal heritage and its contemporary relevance in the realm of sustainable craftsmanship.

Pinatex – A Sustainable Leather Substitute

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Pinatex is a leather derived from pineapple leaves and is rising in popularity in the sustainable fashion space as an alternative to conventional leather. It is largely exported from the Philippines and serves as a secondary source of income for pineapple farmers. Pinatex comprised of 80% Pineapple leaf fiber and 20% PLA, hence it is not completely biodegradable. But it is unique for its eco-friendliness as it utilizes the by-products and waste generated from the pineapple industry. It is an important research area as global environmental concerns rise in the fashion industry along with the demand for more eco-friendly products.

The goal of this study is to compare properties of traditional leather acquired from cows with Pinatex and focuses on the manufacturing capabilities and consumer perception in India. India is the 5th largest producer of Pineapples and holds potential for scaling Pinatex production to meet the global vegan leather demands. In this study, we will discuss various research conducted by researchers related to several characteristics such as tensile strength, texture, durability which are also compared using analytical methods. The preliminary results show promising durability and tensile strength of Pinatex, aligning with the existing research. The initial analysis on economic impact also shows a potential of more than 10% increase in secondary income of farmers. In summary, a comprehensive overview of the potential of scaling Pinatex as a sustainable alternative to leather is provided. The findings in this study will aid informed decisions in the sustainable fashion industry of India. It will also help scalability of Pinatex production for various other applications in home textiles, green packaging and luggage. As we conclude the results, the next steps hereon are to encourage textile experts to carry out Pinatex research and increase awareness in the sustainable fashion space.

Smart Technology Shaping the Future

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The world we live in is undergoing a significant transformation as a result of the quick development of smart technology. This change is affecting a variety of industries, including healthcare, transportation, education, and urban planning. This explores the wide-ranging effects of smart technology on the future while highlighting important spheres where innovation is having a significant impact.

The use of artificial intelligence for diagnosis and treatment, as well as remote monitoring of chronic illnesses, are all examples of how smart technology is revolutionizing patient care. Healthcare services are becoming more effective and accessible because of the Internet of Things (IoT), which is tying together medical equipment, improving data analytics, and enabling telemedicine.

The future of transport will see mobility redefined thanks to autonomous vehicles and smart infrastructure.

These innovations promise to make transit networks safer, more effective, and less harmful to the environment. There may be significant changes in the way we commute when electric and self-driving automobiles become more common.

Personalized learning experiences are made possible by smart technology as education undergoes a digital transition. Education is becoming more accessible and effective as a result of adaptive learning platforms, augmented reality, and online learning resources that allow students to learn at their own pace and in their own way.

Data-driven technologies are being used to make cities smarter. IoT sensors and big data analytics are being used by urban planners to optimize energy use, lower pollution, and improve public services. Smart cities are meant to be more resilient, sustainable, and livable.

But as intelligent technology develops, issues like data privacy, cybersecurity, and ethical considerations become more prominent. This examines the difficulties and moral conundrums brought on by the widespread use of smart technology.

A Study on Kondapalli Craft-Based Fashion and Accessories

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The resurgence of regional crafts has taken the world by storm and India is no exception. Great opportunities lie in the wake of such a charged atmosphere, allowing artisans to improve their designs and sell their products in the global market.

Kondapalli Bommalu (Kondapalli toys) is a traditional craft that originated in the Kondapalli village of Andhra Pradesh nearly 500 years ago when Rajasthani craftsmen immigrated to the place to build the local temples. Toys showcasing the rich culture, occupations, traditions, festivals and local lifestyle of Andhra were hand-carved from the Tella Poniki wood and painted with vegetable dyes.

Though the original purpose of these miniature sculptures was to decorate the traditional bommala koluvu (toy festival), they have evolved to become good luck charms, home decor, utility-based products and even toys. Due to modernisation, some aspects of the craft have changed, such as the adoption of enamel paints instead of vegetable dyes but the rest of the process remains true to its roots. In the modern context, traditional Kondapalli toys serve as a great sustainable alternative to plastic toys, decor and accessories that are mass-produced and cause great harm to the environment. Field visits and interviews with some craftsmen revealed that the demand for Kondapalli toys is rising rapidly due to a number of factors, including environmental consciousness and globalisation.

Replacing small products like plastic storage boxes, toys, jewellery, combs and pen-stands can go a long way for the future of our environment. The aim of this research is to draw a relationship between re-emerging handicrafts and their positive impact on the planet. By reclaiming traditional crafts and honing the skills of our craftsmen, we can move forward into an era of conscious consumerism that seeks to alleviate the burden of environmental degradation, besides generating employment and providing livelihoods.

Advancing Circular Fashion through Innovative Textile Recycling Technologies

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The fashion industry has long been associated with unsustainable practices, resulting in environmental degradation and resource depletion. To address this pressing issue, the concept of circular fashion has emerged as a transformative approach, aiming to create a closed-loop system that minimizes waste and extends the lifecycle of textiles. This review paper delves into the critical need for circular fashion and highlights the pivotal role of innovative recycling technologies in achieving this vision.

The transition to circular fashion necessitates the development of efficient recycling methods capable of repurposing textile waste. Existing innovations in textile recycling encompass a spectrum of techniques, including mechanical recycling, chemical recycling, and Digital Sorting Technologies, often integrated with artificial intelligence (AI) and machine learning. Mechanical recycling involves processes such as shredding and spinning, which transform old garments into new fibers, reducing the demand for virgin materials. Chemical recycling, on the other hand, breaks down textiles into their constituent polymers, enabling the creation of high-quality fibers, yarns, and fabrics. The integration of AI and machine learning with Digital Sorting Technologies enhances the sorting and separation of textiles creating transparency, traceability and automation. It rapidly identifies and separates textiles based on fiber composition, color, and quality. This streamlines the recycling process by ensuring that textiles are sorted correctly before processing.

Looking ahead, the future of innovation in circular fashion holds immense promise. Technological advancements in recycling techniques are expected to yield more sustainable and cost-effective solutions.

In conclusion, the urgent need for circular fashion to combat the fashion industry's negative environmental impact cannot be overstated. This review paper provides a comprehensive overview of current innovations in textile recycling, ranging from mechanical and chemical methods to cutting-edge AI-driven Digital Sorting Technologies. As we look toward the future, continued research and development in recycling technologies, along with the integration of emerging digital solutions, will be crucial in achieving a sustainable and circular fashion ecosystem, thereby mitigating the detrimental consequences of the fast fashion industry on our planet.

Innovative Rescue Technologies for Urban Search and Rescue Operations: a Co-working Experience within a European Research

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The paper shows the methodology and the results of the co-design activities taken within a research project funded under the Horizon 2020 call "Secure societies - Protecting freedom and security of Europe and its citizens".

The activities were carried out during the whole period of the project, involving several end-users organizations from different European countries. The co-designing process included questionnaires, direct interviews, focus groups and usability tests both in the laboratory and in relevant environments during controlled official exercises.

The work shows how the design, and the co-design methodology can be a valuable tool to improve the user experience and the comfort of standardizing protective products, that have to take into account several and close ties dictated by specific and strict standards and procedures.

The co-design approach allowed the designers to improve and facilitate the design process in several ways. In particular, in the first phase the final users highlighted the weaknesses of the currently used equipment and their real needs during the rescue activity, while in the second phase they could directly tested the proposed improvements and solutions, highlighting the weaknesses and the reasons therefor.

Moreover, the cross contamination with different technology and solutions used in other extreme conditions scenarios allowed to improve several aspects of the developed products linked to the comfort, the usability, the communication and the protection.

Erp, Rfid, Ai, Iot And Other It Applications For Traceability.

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Due to its globalized supply chains, extensive supplier base, widespread risk of counterfeit clothing, and increased customer demands for thorough visibility, the garment sector has a substantial need for efficient product monitoring and tracing. The limits of current track-and-trace technology in the apparel industry are explored in this article.

It then looks at how the seamless integration of supply chain apps with fundamental Enterprise Resource Planning (ERP) systems provided by the Internet of Things (IoT) and blockchain technology gives a solid solution for digitally tracking and tracing apparel. In addition to demonstrating how apparel firms assist in the adoption of customized solutions to meet these urgent concerns, the paper highlights the possibility of merging blockchain and IoT to interface with the fundamental ERP systems within the garment sector. In the near future, as supply chains become more complex and globalized, emerging technologies like artificial intelligence (AI), machine learning (ML), predictive analytics, augmented reality (AR), the internet of things (IoT), and blockchain will transform key supply chain operating models. Even as the Internet of Things and sophisticated analytics gain ground quickly, the idea of a “digital control tower” will spread like wildfire. Extended supply chain visibility will enable businesses to make wise decisions based on information obtained at all points throughout the value chain. The most disruptive technology to affect the transformation of the supply chain will certainly be blockchain, and the influence of digitalization on the supply chain will result in more engaging user experiences throughout the whole business ecosystem.

Materials and Methods:To address this research problem, an in-depth analysis of the existing literature on supply chain management, garment industry practices, and emerging technologies was conducted. Additionally, case studies from apparel firms that have adopted custom solutions for enhanced tracking and tracing were examined. The research also investigates the potential synergies between the Internet of Things (IoT), blockchain technology, and fundamental Enterprise Resource Planning (ERP) systems.

Results and Discussion:Our analysis reveals that the seamless integration of supply chain applications with IoT and blockchain technology offers

a robust solution for digitally monitoring and tracing apparel products. This integration enhances transparency and traceability throughout the supply chain, mitigating the risks associated with counterfeit products and ensuring compliance with customer demands for visibility.

Furthermore, the study highlights the willingness of apparel firms to embrace tailored solutions to address these pressing concerns, demonstrating the industry's readiness for technological transformation. The potential fusion of blockchain and IoT with core ERP systems within the garment sector presents an exciting avenue for future development.

Conclusions: In conclusion, as global supply chains in the garment industry continue to evolve and become increasingly complex, emerging technologies such as Artificial Intelligence (AI), Machine Learning (ML), Predictive Analytics, Augmented Reality (AR), IoT, and Blockchain are poised to revolutionize traditional supply chain operating models. The concept of a "digital control tower" is on the horizon, enabling extended supply chain visibility and informed decision-making across the entire value chain.

Practice of Kullu Shawl weaving in Himachal Pradesh

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Weavers in the Indian subcontinent had acquired and innovated the skill of weaving to cater to the regional requirement of the commoners, of aristocrats as well as of the overseas patrons. Their response to the use of material and technique to produce the yardage depended upon the requirement of its consumers. The textile studied and is being discussed belongs to the class of folk textile which was made by the humble commoners of Himalayan region to meet the requirement of protecting oneself from a harsh climatic condition. Nestled in the lap of great ranges of Himalayans, Kullu region of Himachal Pradesh has been the home to the various folk communities residing in the state. Weaving activity was carried out by the women of koli community while hand spinning was carried out as part of a leisure activity by the members of the family. The textile was marked by the use of geometric patterns created on the longitudinal border in contrasting colour and the cross borders were fashioned in the tapestry technique. Gaddi sheep's wool which is locally available breed in the valley served as raw material for the production of textile

Women in the region would wear woollen wraps which form an important part of their regional costume called "Pattu" while the men would drape themselves in a humble wrap or chaddar as it known as regionally. These woollen chaddars were also termed as "Lohi" in the region of North western province. Evolving times and revivalist movement in India had now led towards the advancement in technique, choice of raw material and product diversification of the Kullu textiles.

The present paper is intended to shed light on the present time material processing technique, production process, systems of production and the position of the Kullu shawl and its producing community. The paper would also delve upon the understandings developed by the investigator as a design student and its application in the development of design sensibilities.

Dialogue between Abstract Paintings and Spectators

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“Painting is self-discovery. Every good artist paints what he is.”- Jackson Pollock. Painters words themselves have different hidden meanings of new creation, imagination, and reality beyond visual reality. Humans are constantly looking to improve their mental processes by adopting novel ideas. It is founded on the empirically supported theories of perception utilized by the field of art therapy.

Art history shows that in the post-realism era, ion has been greatly valued in the art community. However, the fallout of this has increasingly led spectators to feel disoriented by the creative process of painting, which they have never been trained to understand or correlate with. Studies pertaining to engagement points for a broad spectrum of viewers have seldom been documented, especially with regards to creative painting.

The paper establishes is gap between painter process work and spectator perception of painting. Analyzing primary source through in depth discussion on the ionist process with galleries visitors Also journals of Art Therapy, process and perception, this evidence of secondary data support to establish connection of artist and spectator to understand creative process.

This research paper focuses on the process of painting and spectator perception, aiming to improve the connection between art and art enthusiasts. The paper is a study on how to develop better engagement between the ionist and spectators so as to create an immersive and inclusive art environment.

Ionist and spectator are two sides of the same coin; with the process at its heart. The paper establishes a connection between contemporary art processes and the perception of processes by spectators. Also, this dialogue aids the spectator in getting to know their own essential nature, which in turn improves their ability to function in society.

AR and Learning: Towards Sustainability and an Equitable Future

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New age technologies like Visual Reality, Augmented Reality and artificial Intelligence are speedily penetrating our everyday life. Augmented Reality or AR is a highly useful tool that has been already adopted by various museums around the world to enhance experience of their visitors. Many fashion brands are also using it, especially for retail purposes to give real-world experience to their customers. These technical tools can immensely benefit educational experience, especially in the field of liberal arts like Visual Arts, Design and Fashion. Through the use of these technologies a real-world experience can be provided to students by bringing to life historical monuments and art works, giving out valuable information and experience about art, culture, fashion and architecture of not only gone by times but also of distant objects and sites. As AR does not require physical presence and infrastructure, it becomes a sustainable tool in this field. In this paper we aim to explore various ways in which quality education may be provided to students through modes using AR, while also achieving goals of sustainability. Aim is also to focus on education in countries like India, where students are sometimes unable to access quality education due to financial and other reasons.

Transformative Learning for Sustainable Fashion Education

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“Transformative Learning for Sustainable Fashion Education: A Multifaceted Approach” explores the imperative to revolutionize fashion education, with a specific focus on sustainability and innovation. This study identifies the pressing issue of the existing gap between conventional fashion education and the ever-evolving needs of the fashion industry, underlining the critical importance of instilling sustainable practices within the curriculum. Furthermore, it delves into the socio-cultural challenges inherent in fashion education in emerging economies. The core objective is to propose a comprehensive educational framework that seamlessly integrates fashion majors with innovation and entrepreneurship, bridging the divide between academia and industry. Drawing insights from diverse international fashion programs, the research showcases innovative approaches and collaborative projects that prioritize sustainability. It underscores the pivotal role of transformative learning and teaching strategies in equipping students for a dynamic fashion landscape. In conclusion, this research advocates for a paradigm shift in fashion education, championing a holistic approach that cultivates sustainability, innovation, and socio-cultural awareness. By aligning educational practices with industry demands and societal needs, fashion education can lead the way toward a more sustainable and socially conscious fashion industry.

Smart Jewellery for Preventing Accidents Occurring Amongst Senior Citizens

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The challenges faced by older individuals living alone in our society have prompted the exploration of innovative solutions, such as smart jewellery, to ensure their safety and well-being. As people age, they often experience a decline in their abilities, making living alone potentially risky, especially in cases of accidents like falls or medical emergencies. While there are various services available to address these challenges, they may only offer temporary solutions. Smart jewelry has piqued the interest of developers and customers alike, whether for safety, health, or fashion reasons. The concept of smart jewelry designed for older individuals living alone serves multiple purposes, including safety, health monitoring, and even fashion. The primary goal of this smart jewelry is to provide a comprehensive solution to address the unique needs of elderly individuals living independently. Smart jewelry for older adults integrates crucial health information and connects it to nearby medical emergency centres or their personal doctors. This information includes real-time monitoring of vital signs such as heart rate and other relevant health data. In the event of a fall or other medical condition, this data can be swiftly transmitted to a nearby medical facility, ensuring prompt assistance and reducing the inconvenience of dealing with emergencies. One of the standout features of this smart jewelry is its ability to send out immediate calls for help and inform selected contacts or medical professionals when a critical situation arises. This proactive approach to emergency response can make a significant difference in ensuring the safety and well-being of older individuals living alone. In conclusion, the concept of smart jewelry for older individuals living alone addresses the pressing need for preventive intervention and emergency response. By integrating health monitoring and quick access to medical assistance, this innovative solution aims to enhance the safety and quality of life for seniors who choose to live independently.

Career Choices in Pottery Town: Parental Expectations and Youth Aspirations

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The research problem at the heart of this study revolves around the divergent career preferences between generations, with parents potentially favouring careers other than pottery-making for their children while the youth may contemplate carrying forward the traditional craft of pottery-making or pursuing a career of their choice.

This exploratory qualitative study employs participant observation and in-depth interaction as critical tools for data collection. The interactions will be closely engaged with families and individuals within Pottery Town to gather rich, firsthand insights into their career aspirations and expectations. In-depth interviews and participant observations will serve as the primary methods, allowing for a nuanced understanding of the participants' perspectives.

This study raises questions, including whether parents envision their children pursuing careers in pottery or modern professions, and how youth perceive their parents' expectations. It also explores the career aspirations of the youth within the unique context of Pottery Town.

The interaction will aim to highlight the interplay of factors influencing career choices. Parents' motivations are driven by the allure of stable and financially rewarding IT or other sector jobs, often regarded as prestigious in contemporary society. Conversely, some young individuals desire to preserve their cultural heritage by embracing pottery-making, acknowledging its intrinsic value along with monetary considerations.

The study underscores the need for open dialogue and understanding between generations. It reveals the societal and cultural dynamics influencing career decisions in Pottery Town. As the traditional craft of pottery faces potential decline, understanding the gap between parental expectations and youth aspirations emerges as a critical challenge, which shall be answered by this research.

In conclusion, the study offers a valuable exploration of the generational shift and dynamics surrounding career choices in the community of Pottery Town. It calls for a balance between preserving tradition and embracing modernity, emphasizing the importance of mutual respect and compromise within families. This qualitative study contributes to the broader discourse on career decision-making, cultural preservation, and generational dynamics.

Analysing the Effectiveness of Current Marketing Strategies for Sustainable Fashion Products on Consumer Behaviour

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Sustainability has been one of the most pressing issues in the world right now. By 2030, the UN intends to have achieved its sustainable development goals. The focus of Agenda 12 is on ensuring sustainable production and consumption. The fashion sector is one of the world's biggest pollutants, and it is critical to modify the way the process operates. Existing businesses have been implementing sustainable practices, and new brands have been developing creative solutions to address primitive marketing strategies to communicate about sustainable fashion to the consumers. However, there is an intention–action gap in the industry.

The purpose of this study is to examine the influence of current marketing activities implemented by sustainable fashion brands on customer behaviour and their restricted purchasing patterns for sustainable products. The study adopts a mixed-methods research methodology that includes surveys, interviews, marketing content analysis, and observational research to examine consumer awareness of sustainable marketing campaigns, attitudes toward sustainability, purchase intentions, and actual behaviour. Addition to this insights are derived from in-depth interviews with a subset of participants, unveiling the emotional and personal dimensions of consumer responses to sustainable marketing. In order to gain firsthand knowledge of the impact of sustainable marketing on customers' decisions and behaviours, observational research is used to monitor consumer behaviour in both offline and online fashion retail contexts.

In conclusion, this research will help in the development of effective marketing strategies that correspond with changing consumer values and desires, steering the fashion industry towards a more environmentally sustainable and socially responsible future.

Designing and Development of Patterns Using Origami Technique: A Step Towards the Zero Wastage Sustainable Design Practices

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Clothing aspect of serves as a means of expressing identity, wealth, and status. The garment industry encompasses the entire clothing production which involves numerous steps, including design, fabric selection, patternmaking, cutting, sewing, and quality control. This complete process generates a significant amount of waste. To address this waste issue, the present research work proposes the use of origami patterns with a zero-waste technique in the fashion industry. Zero waste fashion aims to create clothing without wasting any fabric. This is achieved by designing patterns that maximize the use of material, ensuring that no useful scraps are left behind. Origami technique can also be utilised for the same. It may also involve designing clothing in a way that generates useful shapes and sizes for constructing other items. Origami, technique of paper folding was utilised for designing and development of women's wear. The primary objective of this study is to design and to develop unique designs for women's wear utilizing the zero-waste technique such as Origami. This research aims to develop these tunic designs for women as a demonstration of the potential of origami patterns in fashion, with a focus on minimizing material waste and maximizing sustainability. Survey method was used for present study to analyse the interest area of women's wear. Females (age group 18 to 30) of Amritsar city of Punjab were selected on the basis of random sampling. It is found in the study that majority of respondents preferred origami patterns incorporated in women's wear. According to respondent's clothes made of origami are comfortable also. Hence it is concluded from present study that incorporation of origami patterns on fashion apparel not only provide the attractive and unique designs to consumers but also provide different functional aspects to the users.

Replacement of Heavy-Duty Sewing Machine Parts with 3D printed Acrylonitrile Butadiene Styrene Material

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In today's world, additive manufacturing (AM) has been popularly used to replace several machine parts due to the ability of the complex geometry generation. The machine parts are created with precision, efficiency and reduce waste as well, making it a cost-effective and customizable manufacturing method. It has eliminated the usage of metal parts and is an economical solution. This is helpful particularly when the salvage and costly parts need to be replaced.

The running parts of heavy-duty sewing machines are mostly made out of metal and tend to be expensive. In this paper, various running parts of heavy-duty sewing machines such as presser foot and bobbin cases have been solid modeled using a 3-D scanner. The bulk densities have been varied as low, medium, and high with varied shaped fillings. This was done to ensure a more economical alternative for the sewing machine parts. Stress and strain analysis was carried out using the finite element analysis method. Experimental analysis was carried out by running the 3-D printed ABS parts for several cyclic time hours in order to assess the reliability of the part. The results proved that at medium bulk densities, the 3D printed sewing machine parts are an apt replacement as a running part in heavy-duty sewing machines. The replaced parts have negligible stitch flaws and provide a good service life.

This paper will outline the process involved in the production of these alternative parts and the scope of their applications in the machinery. It would also put out the advantages that this replacement would lead to short lead time, lighter parts and lower costs.

White Water Kids: Understanding the Communication Strategy of a Sustainable Clothing Brand using the Honey Comb Model

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Digitalisation and particularly Social Media (SM) has become an integral part of our daily life, and has been observed to transform consumer behaviour (Kaplan & Haenlein, 2010), with important consequences for brands, products and companies (Mutinga, Moorman, & Smit, 2011). Currently companies use these channels extensively to promote their brands as well as to engage effectively with their customers (Swani, Milne, Brown, Assaf, & Donthu, 2017). Thus, it is crucial for firms to understand and identify how to deliver and organise the content they desire their consumers to consume through various social media platforms. However, with the growth of communication platforms and marketing clutter, it is eventually becoming complicated to build customer loyalty (Buhalis & Law, 2008), thereby indicating that having a marketing strategy for efficient use of SM is crucial for companies to stay competitive and grow (Parsons, 2013). In this context, the present study aims to investigate the applicability of digital communication strategy of a new sustainable clothing company. Our aim is to understand how digital communication can be employed to improve a company's digital marketing plan especially in a new enterprise. The study uses the case study methodology focussing on a company named "Wwhitewaterkids"-a children's apparel company, which is owned by woman founders based in India. The company's presence in SM was analysed through the theoretical framework of honeycomb model for SM functionality, as proposed by Kietzmann et al. (2011). The analysis of the case study identifies and illustrates how the seven blocks of honeycomb model -identity, conversations, sharing, presence, relationships, reputation and groups- were set out by the company to create relating to the social media strategies for to creatingcreate and value or enhancingenhance value while within the enterprise even when the company was already working on the principles of sustainable business model. The study provides several theoretical as well as managerial implications both for the practitioners as well as the academic community.

The Role of Folk Art in Creating Universal Happiness

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Indian folk arts encompass a diverse array of culturally rooted artistic expressions that have been transmitted across successive generations. The repertoire of traditional art forms encompasses a wide range of expressive mediums, such as music, dance, puppetry, storytelling, and various other cultural practices. The Maharaja Sayajirao University of Baroda, Faculty of Fine Art is the center of Indian fine arts education. The Faculty of Fine Arts is an educational institution where from all over India multicultural students, and foreign country students come to learn art education. The Faculty of Fine Art transformed into a space where multicultural students celebrate the Navaratri festival through Garba dance. Garba is a Gujarati folk dance form that is performed during the Navaratri festival. The dance performance is dedicated to worship goddess Amba Maa. The dance performance of multi-cultural students during garb. The study focuses on the importance of the folk-dance form which is practiced in that educational space and how a religious festival transforms into a common space to create universal happiness for students. For the study, ten interviews with recent and former students were conducted. The results of the study show a significant positive response to the importance of the folk art (Garba dance) practice in educational institutions. They expressed happiness around the folk-dance practices and importance of the Gerba dance to construct/promote communal harmony /bother-hood in the educational space. This study will helpful to understand the role of fine art to construct a society and its well-being.

Textile Waste Management Incorporating Zero Waste Garment Construction

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As we say that, "Charity Begins at Home", sustainability also begins at home. The consumers are now-a-days focused on custom-made apparels which results in the accumulation of cutting waste in boutiques and tailoring shops. This waste is very valuable to promote sustainability incorporating the concept of zero wastage. This research aims to find the ways in which this wastage can be consumed in order to create or design various products in the category of accessories, home decorations, apparels and many more. This journey will start with collecting the cutting wastes from different sources then sorting them into categories (such as fiber composition, size, colour, pattern, etc.). After categorization the cutting waste will undergo various processes and will be converted into sustainable designs for the market.

Uplifting Terracotta Artisans in Vardhman Nagar: A Holistic Skill Training Approach

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The handicraft industry plays a pivotal role in preserving cultural heritage, generating economic opportunities, and promoting sustainable practices. Terracotta is a clay that has been used to create a variety of decorative, utilitarian, ornamental, and structural objects since the time of the Indus Valley civilization. After firing at 900 degrees Celsius, terracotta takes on red hues. It is a craft that has evolved and adapted new techniques, tools, and machines over time; yet, some terracotta clusters in India have been unable to adapt and have seen decline. This research paper delves into a comprehensive skill training approach that empowers terracotta artisans in Vardhman Nagar, Nagpur by integrating education methodologies, cutting-edge technologies, and the active engagement of non-governmental organizations (NGOs).

The study aimed to understand the scope of a strategic alliance between artisans and NGOs for the sustainable growth of the cluster and create an educative programme with an NGO to help artisans acquire the latest terracotta craft techniques and sustain. The craft was found to be practised by only three families in the area. Furthermore, the artisans of Vardhman Nagar lacked the necessary infrastructure and craft skills to create terracotta products that compete with the various other products in the market.

As a result, a skill training programme was developed in collaboration with the NGO EkiBeki to assess artisans, update their skills and help them sustain. The designed programme focuses on supporting artisans, adopting new technologies, learning to make quality products and effectively advertising and selling them. This approach was reduced in a framework so that it can be used by NGOs to train other clusters as well. The skill up gradation and training can be expanded to teach artisans terracotta sculpting, dyeing, and glazing, among other things.

Development of Clothing for Bed Ridden Patients

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Bedridden patients, whether due to illness, injury, or disability, face numerous challenges in maintaining comfort, dignity, and ease of care while confined to their beds. Many individuals can often find themselves bedridden due to various medical conditions, with the duration ranging from a few days to several years. Consequently, being restricted to one location can result in stress and have a negative impact on an individual's overall wellness. This can also lead to discomfort, especially if the clothing worn is not suitable or comfortable, which could further worsen the situation.

This study explores the development of inclusive clothing designed to meet the unique needs of bedridden individuals. A new clothing solution is being presented in this paper that will not only simplify the dressing process for someone who is bed-ridden, but will also allow them to have a better quality of life. It is designed in such a way that it satisfies the practical needs of both medical staff and patient. Through the use of natural dyes possessing medical properties, such as sandalwood, the clothing is designed so that it is attractive to the eye by using block printing to change the medical wear from a solid colour to something more colourful. Having a mild scent, sandalwood is known to offer a soothing effect to the body, causing stress levels to decrease as a result. It is also known to be an effective treatment for headaches, itching of the skin, and infections of the skin. The people who use this sleepwear for patients who are confined to beds are intended to experience both physical and psychological comfort from it.

This research seeks to address the multifaceted challenges posed by immobility and bed confinement, aiming to provide innovative clothing solutions that enhance both the physical and emotional well-being of bedridden individuals and ease the caregiving burden on their families and healthcare providers.

Impact of Body Shapes on Sustainable Fashion Practices in Context to Indian Plus-size Women

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The global fashion industry is undergoing a transformative shift, marked by the escalating demand for plus-size clothing. This trend is not limited to the global arena; within India, the plus-size segment constitutes a substantial portion of the consumer base, estimated to account for around 50% (Statista, 2022). Furthermore, the Indian plus-size clothing market is expected to maintain a robust CAGR of 5.7% from 2022 to 2032, as reported by Apparel Resources (2022). However, this growth in the fashion industry coincides with an issue – the escalating return rate of clothing items purchased online, which currently stands at 30–40%. This concerning trend carries significant environmental consequences, in terms of the carbon footprint generated by additional transport and the fate of returned items, often consigned to landfills. Sizing and fit discrepancies emerge as a key driver of returns in the fashion industry. Fit complexity extended beyond numeric sizes; certain garment styles complemented particular body shapes while others did not. Online shoppers lack the advantage of trying on clothes, relying on unrealistic representations featuring professional models, and neglecting diverse body shapes. Therefore, understanding the relationship between body shapes and clothing preferences is crucial to prevent discrepancies and lower return rates. Through collecting pan-India anthropometric data and applying the Female Figure Identification technique, this study examined regional versus national differences in female body shapes. Further, the relationship between body shape and clothing style preferences was analyzed through interpretative research methods. Therefore, in broader terms, this research impacted the \$2.4 trillion global fashion industry through sustainable practices, which not only held the potential to reduce returns and minimize environmental harm but also enabled the fashion industry to align itself with the principles of sustainability and responsible consumption, shaping a future that was both eco-conscious and consumer-friendly.

Smart Ring For Visually Impaired People

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Blind people have a variety of challenges that limit their ability to move about freely. Many digital smart wearables have been developed for the benefit of persons who are blind or visually impaired. There are many products and accessories on the market that have been created to solve the outside problems that blind people experience. They now feel more independent and their lives are easier as a result. However, there are many factors that raise questions about these people's safety at their level overseas, which makes them always feel reliant and alone. Just like the ordinary person, they must do a variety of tasks around the house, but it is challenging for them to do so because there is a possibility that they could get hurt. Thus, these people are able to identify objects or things with a sense of touch at home, including equipment with hot temperatures, hot cooking utensils, or any operation requiring a high temperature. They also always use their hands. The same applies to items with low temperatures. Second, there are numerous high-speed appliances in the home, increasing the likelihood that they will accidentally collide. Therefore, any of these circumstances could lead to harm to the impaired individual. Here, we can create a clever ring that will function as a helper under these conditions. This ring will be equipped with sensors, a sound box or vibrator, a tachometer, and other necessary items to alert the wearer to objects around them that are different in temperature, intensity, or working faster than they are and that they may come into contact with. Thus, when particular temperatures or items traveling at a fast speed are present within a given range of that individual, that ring will generate different noises and at varying intensities. This smart jewelry might benefit from numerous improvements, such as the addition of capabilities that would allow it to perform a variety of tasks and work much better when connected by Bluetooth to already-existing smart phones that are made specifically for them.

Chintz: A Lost Tradition of Sustainable Textile

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Chintz originated as a hand painted, mordant and resist-dyed patterned cotton cloth from India. It was made for domestic markets and exported to Southeast Asia and West Asia as far back as the fifth century AD and finally to Europe and onward to the Americas in the seventeenth century. The techniques involved in producing Chintz involved resist dyeing and hand painting through natural dyes. On cotton fabrics wax coated patterns were made by using iron or bamboo pen and died with mordant. In most of the cases dyes were applied through brush. In some later cases block printings were combined with hand drawn 'pen-work'. Chintz textile became popular in Europe (particularly in Britain and Netherlands), in the early 17th century to the early 19th century. Due to the availability and production of similar mill made prints the market for the original Chintz fabric declined. Another reason of this decline was of course the heavy import duties imposed on India made product as a part of the British government's protectionist act. This was the chief method adopted for regulation of Indian production.

Indian handicrafts, including textiles which managed to sustain during the colonial period, does so by gradually adapting structural changes. A general decline in craft production may be noticed by the beginning of 20th century. For example, after the introduction of cheap chemical dyes, the village dyers who used natural dyes found their skill redundant. As a result of this, the age-old sustainable dyeing tradition almost died out. The introduction of chemical dyes might have trained us to produce the end products faster, which is surely more cost effective. But on the other hand, it took away and somewhat ruined an age-old tradition which was eco-friendly as well as sustainable.

This paper would be a quest to understand the techniques associated to the production of the textile and the subsequent revivalism connected to the same.

Unveiling The Legacy of Rangwali Picchaura

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Nestled amidst the grandeur of the Himalayan mountains, the northern Indian state of Uttarakhand boasts a rich cultural heritage intertwined with vibrant traditions and artistic expressions. Among these treasures, the „Rangwali Picchaura“ stands as a testament to Uttarakhand’s Kumaon region’s exquisite craftsmanship. The art of crafting these vibrant odhanis is more than just a craft of hand block printing; it is a repository of stories, emotions, tradition, and mirrors the state’s rich heritage. However, due to commercialization and migration of people from their villages, the community members are no longer willing to work on this craft, which has drastically impacted its original essence of design and production.

In an era of rapid globalisation, understanding and preserving the essence of this art form hold significance in ensuring the continuity of cultural identity, supporting local economies, and fostering community pride. This study aims to explore the cultural significance of Rangwali Picchaura and identify strategies for its sustainable preservation, safeguarding its heritage for future generations. The research follows a qualitative approach. Primary data was gathered through personal interviews with historians, cultural experts, and skilled artisans from the District Industrial Centre, Haldwani as well as the Mohan Upreti Folk Culture Art and Science Research Committee, Almora, Uttarakhand. Secondary data was collected through online articles, journals, and newspapers.

The study found that the new artisans lack knowledge of the craft’s originality and authenticity, and because of commercialization, the original patterns have been somewhat forgotten. However, the legacy lies within the odhanis they are producing due to their cultural and emotional significance. Therefore, instead of creating entirely new products, the study suggests product development through design interventions to enhance the existing product. Furthermore, the study recommends exploring options for both natural and synthetic dye colours, along with certain aesthetic finishes, to enhance the product’s performance.

A Compressive Review on Natural Fiber Reinforced Composite: Characterization, Manufacturing and its Application

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Natural fiber reinforcement composites have emerged as a burgeoning field of research in response to the escalating environmental concerns. The pressing need to mitigate environmental impacts has driven extensive investigations into natural fibre reinforced composites as alternatives to conventional counterparts, primarily due to their sustainability and environmental friendly attributes. Addressing global environmental challenges necessitates the development of biodegradable and eco-friendly materials for future generations, particularly in applications aimed at reducing greenhouse gas emissions. Green composites and, in particular, partially green composites are increasingly recognized as promising alternatives to petroleum-based composites, which are known for their adverse environmental effects. Natural fiber composites (NFC) exhibit a suite of favorable characteristics, such as durability, low weight, high specific strength, non-abrasiveness, commendable mechanical properties, eco-friendliness, and biodegradability and cost-effectiveness. This review paper explored the different types of natural fibers as reinforcing material, NFCs, and discussed the intricate process of composite manufacturing methods, encompassing the selection of polymers matrix, and additives, highlighting their role in shaping the final composite properties as desired applications. Furthermore, it offers an overview of various surface treatment method of reinforcing material and their influence on the properties of NFCs. The attributes of NFCs are intricately linked to factors such as the source of the fibers, fiber type, and fiber structure.

Within the realm of NFCs, the synthesis process encompasses advanced manufacturing techniques such as compression molding, extrusion, and resin infusion. These sophisticated methods enable precise control over the composite physical, mechanical and impact properties, facilitating tailored applications across a diverse range of industries. In conclusion, NFCs represent a promising and sustainable avenue in the field of materials science. The increasing environmental concerns have necessitated a shift towards more eco-friendly alternatives to traditional synthetic composites, and NFCs have emerged as a viable solution. Their sustainability, biodegradability, and reduced environmental impact make them a compelling choice for various applications such as automotive, structure application and home furniture aimed at minimizing greenhouse gas emissions.

From Living Tradition to Commercial Practice: A case of Gota Patti craft of Jaipur

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Women in the western arid region of India are known for their resplendent skills of adorning pieces of textiles with embroideries. Women of the household deployed intricate and beautiful forms inspired by nature and everyday life to decorate functional pieces of drapes and costume components for their own use or as dowry pieces. The folk embroidered pieces were the ambassadors of the regional expressions of women in India. One such class of embroidery is Gotta Patti, the practice of which was spread across the cities of Jodhpur, Udaipur, Jaipur, and Ajmer. These centers sophisticatedly made use of gold and silver in the embroidery and printing techniques for the Aristocrats. The tradition of this gold and silver ribbon embroidery had seeped eventually amongst the commoners of these centers. The technique was also referred to as "Lappe ka Kaam," which was characterized by the use of appliqué techniques with golden or silver ribbons. The expression of Gotta-Patti's work was seen on folk dresses for kids, puppets, saris, skirts, and even turbans. For the present study, the case study method was employed on the artisans of village Chakk in the Jaipur district. It was a newly sprung commercial center for embroidery. With the increase in the popularity of Gotta Patti work on the commercialized range of products that are sold in the local markets of Jaipur, local merchants started outsourcing embroideries in the nearby villages. The newly generated livelihood opportunities for the women resulted in a surge in the number of embroidery artisans.

The paper, therefore, seeks to discuss the nuances of the Gotta-Patti technique practiced in the ribbon folding technique in the present time as a commercialized activity. It also intends to expound on the evolved face of embroidery in the changing commercialized time alongside underlying socio-economic constructs related to the practicing embroiderers.

Innovative Short Pants for Menstruating Women

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The menstrual cycle, a natural monthly process in women from puberty to menopause, involves over 800 million adolescent girls and women aged around 12 to 49 globally. They constitute a significant part of the 1.2 billion employed women worldwide, nearly half the global workforce. Menstruation brings symptoms like mood swings, tender breasts, fatigue and irritability.

Female students often face physical discomfort during school, with cramps, backaches, bloating, and headaches affecting concentration and causing restroom breaks. Working women experience similar challenges, juggling professional responsibilities amid symptoms and limited support. Non-working women also grapple with discomfort, affecting daily tasks with few opportunities for self-care. Travel during menstruation can worsen cramps, complicating solutions like heating pads and medication due to practical challenges. Electric pads need outlets, and portable options may offer limited relief, while not everyone can use pain relief medication safely.

The aim of this research is to develop innovative short pants merging adaptive clothing with wearable technology, offering a solution to address the challenges women encounter during menstruation, particularly in terms of hygiene management and workplace efficiency. These short pants are thoughtfully designed with a slim fit, providing comfortable elasticity and high-rise waist, seamlessly integrating a heating pad in the abdominal and back regions. The battery-operated heating belt ensures wearers' comfort without the need for plugs, making it ideal for students and working women who can discreetly wear it beneath their attire, facilitating a smoother professional life.

Furthermore, these pants incorporate a short underpants-like inner lining constructed from stain-resistant and leak-proof materials. This feature is especially beneficial for women with heavy flows or teenagers who have recently started menstruating. The seamless seam design ensures it remains inconspicuous and comfortable, while strategically placed pockets accommodate the battery and other sanitary necessities, enhancing convenience and overall functionality.

Redefining Dress Codes: Gender-Neutral Uniforms For Indian School Students - A Review

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In the US, mandating school uniforms is an often-discussed educational reform. Uniforms' proponents contend that they increase school security, increase enrolment, and boost performance. Although they are being used frequently in all the schools, little is known about how they affect the pupils. Study was conducted on a special dataset from a significant metropolitan school district in the southwest of the US in order to close this gap. The research examined the performance, behaviour, and diverse outcomes towards uniform. The school uniforms serve various purposes, including preserving order, eradicating student disparities, and improving academic achievement. The research incorporated student and school fixed effects, shows that implementing uniforms enhances teacher retention in primary and attendance in secondary grades. The Test scores of students improved with new strategies. Furthermore, it was helpful in student safety concerns.

Education professionals have long argued about whether pupils behave better wearing uniforms. Surprisingly, there hasn't been much empirical research done to determine if uniform policies are beneficial. Overall, the results do not support the claim that students who attend schools with a mandatory uniform have stronger social skills, internalizing or externalizing conduct, or higher rates of attendance. Notably, parents and teachers show more favourable opinions of uniforms than do students. The findings comply with parents' expectations that uniforms reduce the cost of students' clothes. The study further emphasizes the importance of comfort in attire for pupils. Compared to conventional gendered uniforms, SPC's gender-neutral "khaki" uniform represents equality for both genders. The article investigates how female school cadets use their SPC uniform to promote civic education in Kerala.

This Review paper studies importance of School Uniform in various countries that affect the Pupil's significant aspects like comfort, behaviour, skills, attendance & safety concerns. However, a similar study is lacking in Indian subcontinent concentrating Gender-Neutral approach for students.

A Review on Natural and Organic Dyes

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This review is aimed at a discussion of different raw materials used for the extraction of natural dyes, the extraction process for different natural dyes, and the properties of fabric dyed by those dyestuffs. Synthetic dyes and all the processing used in general dyeing is harmful to our health. Dye from natural sources can reduce the risk of synthetic dyes. Natural dyes derived from natural resources like plant leaves, roots, bark, fruits, stem, insect secretions, and minerals were the only dyes available in the history of mankind for dyeing textiles. Most of the natural dyes exhibit special properties like anti-microbial, less toxicity, less allergenic, UV protection. The advantages of using natural colorants are manifold as they are eco-friendly, safe, easily obtained from renewable sources soft, lustrous, and soothing to the human eye. Organic dyes are heavily used in textiles and industries while they have many problems like waste disposal. Other problems include they are not biodegradable, have water pollution, environment unfriendly, and carcinogenic. This situation leads to choose natural dyes as a reasonable replacement or solution, although we know that they are not successful in commercial. This study attempts to review the status of natural dyes and its types and application and examines their future prospects.

Development of Adaptive Clothing for Myofascial Pain Syndrome

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With the advancement in medical science in the field of pathological mechanisms, diagnostic strategies MPS have received increasing attention. Myofascial pain syndrome (MPS) is common among patients with musculoskeletal pain problems. In most cases, patients have referred pain in one of several patterns or localized pain in different locations in their body, mainly in the back. These trigger points may result from various factors, including muscle overuse, physical work, sitting or standing for a long time, trauma, repeated or sustained exercise can overload the muscles or even stress. These commonly develop as the condition worsens, sore, tender muscles, weak muscles, reduced range of motion. Keeping these conditions in mind to develop something which can be useful for people in discomfort.

The goal of this research is to develop adaptive clothing for MPS affected individuals. It is initiated with the wide research, inputs from healthcare professionals, affected MPS individuals play pivotal roles in ensuring the effectiveness and appropriateness of adaptive clothing for MPS patients. As MPS can lead to increased sensitivity to touch and pressure. Hot compresses on the affected area helps reduce stiffness and tight muscle discomfort. The selection of material of clothing is carefully chosen. Cotton fabric is used to develop this adaptive clothing as it is soft, breathable and can reduce irritation thereby providing comfort to the affected individual. Slots are created in the garment for the charger packs that can be changed depending on the region of pain. The construction and location of openings, the quantity and the design of garments for comfort and ease of movement were all carefully developed in the clothing for the physical comfort of the affected individual. Clothing with fewer seams and tags can help to reduce friction and irritation on sensitive skin and trigger points. Adjustable closures such as velcro, magnetic fasteners, and zippers make it easy to put on and take off without straining uncomfortable muscles.

The development of adaptive clothing for Myofascial Pain Syndrome holds great promise in enhancing the daily lives of those affected by this condition. By combining innovation in clothing design with a deep understanding of the unique challenges faced by MPS patients, this research aims to offer practical solutions that not only alleviate physical discomfort but also empower individuals to navigate their daily routines with greater ease and confidence.

Development of Adaptive Clothing for Leprosy Patients

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Adaptive clothing is a specialized type of clothing designed with careful consideration for the unique needs of individuals with disabilities and specific requirements. It addresses a range of challenges, including assisting with self-dressing, accommodating health concerns, ensuring comfort, achieving the right fit, and incorporating elements of style and fashion.

Leprosy is a skin ailment that can lead to preventable and reversible disabilities if diagnosed early. It is caused by *Mycobacterium leprae* and affects sensory, motor, and autonomic nerves to varying degrees. Sensory nerve damage results in numbness, while motor nerve involvement leads to muscle weakness and paralysis. Autonomic nerve damage can reduce sweating, potentially causing pre-ulcerative conditions like cracks and fissures. These physical impairments can result in disabilities, limiting activities involving the hands, feet, or eyes and restricting social participation.

Adaptive clothing tailored for individuals affected by leprosy is designed to address these unique challenges. These specialized garments prioritize comfort, protection, and ease of use for individuals dealing with physical limitations and sensitivities related to leprosy. In this research adaptive clothing is developed for leprosy patients having key features of user-friendly fasteners, Velcro and magnetic buttons for making dressing and undressing easier for those with limited hand dexterity or sensation and for preventing the skin irritation and discomfort, cotton fabric is used which is naturally dyed with herbal dyes to make it hypoallergenic, thereby avoiding the harsh chemicals often found in synthetic dyes and making the clothing environment friendly, safer and healthier for individuals with leprosy. Aesthetic of clothing also kept on consideration for boosting the confidence of Leprosy patients, alleviate depression and self-esteem issue during social gatherings. The adaptive clothing specifically designed improved their quality of life. It enhances comfort, ensures protection, and contributes to their overall well-being.

The Attitude Of Design Students Toward Sustainability

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In 1987 the Brundtland Commission published the report “Our Common Future”, in which it coined the term sustainable development and defined sustainability. United Nations and various countries have been striving towards achieving sustainable development. Ending poverty, protecting the planet, and ensuring a prosperous future for all are the main objectives of the UN Sustainable Development Goals (SDGs) which must be achieved by 2030. Despite all these efforts, the World is lagging.

The performance of 193 countries regarding sustainability is measured by the SDG Index. The SDGs are seriously off course halfway through the 2030 Agenda. None of the SDGs are expected to be achieved globally, on average across all countries, by 2030. The world is also far from achieving SDG 13 and the climate targets set forth in the Paris Agreement. Global warming has been gradually increasing, it has reached 1.2°C in 2022 and there is a very high possibility of exceeding 1.5°C, even within ten years. Global carbon dioxide (CO₂) emissions reached a new record-high of 36.8 Gt in 2022. 10% of the Global carbon dioxide emissions are from the Fashion industry. This industry is responsible for 20% of industrial wastewater pollution.

Reduced cost of mass-produced clothes, fast-changing trends, and an insatiable desire to be in with the trends have led to overconsumption. Lack of attachment to clothes one owns, and disposal after single use have become the norm of the day. The fashion industry is contributing to the strain on Earth’s precious resources. The United Nations proclaimed the years 2004–2015 as the “Decade of Education for Sustainable Development” in 2002, with a goal to integrate education into societal development that adheres to the principles of sustainability. Education plays a major role in shaping the attitude of the students.

Students studying in Design College would-be future leaders in the Fashion industry. This research aims to study the attitude and understanding of design students between the age of 18 to 22, towards sustainability. For this purpose, a survey on sustainability would be conducted using a questionnaire, among the first-year students and final-year students. A comparison between the attitudes of these two sets of students will be drawn. This study would help us to understand if the 3 years of education have led the final-year students to gain a better understanding of sustainability. This would also aid in figuring out how to instill the proper attitude toward sustainability among design students.

Weaves of Manipur Naga

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Traditional Textiles and costumes play a significant role in the rich cultural heritage of India. Costumes are reflections of culture, gender, religion, status, and particular time periods. They are the manifestation of the community's culture in its most obvious form. The Northeastern Region of India comprises of Manipur, Sikkim, Arunachal, Nagaland, Tripura, Mizoram, and Assam. Manipur is rich in textile heritage, the major communities in Manipur namely Meiteis, Nagas, and Kuki have their own distinctive costumes. Like any other community of Manipur, the Nagas have their unique traditional textiles and costumes that showcase the skills and talents of the artisans. The costumes of the Naga tribes are vivid and vibrant in colour. This is a review paper on the traditional textiles and costumes of Manipur Naga tribes. It is a comprehensive literature review wherein published and unpublished books from libraries and relevant websites was explored adroitly. Visits to museums and Private collections were also made to study and understand the costumes and textiles. According to the data, the tribal women weave as part of their domestic chores. The backstrap loom was traditionally used for weaving. Natural fibres like cotton, hemp, silk, etc were traditionally used as raw materials. Natural dyes from leaves and barks of trees were extracted for dyeing the yarns. The motifs are both woven and embroidered. Geometric motifs are commonly observed. Wrap-arounds are commonly used by both men and women. The costumes are traditionally gender specific. shawls were commonly seen as outer garments. This paper highlights the importance of documentation of traditional textiles and costumes of selected Naga tribes of Manipur before they are fully diminished as little knowledge on textiles was accessible on specific Naga tribes. Along with it is imperative to understand the contemporising of traditional textile of Naga tribes of Manipur.

Embodied Symbols of Fear and Divinity in Theyyam: Attire as Conduits of Folklore and Communal Emotions

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Folklore serves the communities to address not only their belief systems, skills and collective experiences across generations, but also represents deep ties to their ancestry and supernatural ritualistic behaviours mostly intertwined with nature.

Theyyam, a folk ritual from Malabar the northern part of Kerala, is a divergent form of various cult practices that came under the configuration of a definitely systematised pattern of performance and worship. Theyyam incorporates elements including the sacred groves as an environmental theatre and the use of actor-audience concepts to evoke an immersive experience in their performances. It is through these entangled ritualistic methods of storytelling and narrative techniques that the emotions are conveyed to the masses, and the audience battle with their fear, pain, devotion, and other intricate emotions that bind them to their roots. With various qualitative research methods, the study employs the costumes, makeup and props as some of the important tangible forms in the ritual which are not merely ornamental to carry out the task, but also as embodied symbols that narrate centuries-old supernatural stories often rooted to the surrounding ecosystem. Thus, it investigates visual and other perceptibles of Theyyam attire, using Rasa theory, that help the actor to transform into spirits as well as the the audience to have a strong emotional response, deeper understanding and connection to their gods and earthly realms.

The paper examines the role of costumes and fashion symbols in amplifying the fear-of-god concept in the Theyyam ritual and investigates how it fosters a feeling of togetherness among the audience, eliminating the social boundaries of caste and class. Thus, the study delves into the significance of tangible elements in translating intangible emotions illustrating a collective consciousness and thereby preserving the rich traditions and folklore.

Natural Dyes Through The Ages

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Despite the fact that textile dyeing extends back to the Neolithic era, the first application of dyes that is known to have been recorded in writing was in China in 2600 B.C., which is almost five thousand years ago. Two thousand years after the first known application, in 715 B.C. in Rome, wool dyeing became a recognized art and craft. However, textile dyeing has been practiced by many cultures and civilizations throughout history, frequently using unique local natural resources. Until the discovery of the first synthetic dye in 1856, the only dyes available to humans for the coloring of textiles were those produced from natural materials such as plant leaves, roots, bark, insect secretions, and minerals. In addition to creating synthetic substitutes for popular natural dyes, rapid advances in synthetic chemistry and the industrialization of textile production also produced a variety of synthetic dyes in a wide range of hues and colours, gradually displacing natural dyes. However, throughout the later decades of the twentieth century, consumer interest in natural dyes was once again sparked by environmental concerns about the manufacturing and use of synthetic dyes. In the past, only natural sources were used to create dyes. But because dyes obtained from comparable plants or other natural sources are affected and vulnerable to the whims of temperature, soil, cultivation techniques, etc. The market for natural dyes, which had the greatest market share in 2021, is anticipated to expand at a CAGR of more than 7.5% over the projected period. Natural dyes suffer from some intrinsic drawbacks of standardized application and the standardization of the dye itself. Henceforth, standardization techniques play a very important and crucial role in enabling the commercialization of natural dyes and giving them a competitive edge over synthetic dyes. This study looks at the types and uses of natural dyes already in use as well as their potential in the future.

Difference In Empowerment Of Pottery Artisans Within And Outside The Cluster

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This research delves into two artisan cases within various interactions, examining distinctions between a traditional artisan affiliated with the cluster and an independent artisan operating from outside the network.

The study involves symptomizing the government policies and regulations and to understand their effects on both groups. It aims to collect both qualitative and quantitative data to identify their opportunity and challenges.

Lastly, it explores the Systemic Design of both groups, aiming to uncover the underlying factors that Sustain newcomer businesses and potentially hinder Traditional Artisans.

In summary, this study provides a comprehensive analysis of both the artisans in Pottery Town, shedding light on the difference in empowerment caused by various underlying factors.

Zero Waste Design Development Exploring The Alternative Fabric Joining Technology

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The Fashion industry has developed into fast fashion with numerous brands and labels producing various clothing every year to keep up with ever-changing trends. This massive production results in the creation of over 400 billion square meters of fabric annually, of which 15 percent ultimately goes to waste. This fabric waste significantly contributes to environmental pollution. The fashion industry's profound impact on the environment has prompted a growing interest in sustainable design and production practices. Zero waste pattern making techniques strive to minimize this waste by efficiently utilizing fabric and creating patterns. Fabric joining methods of welding and bonding brings new possibilities to garment construction and design and offers numerous advantages over traditional sewing. Currently application of stitch less garments are limited to performance, sportswear and intimate apparels because of the functional benefits they bring to the garments. From the perspective of a designer, the research examines how the process of pattern making can be used to develop design ideas, whilst taking into consideration the technical constraints of the fabric joining technologies of bonding and welding. The process of developing garments with these new technologies, however first requires a fundamental understanding of their technical capabilities Bonding offers superior seam strength but the construction process is slow, also the tapes used in many bonding applications are more suited to straight seam constructions. Methods of designing with patterns for zero-waste fashion design, show that this may offer a potential design approach for further exploration and development. This design approach has the potential to provide a comprehensive understanding of the capabilities of the technology relating to the garment's design and construction. By designing in this way, there may also be potential to consider fabric consumption and simplicity of manufacture to mitigate against apparent costly and slow bonding production processes. The study highlights the need for a holistic design approach that considers the technical capabilities and constraints of the joining technologies.

Inclusive Design: Solve For One, Extend For Many

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Inclusive design is a design approach that aims to create products, services, and environments that are accessible and usable by people of all abilities and backgrounds.

Inclusive design is important because it allows everyone to participate fully in society. It can help to reduce inequality and improve the quality of life for everyone. For example, inclusive design can help people with disabilities to live independently, work productively, and access education and leisure activities.

Inclusive design is also important for businesses. By designing products and services that are accessible to everyone, businesses can reach a wider market and increase their profits. Additionally, inclusive design can help businesses to improve their reputation and attract and retain top talent.

This research paper will explore the principles and practices of inclusive design. It will also discuss the benefits of inclusive design for individuals, society, and businesses. The paper will conclude by providing recommendations for how to implement inclusive design in practice.

Inclusive design is a complex and challenging field, but it is essential for creating a more equitable and accessible world. This research paper will explore the different aspects of inclusive design, including its principles, frameworks, and challenges. It will also present a number of case studies of inclusive design in practice.

The Imperfect Beauty of Handloom with Recycle and Upcycle

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As the textile, apparel, fashion, and retail industries move to become more sustainable, an area of interest is the use of recycled fiber, yarn, fabric, and product content in the development and production of new products. The overall objective of the project is to contribute to an increased demand for, and supply of recycled textile materials as inputs into new (textile) products to ensure a more sustainable development of the fashion and textile industry for recycling and upcycling clothes and apparel using various traditional textile techniques and such brands/studios that are contributing to converting millions of tons of textile waste generated every year into useful new recycled products in Fashion and Lifestyle categories.

Human-Centric Design Approach In Robotic Systems For Shoe-Polishing

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The industrial sector's need for automated processes is increasingly turning toward adaptable, human-centered systems that combine productivity and excellent product quality, integrating the benefits of automated and robotic systems with the highly valued talents of operators and artisans. For small and medium-sized businesses engaged in the "Made in Italy" fashion sector, this tendency is even more important. The study, simulation, and early testing of a collaborative robotic system for shoe polishing are presented in the paper. This system can reduce manual labor by keeping it to the final stage of the process, where the aesthetic result is fully achieved, with an added benefit for the operator's ergonomics. By presenting preliminary test findings and offering suggestions for future advances, the effect of process factors and design solutions are examined.

Inclusive Design: A Sustainable Approach

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Inclusive Design is a process of creating design for diverse group. But unlike a universal design, it is more flexible and adaptable. Inclusive design gives an opportunity to a designer to include those people, who were ignored in the past. UX designers have this power to create a design, which is more accessible and adaptable. It is very challenging to create a design, which can be useful for people from diverse groups, different age group, gender, culture, education, economic situation, geographic location etc. Inclusive design can suggest different design solutions in order to include everyone, but we need to keep sustainability in our mind. It is not possible to provide solutions separately or individually. The development of sustainable design can be a challenge but its not impossible.

Today lots of product are there in the market and they have specific target user groups and related groups. Their designs are user centric; users are part of the design process. The purpose of writing this paper is to study the constraints, which UX UI designers are facing while creating an inclusive design. We need to find out the gaps and to understand the factors, which can influence sustainable inclusive designs. Problem like users acceptance, brand image, data accuracy, funds, energy consumption, uncertain market conditions etc.

In this research paper, I am going to highlight these factors which can influence inclusive design and can impact the society and I will also discuss few sustainable practices, which can help UX UI designers in design development.

Development Of Adaptive Clothing For Females With Rheumatoid Arthritis

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Clothing stands as one of humanity's fundamental necessities, playing a pivotal role in personal development, a truth that holds equally for individuals with physical challenges. Adaptive clothing aims to enhance independence, simplify the dressing process, and offer overall comfort to those who encounter difficulties with conventional attire. Among the numerous chronic conditions, arthritis, particularly Rheumatoid Arthritis (RA), looms as a highly debilitating ailment, primarily targeting joints such as wrists, fingers, elbows, knees, shoulders, feet, toes, and even the jaw, often resulting in deformities of the hands and feet. Even the simple act of dressing oneself becomes a formidable task, with challenges arising from the manipulation of fasteners, handling back closures, and donning slip-on garments. This struggle is shared by countless women worldwide grappling with RA.

The specially designed garments in this research incorporate thoughtful features, including front openings, increased flexibility in waistlines, improved shoulder comfort, larger openings for pants and skirts, expanded armholes, and helpful dressing straps. This research endeavours to create intelligent clothing solutions tailored for women dealing with RA, addressing issues related to limited arm and leg mobility during dressing and undressing, diminished grip strength when managing fasteners and closures, and the discomfort caused by joint stiffness when handling garment details.

The research methodology involved conducting surveys among patients and medical professionals to gain insights into the physical constraints faced by patients, the challenges encountered during the dressing process, and the expectations they held for their clothing. Following a thorough analysis of the survey results, smart adaptive garments were developed, taking into account the valuable input received.

Designing convertible home linen through creative upcycling

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In today's world, where sustainability has become a pressing concern, the concept of upcycling offers a fresh perspective on reusing materials and reducing waste. This paper illustrates a process of upcycling home linen products to create a convertible and versatile product range.

This endeavor addresses the growing need for sustainable home decor solutions in a world where disposable consumerism has long dominated. Market research was conducted and it was found that brands like Ikea, Urban outfitters, West elm, Society6 etc.

First of all, concepts were developed using brainstorming and ideation. Old bed sheers, curtains and fabric scraps were collected and the final prototypes were developed by incorporating innovative design elements, such as patchwork quilting, tie-dye techniques, and embroidery. An assessment of the developed prototype was carried out to seek feedback on functionality and aesthetics. Necessary changes were incorporated in the final products.

Different products designed and developed were convertible pillows, curtain, table mats and bedsheets. Folding the pillow cover changes its size and shape into a cushion cover. Four coasters can be taken out of one table mat and then reattached to the table mat. The bedsheet can be folded into a pillow. These types of convertible products could appeal to homeowners looking for space-saving solutions, eco-conscious consumers seeking sustainable options, and individuals who enjoy customizable decor. These products promote sustainability by encouraging fewer linens to be manufactured and reducing waste associated with single-use products. Moreover, such type of convertible products reduce cost and save space, making them ideal for small living spaces.

Smart Jewellery to Military Defence for Mine Detection

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Courageous soldiers and dedicated military personnel face a pervasive challenge: landmines. These hidden explosives pose a danger in conflict zones worldwide, endangering troops and civilians alike, hindering recovery efforts, and causing profound suffering. Metal detectors function by emitting an electromagnetic field from the search coil into the ground. When metal objects (referred to as targets) are within this electromagnetic field, they become energized and subsequently emit their own electromagnetic field. The detector's search coil then detects and responds to this emitted field, alerting the user to the presence of a target. Minelab metal detectors have the capability to differentiate between various types of targets and can be adjusted to disregard undesired ones. The concept involves developing a wearable device or piece of jewellery designed to enhance the safety of soldiers exposed to the threat of landmines. This innovative anklet harnesses electromagnetic fields (EMF) to gather environmental data in its vicinity. When a landmine is detected in close proximity to the wearer's legs, the anklet generates vibrations, serving as an early warning system. This advancement aims to empower soldiers with the means to proactively protect their lives in mine-laden environments. This eliminates the need for using hands, allowing individuals to remain vigilant with their weapons readily accessible.

Hybrid Printing Technology - Future of Print Publication

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The digital printing technology of textiles grew out of reprographic technologies originally developed for paper and signage printing, and it now offers the same advantages to the textile industry that digital production affords the paper and banner printing businesses. With the emergence of large-format digital textile printers there is now the potential for major changes in the textile and fashion industries in terms of increased speed and long run capability. Digital printing technology is changing the face of textile design, from methods of creating and presenting designs to the ways in which they are realized. Working in a digital environment, designers are afforded more time to experiment, explore, and create, while manufacturing technologies offer innovative new printing solutions following key considerations in screen and roller printing, designers are able to work with thousands of colors and create designs with a high level of detail. Software programs such as Adobe Photoshop and Illustrator present the perfect platform for textile design. Designers are finding ways to put these qualities back into the fabric using techniques such as overprinting and embellishment, and this combination of digital and handcrafted techniques has even created a new hybrid craft. A research on the digital printing technologies, processes and workflows is needed, to determine if a print specifications and quality controls with hybrid digital printing technology can be applied in Digital Printing, This paper intends to reveal the present status regarding Digital Printing Technology and a hybrid technology to conserve the conventional printing techniques Within the paper, an analysis of the current industrial typical guidelines ranging from data creation all the way to printing will be made including a research on the hybrid techniques of digital printing technologies As such, this paper can be regarded as a first attempt to preview the basis where hybridization for digital printing technology can be developed.

Towards a Smarter Tomorrow: Anticipating Trends and Challenges

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In an era marked by rapid technological advancements, the role of smart technology in shaping the future cannot be overstated. This provides an overview of the paper's key areas of focus, methodology, originality, and emerging trends in a comprehensive study that explores the profound impact of smart technology on various facets of human life.

Areas of Focus: This paper examines the multifaceted influence of smart technology on our future, with a particular emphasis on the following key areas:

Connectivity and Communication: Smart technology's impact on global connectivity, from the Internet of Things (IoT) to 5G networks, fostering seamless communication and data exchange.

Automation and Industry Transformation: How smart technologies are redefining industries, changing work dynamics, and enhancing productivity through automation and artificial intelligence.

Sustainability and Environmental Impact: The role of smart technology in addressing pressing environmental challenges, such as climate change and resource management, and promoting sustainability.

Societal and Ethical Considerations: Examining the ethical implications of smart technology, including data privacy, surveillance, and the responsible use of AI and automation.

Emerging Trends and Future Scenarios: Anticipating and analyzing emerging trends, such as edge computing, blockchain integration, and augmented reality applications, to provide insights into the future landscape of smart technology.

Co-Design And Design For Community

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The fusion of traditional designs with commercial products has emerged as a fascinating and innovative approach in contemporary design and business landscapes. This explores the evolution and significance of incorporating traditional aesthetics, techniques, and cultural elements into the creation of marketable goods. The symbiotic relationship between heritage and commerce is evident in the diversification of product offerings, enhanced brand identity, and the preservation of cultural heritage. We study about the traditional dresses of Mising tribes (located in Assam) and selection of this theme to modification of spatial product to diversified product and also promote our beautiful tradition and culture to other parts of our country.

The characteristics of the Mising designs are:

- Subjective motifs.
- Absence of Recognizable Objects.
- Valuation of Shapes, Colors, Lines and Textures.

We analyze the motifs and extract from these traditional garments to develop commercial products like t-shirts, Pillow cover, side Bag, Tie and table cloths.

The traditional craft of weaving is a very bright aspect of Mishing culture.

The conversation of traditional designs into commercial products is a dynamic and evolving field with far-reaching implications. It revitalizes traditional artistry, empowers local communities, and enriches the consumer experience. As businesses continue to explore this fusion, they stand to not only profit economically but also contribute to the preservation and celebration of diverse cultural legacies. We convert traditional motifs of the Mising community into commercial products and also promote their culture.

Managing Waste In Garment Manufacturing

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With time fashion has evolved and become an umbrella term under which several substantive activities take place ranging from crop to cloth. Due to the extent of the industry, latest events deeply influence the amount of attention any sector receives.

While the post-consumer waste from fast fashion is high, the copious amount of waste generated in the process of garment manufacturing often goes unnoticed. Attention needs to shift from post-consumer waste to manufacturing waste. As awareness rises consumers are slowly working towards repurposing their garments but manufacturers are solely responsible for recycling production waste which is difficult to do as appropriate standard operating procedures are not in place and time is limited too. Furthermore, the increasing demand and reduction in available lead time has put an almost unfathomable burden on the supply chain.

Manufacturers work towards reducing cut waste by various means and measures. Nevertheless, fabric waste is inevitable whether it is generated during cutting, testing, sewing or finishing.

This paper focuses on the urgency to put in place strict measures for recycling which gradually progresses towards a no-tolerance policy and draw attention to the waste generated behind the curtains. Such drastic measures are needed due to the rapid increase in pollution leading to serious climate change concerns.

Crafting Cultural Sustainability to Preserve Kashidakari of Bikaner –A Stitch in Time

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The main feature of quality Textile Handicraft goods is Sustainability. At present, globalization era makes it difficult for traditional crafts to continue its existence unless made on modern models and modes. Thus, maintaining traditional crafts' knowledge and abilities is becoming more difficult. The necessity of the hour is to cause an awareness movement to promote hand-made goods by giving distinctive and innovative look required for traditional fabrics instead of mass produced goods. Conservation and regeneration of the cultural values and symbolic meanings ingrained within the traditional methods and practices of craft are necessary for maintaining cultural sustainability and historical preservation. Kashidakari of Bikaner is a priceless example of the workmanship, heritage and the traditions of Rajasthan. Kashidakari in the state of Rajasthan also got further impetus with the influx of migrants post Indo-Pak war in 1971. It was started as a way of upcycling the clothes by giving them a new look. Traditionally this form of art is practiced by the Meghwal community in Bikaner and neighbouring districts. The hand embroidery is all about upcycling and sustainability. Thus, it is crucial to emphatically spread knowledge about the traditional skills of Rajasthan craft with special emphasis on Kashidakari which is derived from beyond the enigmatic veils of lost history. The aim of this paper is to capture the essence of Kashidakari craft of Bikaner and to establish the craft as a source of culturally ingrained sustainability practice. As an outcome of the study, issues involved in determining the effective measures to preserve the craft, spreading awareness about this beautiful craft and craft as sustainable practice including impact of GI Certification will be discussed. Data will be collected from practicing Meghwal community, craftsmen Artisans of the area and Designers. Results and recommendations will help in determining the GI impact and the suggested ideas to play vital role in helping the Craft and Artisans gain Local, National & Global recognition. The revival of the craft will empower Artisans, ensure its sustainability for continued growth in the future.

Decolonising The Anthropocene Discourse With Language And Reimagined Mythology

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We are living in the Anthropocene - the geological period defined by humanity's indelible mark on nature. Even amidst the global crises that surround us, we cling to our position of superiority over the other life-forms and non-human entities with whom we share our planet. Operating in this context, my research project, supported by the Ford Foundation Grant for Socially Responsive Design at the National Institute of Design, Ahmedabad, asks: How does nature survive, thrive in and reclaim built environments in the urban landscape of Bangalore? How might we rework extant storytelling frameworks which focus solely on non-human elements and human elements respectively, often in a hierarchical manner, and find ways to bring them together?

With a meticulous literature review addressing these inquiries, followed by primary research in the city, the project culminated in Sakshikallugalu [Witness-Stones], a short experimental non-fiction film which juxtaposes our planetary crisis with a poetic exchange between Ahalya and Sita, two strong female characters from the Hindu epic Ramayana.

By combining the practices of field research, conscious observation, filmmaking and design, Sakshikallugalu serves as a self-reflexive exploration of the world-making and world-changing potential of stories in addressing contemporary ecological challenges, through moving-image practices incorporating local languages, tales and reimaginings. Written and voiced in Kannada, it ushers in the possibility of decolonialising the discourse around the Anthropocene and bringing in vernacular dimensions of worldviews, informed by a rich lyrical and literary tradition.

This paper places this film within the emergent paradigm of subverting the conventions of analyzing our modern world in a pedantic fashion. Apt for the conference track of 'Elements and principles of design for sustainability,' it traces the journey of a project which strives to contribute a unique perspective to localised arts-research approaches and concludes with its insights on decoloniality, epistemologies, and the power of narratives.

Integration Of Zero-Waste Pattern Making Strategies For Sustainable Garment Manufacturing

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Within the ever-evolving realm of sustainable style, the integration of zero-waste pattern-making strategies is gaining prominence as a robust remedy to alleviate the environmental burden of garment manufacturing. This literature review delves into the intricate craftsmanship of traditional pattern cutting, exploring its transformation into a sustainable practice through the lens of the zero-waste design philosophy.

The pressing issue of fabric wastage, averaging between 15–25 percent during the pattern-cutting phase in conventional garment manufacturing, underscores the urgency of adopting innovative processes. Traditional pattern cutting, regarded as an art form, serves as a bridge between design and production, expertly translating two-dimensional sketches into garments that seamlessly conform to the three-dimensional contours of the human body. The primary objective of this review paper is to unravel the core principles of zero waste design philosophy and examine its synergistic relationship with pattern cutting, shedding light on its potential to revolutionize sustainable garment manufacturing.

The findings, gleaned from an in-depth analysis of current research and practices, reveal the promising integration of geometric pattern arrangements, paper-folding techniques, and seam allowances as methods to reduce fabric waste while enhancing garment aesthetics. Furthermore, the review underscores the dangers of greenwashing in the fashion industry, emphasizing the need to educate both designers and consumers about genuine sustainable choices. In conclusion, zero waste pattern cutting emerges as an intriguing path for sustainable fashion design, offering a potent solution to the pervasive issue of textile waste generation.

By challenging conventional paradigms and fostering creativity, it provides a promising trajectory towards environmentally responsible garment manufacturing. This review advocates for a holistic approach that encompasses design, production, consumption, and disposal stages, positing that true sustainability in the fashion industry can only be achieved through the collective efforts of all stakeholders. Zero waste pattern cutting, coupled with heightened consumer awareness and industry transparency, stands as a catalyst for a more conscientious and eco-friendly future.

A Study to Explore The Dynamics Of Toy Interaction In Children With Autism Spectrum Disorder

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This study is a comprehensive exploration of the developmental journey of children with autism spectrum disorder (ASD) consisting of behavioural patterns, therapies given by teachers, environmental factors and play-based interventions. Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterised by deficits in social communication and the presence of restricted interests and repetitive behaviours. One of the area where children with autism spectrum disorder (ASD) often face difficulties is in play and engagement with toys, vital for their cognitive, emotional, and social development. The research primarily focuses on the collaboration with NGOs that foster the needs of children with autism spectrum disorder (ASD). Through visits and interactions, the authors conducted firsthand observations, fostering a deeper understanding of their sensory preferences, communication styles, and individualised developmental requirements. Also, it has been discovered that children with autism spectrum disorder (ASD) often require guidance and support for effective development, as they may face challenges in independently grasping concepts related to learning and growth. Hence, this research endeavours to design a solution that maintains teacher involvement and addresses the needs of both children and educators. This research delves into the potential of inclusive & sustainable design, technology integration and interactive applications. The proposed toy design takes into account the sensory preferences of children with autism spectrum disorder (ASD), incorporating elements such as texture, colour, and sound modulation to create sensory-rich play experiences. By bridging the gap between autism spectrum disorder (ASD) and the toy industry, this research aspires to contribute towards the well-being and development of children on the autism spectrum.

Detachable Clothing: Pioneering Sustainable Style in the Era of Transformable Fashion

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In the era of modular fashion, “transformable fashion” emerges as a beacon of sustainable clothing practices. This study scrutinizes the current landscape of sustainable fashion brands, emphasizing their limited presence in the textile industry. Acknowledging the gradual nature of a complete shift towards sustainability, the research introduces an innovative solution through detachable clothing elements. This research aims to examine the emergence of “transformable fashion” as a sustainable clothing practice and its potential to address the limited presence of sustainable fashion brands in the textile industry.

This study focuses on sustainable fashion brands and their potential to reshape the textile industry through a qualitative approach. It introduces the concept of detachable clothing elements as an innovative solution to enhance sustainability. Currently, consumers tend to make frequent monthly purchases, posing a significant challenge to sustainability efforts. The study suggests that detachable clothing allows for adaptability and personalization, aligning with evolving fashion trends while prioritizing sustainability. This approach enables individuals to create various looks from a single base garment, thus extending its lifespan and reducing environmental impact.

However, implementing detachable clothing in the fashion industry comes with its own set of challenges and risks, particularly from a business perspective. Brands must invest in research, design, and manufacturing processes that support detachability without compromising quality or aesthetics. Additionally, educating consumers about the benefits of this approach and ensuring the durability and replaceability of detachable components are essential for its success.

In this study, transformable fashion, exemplified by detachable clothing, holds great promise for sustainable fashion. It empowers consumers to enjoy fashion novelty without perpetuating the detrimental consequences of fast fashion. While obstacles exist, brands that incorporate detachable clothing into their sustainability strategy may emerge as pioneers in a more eco-conscious and adaptable fashion industry.

Resistance To Change: Pottery Town Artisans' Reluctance Towards Embracing Modern Pottery Design And Technique

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This comprehensive study examines the fascinating world of pottery craftsmanship in Pottery Town. It aims to explore and understand the factors contributing to their resistance towards adopting modern pottery designs and techniques and shed light on the underlying dynamics and its possible implications for the preservation of traditional craftsmanship in a rapidly changing world.

This study not only serves as a glance into the lives and motivations of these artisans but also analyses the two sides that we have observed where one side changes their production according to the market trends whereas the other focuses on continuing the same design elements and techniques over the generations and passing it onto the offsprings.

To achieve these objectives, we plan to approach an ethnographic field study supplemented by semi-structured interviews and non-participatory observation methods; this holistic approach will explore the motivations, perceptions, and barriers faced by these artisans. Through these methods, the study seeks to provide a profound understanding of the intricate dynamics that shape the world of pottery craftsmanship in Pottery Town, offering valuable insights into how tradition and modernity coexist in this community.

Soothing Textiles For Calmed Minds

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In a world that once filled with worries and anxieties, this project emerged with the promise of comfort and peace. The project looked for to utilise the magic of fabrics, colors, and patterns to bring the feeling of comfort to those who once felt troubled.

Picture a time when colors had the power to calm, when textures could embrace your worries, and patterns whispered calmness and serenity. That was the world we explored.

The project had two primary missions. First, it aimed to understand which fabrics, colors, and patterns eased anxious minds. Extensive research and study into the soothing qualities of textiles. Second, using this newfound knowledge, the project set out to craft special fabric prints for home decor and apparel as well, textured cushions and soft blankets with soothing colours, each designed to be a source of reassurance during trying times.

The journey led to discoveries that transformed lives. Fabrics once woven with thin threads became threads of hope. Colors, textures, and patterns, once simple elements, gained the remarkable ability to evoke peace.

This project wasn't just about understanding; it was about action. It was about making life less stressful, the world a bit quieter, one soft fabric and calming color at a time.

As the project came to an end, it left behind a legacy of comfort and peace. The products created still carry the echoes of a time when they were more than just textiles; they were companions in the journey toward a calmer mind.

Weaving Sustainability Through Indigenous Craft And Culture Of Assam

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Weaving is the first thing that a child learns before speaking, which is believed in Assam.

It is integrated in their culture and heritage. The weaving techniques are still passed on from one generation to the other. The traditionally crafted weaves are used from birth to death which showcase the deep-rooted cultural identity cannot be hampered with contemporary adaptations.

The craftswomen and craftsmen weave different patterns for different occasions. The patterns are made of simple geometric forms. They usually weave plain cloth for daily use and coloured dyed thread for colourful cloths or patterns on the cloth for occasions like festivals, marriages, and deity worships. Weavers would use tree barks, leaves, fruits, or roots of trees like Achchugach, Majathi, Palash, Chandan, Kujithekera, Borthekera, Tepartenga, Turmeric, Bhamrati, Jarath, Urahi, Leteku, Jammu, Bharathi, Silikha, Amlakhi, Madhuriam, lemon, kendu fruits, pomegranate, and lac, indigo, vermilion etc. Spinning, weaving and other processes were done by the same person in the community. The materials and methods used are pure, nature friendly, sustainable and do not contaminate land or water with chemicals like modern dyed fabrics.

Each house of an Assamese has a loom to weave their own cloths and fabrics for their sustainable living. They usually wear Dimasa Kachchari, Mech Kachchari, Aitunia, Thai Phakes. Gamocho, Anakata, Chola (shirt), Tangali (Girdle). In the current scenario the culture of weaving in the household is non-existent due to modernization and lack of support from government schemes or not proper utilization of the schemes. A few Indian designers and foreign designers have been working to survive and revive the craft and culture of weaving with keeping sustainability as supreme need along with authenticity of identity without any dilution of contemporizing. This research aims to study how contemporary adaptation has evolved the craft and culture of Assam with sustainability.

A Review On Role Of Additive Manufacturing In Implementation Of Industry 4.0.

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The world entered the fourth Industrial Revolution coined as 'Industry 4.0', which promotes the computerization of manufacturing by converging three technological trends: connectivity, intelligence, and flexible automation. It is a technology-driven approach that utilizes the Internet of Things (IoT) and Internet-connected devices to produce goods and monitor processes. Its goal is to automate the processes involved in manufacturing to maximize efficiency, increase sustainability, and supply chain management, and identify the systems barriers even before they occur by generating, optimizing, and implementing enormous volumes of data. In manufacturing, a paradigm shift is happening right now. This paradigm shift is creating new opportunities. In this new era of smart manufacturing, the use of modern skills of Additive Manufacturing within the context of information technology integration plays an important role in industrial economic competitiveness. This review provides a basic understanding of the role of 3D printing technology in the Industry 4.0. As can be seen, there's no doubt that 3D printing technologies are leading to the next major industrial revolution. Due to its versatility, Additive Manufacturing plays a key role in Industry 4.0, saving time and costs, being decisive for process efficiency and reducing its complexity, allowing for rapid prototyping and highly decentralized production processes. Currently, more and more industrial segments are adopting AM. The smart factories of the future have all processes interconnected by the Internet of Things, incorporating greater flexibility and individualization of manufacturing processes.

Sustaining Fashion Future Through Communication: A Conceptual Study

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Sustainability is no longer just a trendy concept but becoming essential in the fashion industry. Companies that make clothing for the fashion industry are embracing sustainability in response to consumer demands and out of a sense of responsibility to the environment. In this case, communication is essential in proving a brand's dedication to sustainability.

The commitment of the fashion industry to sustainable communication goes beyond straightforward greenwashing. It entails developing a comprehensive system that effectively conveys a brand's commitment to ethical and environmentally responsible behaviour. This examines the strategies and concepts needed to develop effective, long-lasting communication systems for businesses in the fashion industry.

The fundamental principles of sustainable communication are sincerity and openness. Brands must provide consumers with detailed, accurate, and lucid information about their sustainability initiatives. This transparency fosters trust and empowers customers to make informed choices. Authenticity in messaging is crucial since customers are getting more knowledgeable and can spot phony efforts.

An organized methodology will be used to compare brands' sustainable communication strategies. Gurr, D., et al., (2006) choosing brands that are part of the same industry, identifying the most important sustainability measures, and compiling pertinent information, such as data from sustainability reports or direct contact with the companies. Testa, F et.al., (2015) Brands can highlight significant certifications and eco-friendly labelling on their products to make it easier for buyers to locate sustainable solutions quickly. These accreditations, like those for Fair Trade, organic, or recycled products, provide independent evidence of a company's commitment to sustainability.

Therefore, successful communication is crucial for fashion apparel companies as they work to become more sustainable. This study compares the sustainable marketing communication of selected brands to evolve the best practices that suit the fashion industry to make it more responsible.

One's Friend - A Period Notifier Tracker & Predictor

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As a woman's reproductive system matures, menstruation becomes a natural occurrence that continues until menopause. It's important for women to understand and monitor their menstrual cycles to optimize reproductive health. Factors like stress, diet, and exercise can influence the length and regularity of periods. This project aims to create an innovative solution to help young women manage their early menstrual cycles more efficiently. To address the challenges that come with menstruation, such as tracking periods, dealing with an imbalanced cycle, facing uncertain periods, and experiencing stress, we are developing an intelligent jewellery piece that will accurately track periods and predict upcoming cycles. This wearable device will notify the user when their periods are approaching and enable them to record their menstrual cycle. With this technology, women can take better care of their health and manage their periods with ease and convenience. During the menstrual cycle, estrogen levels in a woman's body rise and fall twice (Beverly G Reed, MD and Bruce R Carr, MD., August 5, 2018). By measuring these fluctuations in estrogen levels, our wearable device in the form of a bracelet or a ring will make it easier and more efficient for women to track their menstrual cycles. The device will be operated through a mobile app that allows users to input menstrual cycle details such as period flow, level of flow, spotting, sexual activities, pregnancy test results, progesterone test results, ovulation test results, cervical mucus quality, and symptoms like bloating, fatigue, headache, and abdominal cramps, etc. By analysing this data, the device will help women track and predict their reproductive health, leading to better care and management of their menstrual cycles.

Exploring the Potential of Recycled Materials in Synthetic Fiber Production for Sustainable Fashion

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With the growing concern for environmental preservation, it is imperative to explore innovative approaches in the textile industry that reduce waste and promote sustainability. The study delves into the concept of “Recycled Polyester” fabric, which utilizes PET (polyethylene terephthalate) fibers derived from discarded plastic water bottles.

By transforming these PET fibres into fabric, a stronger and more environmentally friendly alternative to regular polyester is created. The process involves collecting, cleaning, and shredding PET bottles into small flakes, which are then melted and spun into polyester yarn for textile production. Through an in-depth analysis of this process, the paper highlights the environmental benefits of recycling PET bottles and the potential for a reduced carbon footprint in the textile industry.

Additionally, the study explores the implications of incorporating recycled materials in fashion, emphasizing the importance of sustainability and waste reduction. By examining case studies and industry practices, the research sheds light on the role of recycled materials in fostering a more sustainable future for the fashion industry. The findings of this study contribute to the growing body of knowledge on sustainable fabric production and provide insights for designers, manufacturers, and consumers seeking to make informed choices in the realm of sustainable fashion.

Unleashing The Potential Of Weaving With Pineapple Leaf Fibers : A Sustainable Textile Design Approach

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Natural yarns such as pineapple yarn provides an alternative that enables designers to decrease their reliance on fossil fuel based yarns like polyester which are non-renewable resources. Pineapple leaves are known as organic waste, that are left behind after pineapple fruit have been harvested. Fibre extracted from the leaves of the plant holds great importance in world of sustainable textiles. These fibres are not only eco-friendly but offers unique qualities such as strength, breathability, lightweight, low cost, biodegradability and moisture wicking properties. By examining the unique characteristics and creative possibilities of Pineapple fibres we come to showcase their potential in the realm of weaving. Pineapple leaf fibres can be categorised with qualities such as length, lustre, strength, softness, whiteness, and spinnability. From vibrant colours to natural strength pineapple yarns offer a range of benefits that align with growing demand for sustainable fashion. Post-harvest operations, decorticating practices, fibre retting, also explains plant benefits to farmers, consumers and environment. Previously textile materials have been developed with plain and twill woven clothes from pineapple jute blended yarn or pineapple yarns, but our design approach encompasses combining different Natural Fibres with pineapple yarn and developing creative swatches for apparel category. Our vision for this project includes exploration with different woven structures such as twills, herringbone, and ornamental weaves. As pineapple yarns have been used widely in home furnishing, our design approach is to utilize pineapple yarns in apparel category for a more sustainable tomorrow.

Eco-Responsible Packaging: A Key Driver Of Waste Reduction

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The game of actual quality and perceived quality is a serious problem and with time it has come to cost us more than we can imagine. Product packaging plays a big role in marketing as it's tangible unlike, visual advertising and companies have significantly used this to their advantage.

Luxury brands use elaborate packaging to enhance consumer experience, often leading to packaging costs being higher than the actual product. Clothing and textile packaging accounts for a big portion of total packing waste. Manufacturers package garments in a variety of ways based on buyer demand, at times repackaging is included. Then, retailers repackage the products for e-commerce platforms with several layers of cardboard and plastic being used for the simplest of products.

Furthermore, due to COVID-19, the use of virgin (single-use) plastic has increased. From an industry point of view, an effective way to start reducing waste would be to eliminate the use of virgin plastic as all of it ends up in landfills and is not recycled. For example, finishing processes differ for kids and men/womenswear garments similarly, there should also be specific packaging criteria.

This paper not only focuses on finding sustainable packaging options but also on adjusting the amount of packaging required based on product type. Despite, the fact that COVID-19 has come to a halt, several layers of packaging are used for simple products.

Application of Argemone Mexicana Flowers for Dyeing of Wool and Silk

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India has a largest tradition in the use of natural dyes. Indians have been considered as forerunners in the art of natural dyeing. Natural dyes find use in the colouring of textiles, cosmetics, etc. India has rich bio diversity and it is not only one of the world's mega diversified country, but also one of eight major countries of origin and diversification of domestic textiles industries. The present study was an attempt to apply Argemone mexicana flowers for dyeing of silk and wool fabrics and to standardize recipes for both fabrics by optimizing various dyeing variables. Argemone mexicana flowers gave best colour on silk and wool in aqueous medium. The optimum dye concentration of Argemone mexicana flowers that gave best colour was 6 gm/ 100ml of water on both the fabrics i.e. silk and wool. The optimum extraction time was 45 minutes and dyeing time was also 45 minutes for wool and silk fabric both. Various shades such as yellow, mehendi green and coffee brown colours were obtained with pre mordanting, simultaneous and post mordanting method using three different mordants. The colour fastness to light washing, perspiration, and crocking of dyed samples was determined and found to be satisfactory. Various apparel products were developed using standardized recipes and all the products were highly appreciated in terms of colour value, evenness of dye and depth of shade. Colour fastness test results were also found to be satisfactory.

Extraction of *Sesbania Aculeata* (dhaincha) Fibre from Agro-residues for Fabrication of Bio-composites

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With the increasing global attention on sustainability, bio-composites have been touted as a solution to deal with the issues of unsustainable raw material production, product manufacture and disposal that are common with typical plastic and composite materials. Agricultural production residues mainly consist of stalk and leaf tissues. One significant area of potential utilization of agricultural residues is durable bio-composite materials, especially in the form of lignocellulosic fillers or reinforcement. The studies of agro-residues and natural fibres composites have attracted due consideration from academicians and industrialists for their excellent properties such as improved mechanical strength, reduced density, lower cost, safer manufacturing process, good acoustic and thermal insulation properties combined with ease of processing. *Sesbania aculeata* (dhaincha) is one of the fast growing and prominent annually available agricultural crops of India, present as agro-residue in adequate volumes. The stalks of this plant could be exploited to extract fibres which can be used for a variety of applications including bio-composites. In the present study, dhaincha stalks were collected and the fibres were extracted from the stalks using water retting method by immersing them in a plastic tub for 15 days at room temperature in order to undergo microbial degradation. The extracted dhaincha fibres were tested for different quality parameters namely appearance, fibre length, fibre fineness, moisture regain, bundle strength and elongation using standard test methods. The chemical composition of dhaincha fibres were also assessed using standard procedures. The results of the study indicate that fibres obtained from dhaincha were harsh, coarse and shiny in appearance but lack elasticity. The fibre length and fineness of extracted fibres was observed to be 15-20 cm and 39.47 denier respectively with 8.18 percent moisture regain. The bundle strength of dhaincha fibres was noticed to be 4.75 g/denier having 3.58 percent elongation. The dhaincha fibre was composed of 71.23 percent cellulose, 13.54 percent hemicellulose, 8.76 percent lignin and 2.05 percent ash content. Hence, these superior characteristics of dhanicha fibre made it a potential reinforcement material for fabrication of bio-composites having widespread usage in construction, automotive, packaging, sports, biomedical and defense sectors.

A Study Examining Physical Education for Visually Impaired Children in India: An Integrative Approach

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This study delves into the present state of physical education for visually impaired children in Indian schools tailored for teaching specially-abled children, uncovering the array of concerns, barriers, and experiences they face. The secondary research indicates that children with visual impairment often do not meet their WHO-recommended 60 minutes of daily moderate-to-vigorous physical activity crucial for their overall development. The educational framework for physical education emphasizes utilizing physical activities as a catalyst for learning across various domains, including social, emotional, motor, cognitive, and affective development.

By critically exploring the various data, the prevalence of insufficient availability of well-trained instructors to guide visually impaired children in physical education, as well as challenges related to personal space and safety, were brought to light. Employing diverse methodologies such as stakeholder interviews, field visits, and a comprehensive review of online data on visual impairment prevalence in children, our research underscores a critical conclusion: visually impaired children necessitate accessible and specialized fitness interventions to surmount barriers to physical activity, thereby enabling more immersive learning experiences. In light of these findings, the study proposes that the integration of emerging technologies like Artificial Intelligence (AI) into schools for specially-abled children could serve as a catalyst to empower both visually impaired children and instructors. This integration holds the potential to pave the way for a more physically fit India, creating an inclusive and enriching educational environment.

A Smart Jewellery To Detect And Control The Hyperactivity Disorder

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Being quickly distracted, acting impulsively and aggressively, and blurting out things are all examples of hyperactivity. This type of behaviour is frequently seen in young children. It might or might not get smaller over time. This may occur for a number of causes, including genetics, poor brain development, birth trauma, or cocaine use. Hyperactivity disorder may also result from improper brain development or brain traumas. It may also encompass conditions like neurological system problems, psychiatric conditions, or emotional conditions. Although it cannot be totally cured, it can be managed by taking specific precautions. High temperature, accelerated heartbeat, heightened muscle activity, altered breathing patterns, and increased sweat gland activity are just a few of the impacts that hyperactivity has on the body. Our ideas and behaviours are controlled by the brain system. The front of the brain region known as the prefrontal cortex is involved in planning and personality formation. The neck and head play a major role in regulating the movement and sensory information of the body's upper limb. The neck muscles concentrate on the body's equilibrium and movement. As more individuals nowadays desire a digitalized lifestyle, smart jewellery is popular and many new firms are being established. It can foster emotional and fashion connections in daily life. With the use of technology and sensors, smart jewellery can facilitate tasks while also enhancing a person's appearance. It is used now for a variety of beneficial purposes, including learning, keeping track of people or things, health advice, social good, and even amusement. Therefore, smart jewellery that combines fashion aesthetics and technology can be designed to control an individual's hyperactivity. Jewellery with sensors can be used to track changes in the body. It is possible to advance smart jewellery and make it more inventive than is now thought to be possible.

An abstract a language-translating Earcuffs/Earrings concept

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Being quickly distracted, acting impulsively and aggressively, and blurting out things are all examples of hyperactivity. This type of behaviour is frequently seen in young children. It might or might not get smaller over time. This may occur for a number of causes, including genetics, poor brain development, birth trauma, or cocaine use. Hyperactivity disorder may also result from improper brain development or brain traumas. It may also encompass conditions like neurological system problems, psychiatric conditions, or emotional conditions. Although it cannot be totally cured, it can be managed by taking specific precautions. High temperature, accelerated heartbeat, heightened muscle activity, altered breathing patterns, and increased sweat gland activity are just a few of the impacts that hyperactivity has on the body. Our ideas and behaviours are controlled by the brain system. The front of the brain region known as the prefrontal cortex is involved in planning and personality formation. The neck and head play a major role in regulating the movement and sensory information of the body's upper limb. The neck muscles concentrate on the body's equilibrium and movement. As more individuals nowadays desire a digitalized lifestyle, smart jewellery is popular and many new firms are being established. It can foster emotional and fashion connections in daily life. With the use of technology and sensors, smart jewellery can facilitate tasks while also enhancing a person's appearance. It is used now for a variety of beneficial purposes, including learning, keeping track of people or things, health advice, social good, and even amusement. Therefore, smart jewellery that combines fashion aesthetics and technology can be designed to control an individual's hyperactivity. Jewellery with sensors can be used to track changes in the body. It is possible to advance smart jewellery and make it more inventive than is now thought to be possible.

Creating Exclusivity Through Sensory Marketing And Crafting Unique Brand Experiences

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The experience of consumers around the market and the brands has become more curated, personal, and immersive. While some brands are fighting for the attention of users, others are taking extra steps to create an after-purchase bond with consumers. The feelings one has for a particular brand could be due to various triggers in the human body. While a lot of research has been conducted in different geographies of the world, there are very few in India's cultural context. Understanding the cultural context of India is crucial in order to effectively analyze the triggers that influence consumer feelings towards brands. Factors such as cultural values, traditions, and social norms play a significant role in shaping consumer behavior and brand preferences. The paper discusses the elements of the cultural context of India to effectively analyze the triggers that may influence and create a unique brand identity. Further, the paper identifies various semiotics that shape human behavior by conducting ethnographic studies and interviews with consumer and branding experts to provide valuable insights into the evolving landscape of branding in Indian society. In conclusion, some case studies are picked up from the streets, villages, and cities that present a unique style of branding in Indian society. The scope of future work is immense, and categorically exploring the impact of globalization on brand identity could help to understand the shaping of consumer behavior that matches the theory made in board rooms.

Sustainable Product Design

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Current production and consumption patterns are unsustainable causing irreversible damage to the environment and human health and well - being. With the increasing demand of product it has become essential to consider sustainability aspects of product design. The research that is being conducted focuses on how designers play a vital role in resolving this problem - their decisions affect product manufacturing, distribution, use and disposal - and hence they must be aware of the positive and negative impacts of their design decisions. It is about integration of sustainability into all aspects of product design cycle, how it provides an opportunity to reduce a product's negative impact on society, environment and economy. There are three issues on which sustainability works that is society, environment and economy. We must integrate the idea of sustainable design into the process of product design in order to achieve sustainable development of environment, society and economy. The main objective of sustainable product design is to reduce or minimise the use of conventional or non-renewable resources.

The study is primarily being conducted using primary and secondary research methods, which includes surveys, case studies, industry visits and meeting experts.

The aim of this study is to modulate traditional design and eco-design into new sustainable design that is based on the concept of sustainability. Sustainable design involves the concepts of human life, work, production, energy, urbanization, transportation, communication and economy. It does not harm future egenerations to meet their demand while meeting needs of present generation, for the purpose of achieving the balance of environment, society and economy and maintaining sustained and coordinated development of human society.

Therefore, to safeguard the interests of future generations, sustainable developemnt is a necessity, the goals of sustainable design are reducing or minimizing the use of non-renewable resources, managing renewable resources. Sustainable design should be an evolution and extension of traditional design approach.

Farm to Fashion: A Case Study of the Central Appalachian Fiber Shed Movement

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A fibershed is a geographical area that connects farmers, fiber producers, processors, and consumers through its network of fiber flows (Barr, 2020). The phrase “fibershed” was first used by Rebecca Burgess in 2010 when she set out to create and wear a wardrobe entirely made of products produced no more than 150 miles around her house (Russell, 2020). After successfully completing a 150-mile wardrobe, she developed Northern California Fibershed to collaborate with local farmers, mill owners, and artisans whose contribution was critical in developing a local fibershed wardrobe (Hachadourian, 2017). It led to the development of 59 fibershed communities worldwide, and 33 of them are in the United States (Fibershed, 2023). The Central Appalachia Fibershed is one of those 33, and its shared goal is to support and advance a regionalized textile and clothing supply chain (Fibershed, 2023). It comprises a 150-mile radius, including all of West Virginia and the border counties of Maryland, Pennsylvania, Virginia, Ohio, and Kentucky. The concept was to draw attention to using local resources to help the local communities develop economically and sustainably (Trejo et al., 2019).

Even though the fibershed movement was identified as a sustainable and circular business model, little is known about its formations, operations, and workings. Previous research focused on the barriers to sustainable and regional fibershed development (LeHew et al., 2022), ecological literacy of the fiber farmers (Trejo & Lewis, 2017), prospects of building fibershed in New York (Trejo et al., 2014) and development of a collaborative slow fashion model (Trejo et al., 2019). Most importantly, there is no information on fiber farming in West Virginia. To address this research gap, this study aims to understand the formation of the Central Appalachian fiber shed and its role in revitalizing the regional textile and clothing supply chains. The study also seeks to understand these fibershed’s role in creating a sustainable and circular business model. A single-case study approach was used to investigate the research questions in a real-world context (Yin, 2017). Yin (2017) states that a single-

case study is appropriate when a case is “critical, unusual, common, revelatory, or longitudinal.” The case study methodology included in-depth semi-structured interviews and field visits.

The results showed that fiber farming in the Central Appalachian region was a supplemental or secondary job. However, fiber farming in West Virginia was considered an economically unstable business. Regional trade shows and fiber festivals were reported as vital for the regional fiber fabric businesses as they provided them with a platform to network with intermediary firms. Factors like problematic laws, increased operating costs, no nearby processing facilities, and lack of regional fiber festivals have made this business challenging. The findings have important implications and contributions for small and micro fashion businesses, governments, and regional economies.

Dhabhla: Handloom Weaving Of Kutch, Gujarat.

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The graceful weaving of the deserts, has its origins in the Kutch area of India. Traditional Dhabhla art has developed throughout time as a result of cultural influences. The Dhabhla cloth is produced by the Vankar people in the Indian state of Gujarat. In the present study an effort has been made to document the status of the Dhabhla Weaving. The study traces the history of the craft through literature survey, visits to the exhibitions and interviews with craft person. Profile of the artisans, history of the craft, techniques, tools, designs and their source of inspiration was documented in detail. The results discovered the interesting facts about art and skill of Dhabhla weave that has been a tradition in the community. The Dhabhla is a traditional handloom cloth from Gujarat, India, produced in Kutch. The Dhabhla was used by both men and women to keep warm and comfortable in cold weather.

Fashion Rental And Second-Hand Market: A Revolution In The Fashion Industry

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Fashion industry's environmental impact and overconsumption have prompted the rise of sustainable alternatives. Fashion rental services have emerged as a dynamic and innovative response to these changing dynamics, offering consumers access to a wide array of garments and accessories while minimizing the environmental impact of fast fashion. Thrifting and buying pre-owned clothing not only reduce waste but also allow consumers to express their individual style and contribute to a more circular fashion economy. The study discusses the potential benefits of renting or buying second-hand clothing, including the reduction of textile waste, the conservation of natural resources, and the mitigation of greenhouse gas emissions. It explores the key drivers behind the rising popularity of fashion rental, including the desire for variety, sustainability concerns, and changing attitudes toward ownership. Moreover, the study investigates the diverse business models within the fashion rental industry, ranging from high-end luxury rentals to more affordable, fast-fashion alternatives. The role of technology and digital platforms in facilitating the growth of second-hand clothing markets, making it more accessible and convenient for consumers. It highlights the role of technology in facilitating these shifts, from mobile apps that enable seamless rental experiences to AI-powered platforms that curate personalized second-hand shopping recommendations. Fashion rental platforms encourage the circulation of garments rather than their disposal. Fashion brands are increasingly incorporating sustainability into their business models. However, like any industry, it faces its fair share of challenges. Businesses in this industry must adapt, innovate, and prioritize customer satisfaction to thrive in this evolving market. They enable individuals to make more sustainable choices by reducing their contribution to the fashion industry's negative environmental and social impacts. It promotes a circular economy by reducing the linear model of "make, use, dispose" and encourages responsible consumption habits. This analysis sheds light on the environmental, economic, and technological dimensions of fashion rental, offering insights into its potential to reshape the future of fashion consumption and sustainability.

Analysing The Craft of Chamba's Traditional Silver Jewellery

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From the earliest forms of civilization, humans are known to have been totally absorbed with the idea of adorning the body with various ornaments. Every community and culture in India have its own distinctive culture, tradition and expression when it comes to jewellery. Distinctive style of tribal silver jewellery and the strikingly different aesthetic of Chamba silver jewellery is like a doorway to the history of Chamba district of Himachal Pradesh. The jewellery represents their cultural, traditional practices and ancestral conventions. However, this craft needs to be preserved for coming generations. The primary goal of this study is to document the art of making Chamba silver jewellery. This study will also provide additional insights into the manufacturing process and the tools and techniques used. The paper tries to review and document the traditional craft of Chamba jewellery, the material design and changing trends.

A Global Perspective on the Connection Between Tribal Textile Traditions and Sustainability

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Tribal textiles constitute a rich and diverse cultural legacy passed down through centuries in indigenous communities around the world. These textiles not only display exceptional artistry, but they also symbolize long-term methods founded in traditional knowledge and environmental responsibility. This paper investigates the complex relationship between tribal textile traditions and sustainability, demonstrating how these age-old methods help to preserve ecosystems, support local economies, and encourage sustainable consumption. In India, the relationship between tribal craft and sustainability is significant and diverse. Tribal crafts are frequently closely linked with sustainable methods that have evolved through generations. These crafts encourage ecological sustainability, socioeconomic well-being, and the preservation of indigenous cultural heritage.

The purpose of this research is to explore the complex interaction between tribal textile traditions and sustainability. It tries to deal with how tribal textile techniques correspond with sustainable principles and how these traditions might contribute to global sustainability goal and secondary objective is the underlines of the importance of tribal textiles not only as beautiful relics, but also as important contributors to a more sustainable and inclusive global future.

To achieve the objectives, the mixed-methods strategy that combined qualitative and quantitative research techniques were used. First, a thorough literature analysis and anthropological research were carried out to acquire insight into the historical relevance and sustainable practices related with tribal textiles. Then, we chose to study the case study regions from various geographical locations to evaluate the environmental, social, and economic components of tribal textile production.

Overall, the findings show that tribal textile traditions are inextricably linked to sustainability principles, making them valuable assets for long-term development. However, threats to the preservation of these traditions include globalization, changing customer preferences, and limited

market access. Collaboration between indigenous communities, governments, and the fashion industry is critical to ensuring their preservation and continuous contribution to sustainability. Recognizing and supporting tribal textile practices can help to preserve cultural variety while also advancing global sustainability efforts.

Unveiling Conscious Clothing Consumption: A Study of Gen Z Consumer Inclinations Across Clothing Use Phases

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Amidst rising sustainability concerns, clothing use phases are becoming a trending topic of research and discussion. The use phase in a garment's life begins the moment a consumer buys it and brings it home. This phase involves the wearing, laundering and disposal of a garment. Consumer behaviour patterns have been an intriguing area of research since long time; the present times witness an emphasis towards more conscious clothing consumption. The current research aims to examine Gen Z consumers' behaviour inclinations in context of conscious clothing consumption, through the use phases of (i) purchase, (ii) use and maintenance, and (iii) disposal. The examination of consumer inclination during these use phases was done on basis of emergent themes depicting conscious clothing consumption. The major themes proposed to be used in the current research are- (i) caring mindset (ii) temperate behaviour (iii) strategic purchasing, (iv) wardrobe preservation, (v) wardrobe engagement, (vi) infrequent clothing disposal, (vii) reuse and repurpose (Armstrong & Lang, 2018; Sheth, 2011).

The subjects of the research are Gen Z consumers as they constitute the most aggressive clothing consumers and are evolving as a unique consumer segment. They engage in aspirational buying and at the same time are referred to as the 'woke' consumers with socio-environmental issues on their minds.

Inclinations on the mentioned consumption themes were gathered from Gen Z consumers through personal interviews. Twenty individuals were contacted and twelve agreed to participate in the study. The individuals were selected in a way so that they constitute the sample size of Gen Z from varied profiles. A structured interview guide was used and information gathered was analysed using conceptual analysis technique under qualitative content analysis. This method involves analysing the meanings of key concepts used in the data and categorising them into broader themes.

The findings of the research would enable scholars and practitioners

to comprehend the eccentric clothing consumption inclinations of the Gen Z consumers. This understanding will facilitate the design of product and brand strategies that are oriented towards the specific mindsets and behaviour patterns of Gen Z consumers. The research findings bring out dominant themes (pertaining to their consciousness in clothing consumption) through the clothing use phases of purchase, use and maintenance, and disposal. The insights are meaningful in comprehending the nature of consciousness among Gen Z consumers in clothing consumption.

Careers of the future: Social entrepreneurship for Gen Z and Gen Alpha

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Entrepreneurs typically possess risk-taking traits and are driven by innovation and passion. The Study explores how the emerging neurodivergent generations Y and Z, which are defined as birth years 1980–94 (Y) and 1995–2009 (Z) perceive entrepreneurship and social entrepreneurship as a career choice, while simultaneously examining the factors that influence their decision-making processes. Additionally, the generation being naturally socially conscious, the paper highlights the need to challenge their notions to promote social entrepreneurship as a viable and impactful entrepreneurial path.

Studying the Indian context, the paper aims to understand the paradox of how even though Gen Z and Gen Alpha exhibit an inclination towards entrepreneurship, their perception of it as a primary career option remains somewhat unclear. It further analyses how this hesitation is deeply rooted in the multifaceted social, cultural, and personal influencing cycle despite the changing landscape of career opportunities.

At the same time, the global discourse on sustainability and social entrepreneurship has gained momentum, raising questions about the ability of India's education system and society to effectively nurture and support the next wave of socially conscious entrepreneurs. The paper examines the contrasting perceptions of the East and the West while shedding light on the unique challenges and opportunities they face in embracing their goals.

The research adopts a multifaceted methodology, blending in-person interviews, focus group discussions, and personal observations. The findings call attention to the pivotal role educational institutions can play in bridging the gap between perception and reality.

In conclusion, this research delves into the enduring possibility of social entrepreneurship as an upcoming career choice. While understanding the perceptions and pathways of students. This study draws in the parallels of potential positive change when the youth are empowered to pursue their passions and how it can contribute towards sustainable futures in the purpose-driven economy.

Salutogenic Design Innovations In Office Interior Spaces

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This study adopts a “salutogenic” approach on health, emphasising elements that promote people’s health and well-being rather than those that contribute to disease, in order to identify and explore prospects for public health through the office environment. Salutogenic design is concerned with the good influence of various environments on human health. It is a quantifiable feature of design that may assist a building’s residents in operating at optimum performance, sustaining physical and mental well-being, and perhaps leading healthier and longer lives. Using the sense of coherence theory, this study examined how an office space should be designed. As well as how employees view their work environment in connection to their perceived health (comprehensibility, manageability, and meaningfulness). Previous research has linked employee health with the physical environment of the workplace. However, the majority of research have concentrated on reducing negative consequences while ignoring possible health-promoting factors, such as employee feeling of coherence. This study used a mixed-method case study technique that included semi-structured interviews, organised observations, and examination of architectural plans. The findings showed that the employees’ perspectives and how they are interpreted their surroundings differed from the concepts underlying the architectural design. The study also emphasized the relationships (and inconsistencies) between the various elements on sense of coherence. According to the findings, businesses may need to decide which aspects of coherence the workplace should promote the most. Additionally, it recommends that case-specific design elements should have a more prominent place in the research and conceptualization of healthier office layout and that conceptual design would be continuously improving while in use, with the involvement of the workforce. According to the study, creating a “perfect” workplace setting should not be the objective. Instead, office layouts should provide a space where employees may overcome obstacles in comprehensible, manageable, and meaningful ways. From the observations, this paper concludes that, with the right usage of smart solutions, furniture design along with proper space

planning, considering some of the psychological and emotional factors in connection with human well-being in small interior spaces could make small house movement more global than ever.

An Attempt to Record the Contemporary Approach of Namda-a Felt Craft

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Rajasthan is well known for the production of wool. The traditional felt-making process is practised by hand with the requirement of exhaustive hand skills with the traditional method, which is called “Namda” commonly in the area of Tonk district of Rajasthan state. It is a variety of floor-covering which is comparatively affordable from other knotted, tufted, woven floor coverings. It was primarily practiced by the Muslim community but other Hindu communities are also involved in the production process. Male artisans are mainly involved in the felt-making and dyeing process, whereas female artisans are involved in the applique, patchwork, embroidery and felt-balls-making process. Namda is prepared from rough wool. Most of the artisans prepare Namda by hand in their homes, and very few of them produce it by machine, thus it steps into sustainable practices and has been contributing to generating the livelihood of the artisans.

The present study is an attempt to document the art of “Namda” which has extended its pure form. This is due to the adoption of the needs of the modern fashion-oriented market. Efforts were directed towards documenting the traditional “namda” craft of the Tonk District and highlighting its unique characteristics concerning method, materials, implements, raw materials, and construction techniques employed. Concern was also given towards reflecting the present scenario. Detailed emphasis was also laid on studying the changes and practical approaches that have intruded into the contemporary practices of this Namda craft of Tonk.

Artisan Annoyance: Challenges Faced by Students in Ethnographic Research During Artisan-Student Interaction

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In Pottery Town, the study began with unexpected disruptions that inconvenienced both passersby and artisans. Initially hesitant, entry was gained into artisans' homes, uncovering the daily challenges they encounter. Language barriers and repetitive questions caused frustration. However, when research methods were adjusted, the artisans became more open. They shared their lives, revealing motivations, and the delicate balance between tradition and independence. This study highlights the resilience of artisans in overcoming ethnographic challenges and emphasizes the importance of thoughtful research methods in comprehending their experiences.

This ethnographic research, conducted in Pottery Town, Bengaluru from March 7, 2023, to March 11, 2023, delved into the lives and experiences of artisans within this community. Employing a participatory approach, the study sought to understand the challenges faced by artisans during interactions with students and, provide a glimpse into the complex dynamics that unfold within the ethnographic context.

The research commenced with immersive fieldwork, enabling direct observations and interactions within artisans' homes which are their workplaces and, insights were gained into artisans' daily routines, including pottery-making processes, household chores, and family dynamics. Inquiry, though initially impeded by language barriers, evolved into meaningful conversations about the artisans' multifaceted lives. Empathetic understanding led to the consideration of the well-being of their hosts, as evidenced by their decision to avoid disrupting an artisan's family when a child fell ill.

Notably, a significant shift in interactions with the artisans occurred when appropriate methods, such as mindful participant observations and sketching, and nonstructured interviewing, were employed. Over time, artisans became more comfortable with the research presence, candidly disclosing details about their living conditions, possessions, and financial stability. These conversations revealed the artisans' motivations

for pursuing traditional craftsmanship over conventional employment, highlighting themes of autonomy and job satisfaction.

This research contributes to a deeper understanding of the interactions between students and artisans in the context of ethnographic studies. It sheds light on the challenges faced by artisans and offers valuable insights into their intricate lives. Through direct interactions, observations, and conversations, the study unveils the complex nature of the Pottery Town community, serving as a testament to the power of participatory ethnography in uncovering the nuances of human experiences.

Designing Business Models for the Advancement of Social Enterprises in India

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India is home to approximately two million social enterprises, making it a vibrant global hub for social entrepreneurship. This research focuses on social enterprises in India, aiming to create a tailored business model framework to meet their unique needs. Globally, social entrepreneurship is significant, with around 3.2 percent of individuals engaged in startup-phase social enterprises.

Transparency is vital in ethical business practices, fostering trust among stakeholders. This research seeks to establish transparency as crucial for sustainable growth, enabling organisations to optimise their societal and environmental contributions.

A well-defined business model is recognized as essential for effective business strategies. This research adapts the business model framework to the context of social enterprises, covering elements like value creation, delivery, and capture.

This framework's significance lies in its potential to support social enterprises, even for individuals without management or design backgrounds. Through concise and immersive research, valuable insights are distilled, aiding strategy development, fostering growth, and streamlining operations. Additionally, transparency is emphasised for better understanding of operations and stakeholder communication.

To construct this framework, the research employs diverse methodologies, including design thinking, comprehensive literature reviews, and in-depth analysis of common social enterprise challenges. The goal is to empower social enterprises in India to thrive, adapt, and make a meaningful impact within their communities and beyond.

Analyzing the Role of Style Orientation in Inducing Mindful Clothing Consumption

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Mindfulness, as an ideology, in the wake of rising issues of human-induced environmental damage, has been an area of increasing interest. To be mindful, means to be more sensitive to happenings around us. The clothing product category has massive economic, environmental and social relevance. Recent researches towards green behaviour and responsible consumption have been focused on comprehending the meaning of mindful consumption in clothing. According to one type of classification, clothing consumers are classified as (i) styled oriented and (ii) fashion oriented (Fletcher, 2016; Gupta et al., 2019; Lang & Armstrong, 2016). While Fashion oriented consumers pay significant amount of attentiveness towards latest fashion trends, and even adopt them, the style oriented consumers make clothing purchase according to their own style, liking and values. They depict a noteworthy lesser clothing acquisition and disposal behaviour as compared to the fashion oriented consumers.

The current study aims at deciphering the interpretation of 'mindfulness' in clothing consumption. It further aims to analyse the role of style orientation in inducing a mindful clothing consumption behaviour.

A total of fifteen professionals hailing from diverse backgrounds of clothing design, retail, brands, and sustainability experts were interviewed to gather valuable insights. The interviews were conducted in a semi-structured format to facilitate exploratory inquiry and ensure a comprehensive understanding of the subject matter. Interview transcripts were analysed through narrative analysis techniques and content analysis by frequency. Narrative analysis analyses the content as a narrative, and identifies plots, characters and themes to relate to a broader social context. Content analysis by frequency involves counting and categorizing the frequency of specific words, phrases, or themes that appear in the content being analysed.

The research findings will provide a thought-provoking initiation in the direction of inducing more responsible and sustainable clothing consumption patterns while maintaining the profitability objectives of the clothing industry. It will help in unveiling the consumers' narration of the association between 'being mindful' and 'being fashionable'. Such insights will be useful towards outlining the futuristic fashion and clothing landscape by designers, brands and retailers.

Smart Ear-Cuff For Multitasking People

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People in the fast-paced work world are unable to focus on maintaining a healthy, balanced lifestyle. They do not travel with many smart wearables. People who multitask find it harder to organise their lives and keep track of everything. One cannot constantly check a paper checklist or a digital notebook to see their schedule. There are many smart wearables on the market, but none of them are specifically designed for multitaskers. Maintaining balance between one's physical and mental health is crucial for both the individual and everyone who depends on them.

This article is focused on the ear cuff design, which incorporates speaker and microphone technologies to follow the schedule and provide alerts for impending duties. This earpiece will have the ability to scan text and save its findings as voice notes. At any point, the user may take off his ear-cuff and scan the material in front of him. The user might listen to the content at any moment. The earmuff also alerts the user by sending out various vibrations that correspond to their stress and basic bodily water levels.

The speakers and microphones on these ear-cuffs are not in direct contact with the earholes like those on an earphone. Since they will be supported by the ear, the user's ear hole will not be as irritated by them. Due to the fact that the ear-cuff is jewellery and not just a smart wearable, its attractive design will also serve as a fashion statement.

Understanding Consumer Choices: Exploring the Factors Influencing Purchases of Unsustainable Products Despite Sustainability Awareness

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In recent years, the debate between luxury and sustainable products has gained prominence in the consumer market. This research examines the Indian Luxury versus Sustainable product market, shedding light on the prevalent discourse in an era of environmental awareness.

Luxury products, with their prestigious branding and exclusivity, are tempting but come with high costs, both financially and environmentally. Activities like selling animal skins harm wildlife and create ecological imbalances. The use of hazardous chemicals in making luxury items threatens workers and generates harmful waste, leaving a significant carbon footprint.

In contrast, sustainable products, though sometimes seen as costly, offer a compassionate and eco-friendly alternative. They are made ethically and with responsible sourcing, causing less harm to people and the environment. While sustainable brands in India may appear expensive, this research dispels the idea that sustainability equals luxury, emphasizing its practicality for conscientious consumers.

This study investigates how sustainable products are priced and why consumers sometimes choose unsustainable options despite knowing the importance of sustainability. We explore the factors influencing these decisions, shedding light on the conflict between luxury and sustainability in consumer behavior.

Using market data, consumer opinions, and examples from India, this research provides evidence and insights into the differences between luxury and sustainability. We also analyze pricing and marketing strategies and consumer preferences. Ultimately, this study aims to clarify the relationship between luxury and sustainability in the Indian market.

Understanding Consumer Behaviour and Attitudes Towards Sustainable Home Decor in Chikkamagalur, Karnataka

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In the backdrop of environmental awareness, the production and management of Home Décor Chikkamagalur, Karnataka, has come under scrutiny. This research explores innovative solutions to address this concern by evaluating the use of recycled materials in sustainable construction practices. The study analyses the comparison of physical properties, particularly thermal resistance, and fire resistance, and compares between recycled and non-recycled construction materials. Research investigates the development of sustainable home decor materials such as Wooden supports, crafted from insulated and recycled materials as an alternative.

The paper also highlights the flourishing market for sustainable home decoration products. It spotlights a brand dedicated to using natural materials such as organic cotton and traditional techniques to craft eco-friendly home decor items. As the world collectively moves towards a more sustainable future, this research serves as a valuable guide to making responsible choices for our homes and the planet.

Research Objective focus on consumer behavior towards sustainable home decor products. A total of 250 respondents will be sampled. Random sampling will be employed to select participants from various demographics and geographic locations within Chikkamagalur. Data will be collected through structured surveys. The questionnaire will include multiple-choice and Likert scale questions. Inferential Statistics such as correlation analysis and regression analysis, will be employed to examine relationships between variables with the help of JASP software.

Through The Looking Glass – Social Identity and Expression Through Craft at Pottery Town

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Craft activities have commonly been understood through lenses of social identity and self-perception in academic discussion. This framework allows for a more comprehensive understanding of the craft, as well as the impact of market forces, modern technological influences and other such common factors. The present situation of craft practice within India, with particular approaches of institutional authorities towards craft preservation and involvement through academia, as well as the impact of broader societal and economic dynamics, presents a unique opportunity for study through such perspectives. This paper takes the particular case of pottery crafts within an urban community in Bengaluru, India, with a search for evidence of individual identity and markers for self-expression. A practice -based exploratory research is conducted to address questions of individual craft practice, as well as community perceptions of the craft as a whole, in order to create an understanding of the ownership of the craft as taken by the given community. The findings of this paper would be important to understand directions for future craft preservation and documentation work, as well as adding to research on social and anthropological understandings of craft communities placed in a broader colloquial context. Within the specific context of the given pottery community, it could also provide implications for the state of its history and future development.

Zero Waste Pattern Making

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Zero-waste pattern-making is a sustainable approach to clothing design and pattern creation that aims to minimize or eliminate textile waste during the production process. Traditional pattern-making often results in leftover fabric scraps and off-cuts, contributing to the fashion industry's significant environmental impact.

The fashion industry's environmental impact has raised concerns globally, prompting innovative approaches to reduce waste and enhance sustainability. This research investigates the feasibility and consumer perspectives of a sustainable fashion model, focusing on seamless shirts, t-shirts, and tops that can be altered in-store using zero-waste pattern-making techniques. This research pursues two primary objectives. First, it aims to assess the technical feasibility of producing such garments on a commercial scale, ensuring that the alteration process remains efficient and cost-effective. Second, it delves into consumer perspectives, aiming to understand their attitudes toward sustainability in fashion, their preferences for customization, and their willingness to embrace this innovative concept. A comprehensive survey was conducted to collect data from a diverse sample of fashion consumers. The survey with questionnaires will be conducted among the participants who were presented with hypothetical scenarios and questions to gauge their interest, preferences, and attitudes toward this sustainable fashion concept.

This research will demonstrate that there is a promising market for seamless garments designed for in-store alterations using zero-waste pattern-making techniques. The initial findings suggest a growing interest among consumers in sustainable fashion solutions that reduce waste and align with their environmental concerns. The seamless, in-store alteration model not only offers an eco-conscious alternative but also empowers consumers to participate actively in the fashion creation process. This research contributes valuable insights into bridging the gap between sustainable practices and consumer demand in the fashion industry, heralding a more environmentally responsible future for fashion.

Contrasting the Availability of UPF Clothing Online and Domestic Market of Chennai - A Market Study

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With the growing concerns of the global climate crisis, the hazards of ultraviolet (UV) radiation exposure probing an urgent call for attention in regard to protecting oneself from harmful radiation. Consumers actively invest in UV-protecting products such as skincare, eyewear, accessories, and garments. While the rest of the mentioned product categories are quite largely feasible and readily available with a wide range of choices in the domestic markets of Chennai, a reasonably hot-weathered location, one can say that the same does not apply to the everyday clothing category. It is to be noted that most forms of UV protection products (such as skincare creams and lotions, etc.) wear off within its stipulated time and often requires reapplication failing which will result in harmful UV exposure regardless of the previous usage. It requires an enduring form of protection that does not wear off and is durable for maximising the benefits of investing in it, and the same could be achieved from the usage of everyday clothing that has UPF properties to it. This market study is aimed at contrasting the availability and aesthetic options of clothing with the Ultraviolet Protection Factor (UPF) in the online retail channels to that of the domestic market of Chennai.

Meticulous online inspection of brands and their apparel promising UV protection to identify the choices available from online retailers and an extensive field study was conducted parallelly in the domestic market of Chennai. The significant disparity between the clothing selections available from online retailers, including variety, style choices, and availability, compared to the limited UPF clothing options in Chennai's local market, Furthermore, the lack of comprehensive information provided by retailers, presents an ideal business opportunity to introduce UPF clothing to the Chennai domestic market.

Character Design and Cultural Representation in Indian Animated Films

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Indian animated films are gaining international recognition for their unique storytelling and cultural richness. This research will delve into the crucial role of character design and concept art in shaping the cultural representation and diversity of characters and settings in Indian animated movies. As cultural representation in media becomes increasingly significant, this study will investigate how Indian animators utilize concept art to authentically portray their diverse cultural heritage. A mixed-methods approach is employed, incorporating qualitative content analysis of animated films and interviews with animation professionals. Through a comprehensive analysis of character designs and concept art in a selection of Indian animated films, this study will identify recurring themes, character archetypes, and cultural symbols. Interviews with animators and creators will provide insights into the creative processes and the deliberate choices made in character design to convey cultural authenticity. The findings will demonstrate that concept art plays a pivotal role in shaping the cultural identity of characters and settings. It serves as a visual language through which animators communicate cultural nuances, traditions, and values to both local and global audiences. The research will highlight the significance of cultural representation in fostering audience engagement and cross-cultural understanding. Moreover, the study will uncover the challenges faced by Indian animators in balancing cultural authenticity with artistic creativity and market demands. It will explore the ways in which concept art contributes to breaking stereotypes and promoting cultural diversity in Indian animated films. This research will contribute to the discourse on cultural representation in animation and offers practical insights into the synergy between concept art and character design. It will underscore the importance of nurturing and preserving cultural heritage while pushing creative boundaries in the Indian animated film industry.

Sustainable Mosquito Repellent Finishing of Textiles with Essential Oils: A Review of Recent Advances.

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Mosquitoes pose a major public health risk by spreading many infections and life-threatening diseases such as Dengue, Malaria, Chikungunya, Filariasis, and Zika to millions of citizens living in tropical climates. Therefore, it has become necessity and a need of the hour to prevent mosquito-borne diseases. Protective clothing is the most effective and the easiest means of protection against biting insects since it covers much of the human body. Mosquito repellent finishes are applied on to textiles by both natural and synthetic agents like DEET, permethrin etc however in last two decades there has been growing concern over the use of essential oils for the purpose. The essential oils are (EO's) obtained from various plant parts viz. flowers (rose, jasmine, lavender and violet), leaves (oregano, mint, basil, eucalyptus, salvia, thyme, rosemary, lemon grass, tea tree, camphor), buds (clove) bark (cinnamon), seeds (cardamom, neem, coffee, black pepper, cumin), fruits (citrus, vanilla, pomegranate) zest (citrus) roots (ginger) and wood (ginger). The essential oils are volatile in nature and are applied either by microencapsulation techniques or the inclusion complexes. The microencapsulation process involves entrapping the aforesaid essential oils within shell material (polymeric material) to produce a microcapsule. The commonly used techniques employed for microencapsulation of essential oils include interfacial polymerization, in-situ polymerization, coacervation and spray drying. Emphasis is laid on eco-friendly sheath materials to encapsulate the essential oils for mosquito repellent finishes on textiles. Essential oils have been entrapped using monomolecular inclusion complexes with α -cyclodextrin (α -CD) in native form, α -CD with crosslinking agents as polycarboxylic acids namely citric acid, BTCA, acrylic acid, MCT α -CD on varied substrates. This paper discusses all the major aspects concerned with the use of essential oils to impart mosquito repellent finishes on textiles with focus on recent advances in last decade.

Reimagining 3D Printing Materials in Fashion Industry: Towards a Sustainable Future

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In recent times, 3D printing has emerged as a significant frontier in the fashion industry, offering a plethora of advantages. The pace of growth of this technology remains remarkable, particularly seen in its integration into high-end fashion shows as a tool for creating intricate 3D fashion pieces. Numerous brands are swiftly adopting 3D printing to mitigate waste and optimize their business models. This technology empowers designers to push the boundaries of design by swiftly translating challenging concepts into tangible prototypes. Moreover, it revolutionizes the production process, rendering lengthy overseas inventory shipments obsolete and enabling customization while enhancing fabric quality. Perhaps its most impactful contribution is the substantial reduction in waste generation, positioning 3D printing as a pivotal player in sustainable fashion. Evidently, considering these advantages, 3D printing undoubtedly appears to be the future of the fashion industry.

The primary objective of this study is to comprehensively understand the advantages that 3D printing brings to the fashion industry. Additionally, the research aims to investigate sustainable possibilities by conducting a quantitative analysis involving a sample size of approximately 50 college students and working professionals. This analysis seeks to propose a model promoting zero-waste production through 3D printing, presenting a compelling opportunity for diverse businesses.

This paper predominantly focuses on delineating potential alterations that can reform the 3D printing technique towards sustainable practices across all stages of production. It delves into the exploration of novel materials and proposes a revamped approach from product manufacturing to marketing. The ultimate goal is to devise a business model that aligns with zero-waste production, underpinned by insights into evolving business models adopted by various brands. The paper also recommends materials and practices that align with sustainability, envisioning a harmonious integration of 3D printing within the fashion industry's sustainable future.

Calotropis Gigantea Fiber: Strength in Sustainability

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Sustainability in the textile industry means making clothes without harming the earth by reducing water and energy use, adopting sustainable fibres, and ensuring ethical labour practices. *Calotropis gigantea*, commonly known as the crown flower, giant milkweed or Yercum fibre, has been explored for its potential as a source of natural, and biodegradable fibre. While it's worth noting that this fibre, like some other natural fibres, such as cotton or hemp, is not as widely recognized or commonly used. The fibre primarily obtained from the bark or best of the plant and extracted from the inner bark of the plant. It thrives in hot, tropical and subtropical climates with well-defined wet and dry seasons and often grows along roadsides, in open fields, and disturbed areas. Also find in abandoned agricultural land. It is generally strong and durable. Used for making ropes, carpets, fishing nets, and sewing thread. It doesn't require excessive water, pesticides, or fertilizers for cultivation. It can potentially reduce the environmental impact compared to some traditional fibre crops. There are some challenges associated with using *Calotropis gigantea* fibres, such as the need for proper processing techniques to extract and refine the fibres. Additionally, the plant's latex contains toxic compounds that need to be removed during processing. Multi-cropping *Calotropis* turns barren land into profitable farms, providing jobs and improving the economy in dry, rural areas where jobs are insecure. Some Companies are working and researching about this fibre, The company Faborg makes vegan wool from *Calotropis* and Kenyan demonstration plots in Makueni and Tharaka Nithi counties have been established to test the domestication of the *Calotropis* plant for fibre production and some are researching on this fibre. *Calotropis gigantea* has the potential to be a sustainable fibre source, especially in regions where it is abundant.

A Review on Sustainable Packaging and Printing Ecosystem

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In response to the growing global emphasis on sustainability, the packaging and printing ecosystem has witnessed a remarkable shift towards more eco-conscious practices. This comprehensive review paper, titled “A Review on Sustainable Packaging and Printing Ecosystem: A Study on Design, Materials, and Economical and Operational Aspects,” provides a thorough examination of the multifaceted dimensions shaping the sustainable evolution of packaging and printing industries.

At its core, this review paper delves into the intricate relationship between design, materials, and the economic and operational aspects of these industries. It draws upon insights from 29 carefully selected studies to offer a holistic understanding of the key components driving sustainability in packaging and printing. One pivotal aspect explored in this review is the concept of “Design for Sustainability.” It illuminates innovative design strategies that prioritize reducing environmental impact, minimizing waste, and embracing the principles of a circular economy. Furthermore, the paper underscores the importance of user-friendly design approaches that align with eco-conscious practices.

Materials play a central role in the pursuit of sustainability, and this review scrutinizes the adoption of sustainable alternatives. It sheds light on materials such as biodegradable polymers, cellulose nanofibers, and natural fibers, examining their environmental benefits and challenges in detail. Economic considerations are another critical facet discussed within the paper. It delves into the economic implications of sustainable packaging and printing, addressing issues of cost-effectiveness, resource conservation, and the competitive advantages that sustainability can confer in the market.

Operational efficiency is also a key focus of this review, offering insights into how sustainable practices impact the day-to-day operations of packaging and printing industries. This includes discussions on efficiency gains, reduced energy consumption, and effective waste management. Technological advancements are highlighted as well, with an emphasis on cutting-edge innovations such as smart packaging and 3D printing. These technologies are shown to contribute significantly to sustainability efforts by enhancing product monitoring, traceability, and the development of intelligent materials.

In essence, this review paper presents a comprehensive and cohesive

perspective on the journey towards sustainability within the packaging and printing ecosystem. By synthesizing insights from diverse research areas, it aims to provide a roadmap for industry stakeholders to navigate the evolving landscape of environmentally responsible and economically viable solutions.

Role of Board Games to Teach Indian History

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This paper explores the potential of board games in illuminating India's historical significance, with a focus on the Vedic tradition, the caste system, and influential literary works like the Puranas, Mahabharata, Bhagvat Gita, and Ramayana. "Raajneeti" is an immersive board game set in ancient India, spanning the 3rd to 4th centuries BCE (350 B.C. - 280 B.C.). Players step into the roles of rulers of the four Great Kingdoms, facing critical decisions regarding army leadership, resource management, and kingdom expansion. In this journey, they must safeguard their territories from rivals and natural disasters, guided by the wisdom of Chanakya's Niti. The game empowers players to shape their reign by choosing personalities, abilities, and actions.

Raajneeti offers a diverse path to rulership, allowing players to pursue conquest through war or explore and settle in distant lands. They can strategically build and deploy armies for defense or offense, navigating the game through a spectrum of conflict or diplomacy. This immersive experience provides valuable insights into governance in ancient India.

The game integrates keywords like RAAJNEETI (Rule, Policy, Strategy), DYNASTY (Hereditary rulers), RAANBHOOI (Battlefield), and more, facilitating a deep dive into India's rich historical tapestry.

Highlighting India's historical significance, the game acknowledges its role as the birthplace of major religions (Hinduism, Jainism, Sikhism, Buddhism) and its contributions to modern innovations such as flush toilets, mathematics, plastic surgery, and more. It also delves into the Vedic tradition and the intricate caste system (Brahmins, Kshatriyas, Vaisyas, Sudras, and Dalits). The influential literary works like the Puranas, Mahabharata, Bhagvat Gita, and Ramayana are featured prominently.

Furthermore, the game explores the philosophical shifts during the 6th century, Persian invasions, Alexander the Great's impact, the Mauryan Empire under Chandragupta Maurya and Ashoka the Great's transformative reign, and the flourishing Gupta Empire, marked by advancements in various fields.

Board games like Raajneeti captivate players with their engagement of intelligence, skill, and strategy. Psychologists have scrutinized them for over a century, investigating aspects like perception, memory, problem-solving, decision-making, and emotional intelligence. These

games enhance cognitive, affective, and psychomotor skills, catering to diverse learning styles and fostering creativity. They serve as interactive educational tools, replacing traditional lectures with immersive experiences.

Raajneeti caters to learners aged 14 and above, offering both physical and digital versions. The physical game provides a tactile experience, enabling players to handle period coinage, maps, and trade objects. Components like trackers shaped like specific time period pillars bridge history with the present.

In an era where board games are evolving, both physically and digitally, Raajneeti underscores the enduring importance of board games in education. It transforms history into an interactive and engaging journey of discovery.

Cultural Sustainability: Investigating the Impact on Tripura's Indigenous Communities

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Cultural sustainability plays a pivotal role in the protection of the unique identities and rich traditions of indigenous communities. This research embarks on a comprehensive exploration of the intricate dynamics surrounding cultural sustainability within the indigenous communities of Tripura, India. The study seeks to understand how a multitude of external influences, shifts in socio-economic paradigms, and the pervasive forces of globalization are exerting pressures on the cherished cultural heritage and age-old practices of these communities. Utilizing an interdisciplinary approach that melds ethnographic fieldwork, in-depth interviews, and historical analysis, this study strives to provide a profound understanding of the myriad challenges confronting Tripura's indigenous communities and to elucidate potential pathways for preserving their cultural sustainability.

The study's findings reveal a multifaceted panorama in Tripura, where diverse indigenous groups such as the Tripuris, Reangs, Kalais, Jamatias, and Chakmas grapple with an array of factors imperilling their cultural sustainability. The processes of modernization and urbanization have exposed these communities to external cultural influences, catalyzing transformative shifts in their time-honored practices and cherished values. The preservation of the cultural heritage of Tripura's indigenous communities, as proposed by this research, not only assures the preservation of their unique identities but also fortifies their overall well-being and resilience in the face of contemporary global challenges.

By elucidating these dynamics and emphasizing the significance of cultural sustainability, this research underscores the need for concerted efforts and thoughtful policy interventions to safeguard the invaluable cultural heritage of Tripura's indigenous communities. Such endeavors hold the potential to ensure the enduring legacy of these communities and their continued contribution to the cultural tapestry of India and the world.

Survival Of Pottery: A Transition From Conventional To Contemporary Products Over Time in Pottery Town

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Pottery Town, a historic community situated within the Bengaluru cantonment region of Karnataka, stands out as one of the rare locales in the city where the practice of pottery-making remains dedicated to its roots. However, there appears to have been a shift in product development over the years. Due to commercialisation of pottery products and the looming threat of extinction of the craft, the craftsmen have been forced to shift from manufacturing more conventional pottery to more mass-produced and commercialised goods. It has been observed that the market in recent years has been leaning more towards accommodating the sales of items such as ice cream, yoghurt and tea cups. The creation of these mass produced items have taken away the attention from the conventional pottery items which can soon lead to an absence of the same. The purpose of this research is to study and document the change in traditional pottery items over time and attempt to understand the reason behind it. An exploratory research methodology is used for this study and the data is collected following a systematic approach.

Lac Bangles: Hyderabad lac Bangles and Product Diversification: A Case Study of Self-Sustaining Design Practice

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This paper looks at the scopes and possibilities in product diversification of the lac bangle craft of Hyderabad with the aid of some case studies of design interventions in the craft, and a survey of the feedback received on the diversified product range from a prospective urban consumer market. An example of a self sustaining local craft of Hyderabad- the history of lac bangles in the city dates back to the Mughals. In a city that is rich with its continued history of opulence, the lac bangles stand as a testament of the erstwhile rich princely state of Hyderabad.

At present, the lac bangle has a special place in the object identity of the old city of Hyderabad, with the famous Lad bazaar near Charminar lined up with numerous shops selling bangles of various forms; worked with lac- a natural resin on a metal wire base and encrusted with semi precious crystals and pearls. The present product range in the lac craft of Hyderabad is limited to bangles, and the same could be extended to diversify the range of products made in the craft. With a limited market for the existing range, a need was felt to widen the range to develop products that would fit into the dailywear market for costume jewellery. With the same reason, a case study has been conducted of a range of costume jewellery and decorative products developed with the artisans practicing the craft.

The methodology for the study would include both primary and secondary research. The methods of primary data collection would be participant observation and interviews with an ethnographic approach. The study would also include a survey by selective sampling to include the urban consumer base.

This study has a scope to understand the changing market needs and product diversification to ensure the existence of a self sustaining craft that is both an identity of the city and an example of localized production that sustains the artisan population and would ensure the continuity of the craft by expanding its range of product development.

Padma Vastra – Innovative Knitted Fabric

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Padma vastra is defined as the fibers obtained from the petiole part of the Lotus plant. Lotus (*Nelumbo Nucifera Gaertn.*) is a major cash crop cultivated widely across the globe. It was observed that after picking the flowers and fruits the entire long petiole is left in the pond as a waste. This waste contains precious fibers which are endowed with numerous physical and functional properties – fine and low in diameter pertaining to natural microfiber, enough length to be twist into yarn structure, excellent moisture regain property, inherent antimicrobial properties against *S.aureas*, *klebsiella pneumonia*. Till now Lotus fiber is extracted manually in very few places of the world like Myanmar, Manipur and Cambodia. But the manual extraction sounds tedious and results into an uneven yarn structure. The paper majorly focuses on fabricating machine for extracting fibers and preparing yarn simultaneously. The machine has got a patent grant: IN201921032058. The two different types of 100 % Lotus yarn was developed from the machine that is MYHS1 and MYHS2 which were further subjected for the preparation of two different variety of knitted fabrics in the circular knitting machines which were further subjected for various test: assessment of wales and coarses, stretch and recovery test, pilling, bursting strength, thickness and GSM. Results revealed that machine is successfully for the extracting and developing two different variety of 100 % Lotus fine count yarn that is 70's and 60's count. It was observed that the 100 % Lotus yarn was soft, pliable, has enough strength, elongation and even in structure to withstand in the developing circular knitted structure in power operated automatic circular knitted machine. The fabric developed has an excellent stretch and recovery property suitable for form and loose fitting apparels. Currently there is a wider scope of sustainable fabric and seamless knitted structure. So this is upcoming novel fiber in the knitting sector.

From Image to Action: Sustainable Fashion's Influence on Young Adults

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Sustainable fashion is a multifaceted issue affecting the environment, society, and the economy. With growing environmental and social awareness, young adults are actively seeking sustainable alternatives in the fashion industry. Promoting sustainable fashion through imagery in media can showcase its beauty, style, and benefits, but it is essential to understand its impact on young adults' perceptions, preferences, and purchasing decisions.

This research employs a mixed-methods approach to investigate the influence of sustainable fashion imagery on young adults' preferences. Qualitatively, semi-structured interviews and focus group discussions will provide in-depth insights into how sustainable fashion imagery affects perceptions and emotional responses. Quantitative surveys will collect data on preferences, emotional reactions, and purchase intentions related to sustainable fashion imagery.

Key research questions include: How does exposure to sustainable fashion imagery affect perceptions of sustainability in fashion? What role do visual aesthetics, like eco-friendly materials and ethical production, play in shaping preferences? How do emotional responses to sustainable fashion imagery influence engagement with sustainable brands? Does exposure to such imagery correlate with intentions to purchase sustainable fashion?

This study's findings hold significance for fashion brands aiming to engage young consumers increasingly interested in sustainable fashion. By understanding how sustainable fashion imagery influences preferences and intentions, brands can develop more effective marketing strategies to resonate with this vital demographic.

A Sustainable Approach in Natural Aal Dyeing and Tribal Textiles of Bastar, Chattisgarh

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Traditional Natural Aal Dye or the Red Madder extract is derived from the root of the Madder plant and is used for patterning of textiles around the World. This paper reviews the traditional Aal dyeing technique of the Bastar region of Chhattisgarh in India and the pit loom, supplementary extra weft weaving technique of the Pata Sari woven by the Pankas, a weaver community of this region. It further reports how the design and motif inspiration from the nature and daily life of the tribal's are adapted and woven as flowers, stars, birds, animals, butterflies, crab, turtle, temple, pot, axe, and tree motifs in the textile piece. It further reports that there is a symbiotic relationship shared by the tribes, the nature and the weavers. This also reflects in the design elements of the hand-woven textiles that are simple, raw and naive, yet aesthetically beautiful. Tribal rites and rituals demand for the textile pieces ensures sustainable earning for the Pankas. This beautiful interdependence and choice of using locally available resource and knowhow to create for consumption is an elementary connect of the craft and artisan towards a sustainable existence.

A Review on Sustainable Home Decor Products

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This review is aimed at a discussion of different raw materials used for the sustainable home decor products. Sustainable home decor products are environmentally friendly options that can help reduce your carbon footprint and promote responsible consumption. Sustainable house design has been brought to the attention of professionals and the community as the way of building for the future. This design process uses environmentally friendly products and takes into consideration the natural environment of the site in order to maximize energy efficiency and keep embodied energy to a minimum. The subject house named as " Ecolive Home " is a prime example of sustainable design taking into consideration the environmental, social and economic impacts of residential living. Some of the examples for raw material are: Bamboo Furniture: Bamboo is a fast-growing and renewable resource used for furniture like chairs and tables. Recycled Glass Decor: Glass decor items made from recycled materials, such as vases and glassware, are eco-friendly choices.

Organic Textiles: Opt. for home textiles made from organic materials like organic cotton or hemp for bedding, curtains, and upholstery. Second-hand Decor: Thrift stores and online marketplaces often have unique, pre-loved decor items that are sustainable choices. Soy or Beeswax Candles: These candles are less harmful to the environment and emit fewer toxins when burned. Indoor Plants: Adding houseplants not only decorates your home but also improves indoor air quality. Handcrafted and Local Products: Supporting local artisans and choosing handcrafted items often involves less transportation and supports the local economy. By incorporating these sustainable home decor products, you can create a stylish and eco-friendly living space. There is a need for specific promotion and branding practices for more conversions, justifying the sustainable home décor products healthy, cultural and environmental competence.

Rediscovering The Essence Of Bawan Buti Weaving: A Case Study

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The present scenario of sustainable era has the capacity to get the craft its recognition in the world. Handlooms are one of the country's most essential cottage industries, giving livelihood to most of rural India. The handloom sector has become a significant concern for the Indian textile economy. Bihar is home to 26,000 weavers for whom manufacturing and dealing with fabric and garments is their livelihood. Several areas in the State have specialised weaving and textile production skills. Gaya, Kadi-ganj, Nawada, Nalanda, Madhubani and Bhagalpur. Silk, Cotton Weaving is an age-old tradition in the cities. Fabrics produced in these cities are famous both in the national and international markets. Nalanda District of Bihar has been the centre of silk fabric manufacturing. The craft of Bawan Buti Weaving originated in the Nalanda district of Bihar where all the beautiful motifs are woven on a six-yard Saree. The specialty of this weave is that the single motif is repeated 52 times throughout the whole saree. The extra weft technique used to make motifs requires skill and patience. This craft is being practised since ages and over the time there are certain evolution in the craft based of motifs design and colours according to the change in market and client demands. Most of the handlooms in this sector are traditional pit looms without doobby and jacquard. There seems to be a very little knowledge about the origin and authentication of craft among the community. We need more strategies for encouraging the weavers to continue their legacy as an heirloom the family inherits. Handloom sector crafts are authentic, but not all crafts get its rightful place in the market, giving proper platform, collaborations and recognition to craft and weavers can play a major part in the development and revival of the. The focus of the study is to learn about the craft and our initiative to revive the lost motifs and essence of the Bawan Buti craft.

Assessing Artificial Intelligence (AI) Adoption in Marketing Strategies Process of New Product Development (NPD) for the Indian Fine Jewellery Industry

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This paper investigates the current use of Artificial Intelligence (AI) in the marketing strategy process of New Product Development (NPD) in the Indian fine jewellery industry. The study compiles the opinions of 155 NPD specialists from various sectors of the Indian fine jewellery ecosystem, such as jewellery manufacturers, exporters, e-commerce companies, retailers, and design houses. Utilizing non-probability quota sampling allows for a comprehensive representation of industry professionals.

Through rigorous data analysis, the research reveals that the Indian fine jewellery industry is significantly behind in implementing AI in its marketing strategy and new product development (NPD) practices. The results reveal a pervasive pattern of minimal or negligible use of AI technologies across all industry segments, impeding its growth and innovation potential.

In light of the study's findings, the researcher proposes a conceptual framework for the potential application of AI to the marketing strategy process of new product development (NPD) within the Indian fine jewellery industry. The framework provides actionable and pragmatic strategies for leveraging AI to improve marketing strategies.

This research paper works as a valuable resource for stakeholders within the Indian fine jewellery industry by addressing the existing gap between the industry's current practices and the potential offered by AI-powered strategies. The conceptual framework proposed provides a road map for businesses to effectively adopt AI technologies, redefining their marketing strategies process in NPD to remain competitive and pertinent in a dynamic market landscape.

This study contributes to the increasing body of literature on AI integration in the marketing and new product development (NPD) domains by providing industry professionals, policymakers, and academics with a clear understanding of the untapped potential AI offers to transform the

Indian fine jewellery industry. Adopting AI-driven strategies could result in increased marketing efficiency, enhanced new product development (NPD) outcomes, and accelerated growth, ultimately enhancing the industry's position on the global stage.

Imparting Ultraviolet Protection and Antimicrobial Property to Develop Multifunctional Bamboo Fabric Using *Vitex negundo* Leaves Extract

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In recent years, considerable attention has been given to plant based finishes to impart functional properties such as antimicrobial and ultraviolet properties to textiles. This work is carried out in search of natural finishing agent to synthetic agents in an attempt to develop bioactive fabrics for use in health care applications. Study presents an environmentally benign bioactive finishing of bamboo fabric via the use of unexplored phenols and flavonoid rich leaves extract of *Vitex negundo* through exhaust cum pad dry cure method. Two solvents namely water and ethanol was used to extract the bioactive functional finishing compound. Additionally total phenolic content, total flavonoid content and FTIR studies have been conducted to confirm the presence of the phytochemical compounds. Obtained extract was converted into powder and applied into bamboo fabric by exhaust cum pad dry cure method for determination of ultraviolet and antimicrobial properties. Finishing formulation is designed by design expert software by considering three factors namely extract concentration, temperature and material to liquor ratio that affect the ultraviolet and antibacterial properties of finished textiles. Box-Behnken three factorials with three level experimental design (extract concentration ranges are 15%, 25% and 35%, finishing temperature ranges are 600, 750 and 900C, material to liquor ratio ranges is 1:20, 1:30 and 1:40) was used for optimization. Additionally *Vitex negundo* treated bamboo fabric was characterized using FTIR and Scanning electron microscopy. Results showed that all the selected process variables have positively influenced the Ultraviolet protection factor as well as antimicrobial activity against the two microbes such as *Staphylococcus aureus* and *Escherichia coli*. UPF of all treated samples increased with the increase of finishing temperature upto 75⁰ C due to the kinetic energy and better swelling of fibres that enhanced the diffusion of extract from bath to fibre polymer system. The aggregation of water soluble phenolic and flavonoid compounds extracted from *Vitex*

negundo leaves can influence the uptake of extract by fibres. The UPF and antimicrobial property were significantly increased with an increase in the concentration with slightly loss in the tensile properties may be due to finishing at higher temperature and pressure leads to weaken the fibre polymer system and thus decreases the tensile strength of treated fabric samples.

Recycling Leather Waste for Footwear: Sustainable Solution/Process for Better Waste Management for Leather

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In an era of heightened environmental awareness, sustainable practices in design have become paramount. This delves into the innovative approach of recycling leather footwear while ensuring that the recycling process itself is sustainable. Leather, known for its durability and aesthetic appeal, is a commonly used material in the fashion industry, particularly in the footwear. However, its production often involves environmentally detrimental processes. This paper explores how recycling leather footwear can mitigate these concerns.

Recycling leather footwear is a multifaceted endeavor that encompasses several key aspects of sustainability. Firstly, the collection and sourcing of discarded leather items, such as old shoes and accessories, reduce the demand for new leather production. This not only conserves resources but also minimizes the environmental impact of leather tanning, a process notorious for its chemical-intensive nature.

The recycling process itself is pivotal to sustainability. Advanced technologies and techniques are being developed to efficiently break down and reconstitute leather materials. This minimizes waste and energy consumption, leading to a more eco-friendly approach. Additionally, recycling leather footwear can also involve the incorporation of other sustainable materials, such as organic or recycled textiles, further reducing its environmental footprint.

Moreover, the reimagining of design and production processes is essential for sustainability. Designers are experimenting with modular and repairable footwear designs, extending the lifespan of leather products. By encouraging consumers to repair and refurbish their leather footwear, a culture of longevity and sustainability can be fostered.

In conclusion, recycling leather footwear is not merely about repurposing materials but also about redefining the entire lifecycle of leather products to align with sustainable principles. This underscores the importance of innovative recycling methods and sustainable design practices to minimize the environmental impact of leather footwear, ultimately contributing to a more eco-conscious and responsible fashion industry.

Towards Sustainable Futures: Analysing Eco-friendly Print and Packaging Materials for Graphic Design Practices in the Indian Context

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In a rapidly developing nation such as India whose consumer market is set to lead as the 3rd largest within 2027, growing household income promises huge amounts of profit. But with growing income comes the growing realization regarding the vast amount of unsustainable practices that plague most of the industries in India. With the country's population expected to keep rising for the next three decades, the natural resources of India will doubtlessly come under immense pressure, leading to scarcity and, the much-dreaded outcome, pollution.

The print and packaging industries are some of the leading perpetrators when it comes to air pollution and the brisk filling up of landfills. Paper mills around the world have contributed to the desecration of forests, namely 14%. The erroneous design practices that lead to these harmful effects must be re-evaluated, from print to materials and finally, graphic design.

This study aims to analyze sustainable graphic design practices, in the context of printing and packaging materials within India in 21st century. With growing concerns over climate change and environmental degradation, the graphic design industry bears a significant responsibility in mitigating its ecological footprint. The study in turn compares various eco-friendly alternatives for the print and packaging industry.

With literature analysis, supplemented by empirical data gathered from surveys and interviews with industry professionals, the study aims to examine the current state of graphic design and packaging methods in India regarding sustainability and analyze the environmental impact, cost-effectiveness, and practicality of implementing eco-friendly practices in these processes. The paper also touches on challenges faced by designers and manufacturers in implementation due to availability and costs as well as incentives that could rapidly advance sustainability in packaging and materials in the context of graphic design.

Development of Products with the Essence of Kangra Painting

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Himachal Pradesh is commonly known for its bewildering view of mountains and rich cultural heritage. This prestigious region is renowned for its diverse handicrafts and has always been a popular tourism destination due to its pleasant climate. One of the famous and intricate craft of this Indian state is Kangra miniature painting. Kangra paintings are influenced by the Bhagavad Purana portrays various tales of Radha Krishna, Bihari Sat Sai and Nala Damyanti by keeping it aligned with Shringara rasa as a focal theme and displays them gracefully with vibrant colors and elegant motifs.

However, despite of its beautiful essence and intricacies, its practice is commonly limited to painting and few applications on materials like ceramics and fabrics. Whereas in Rajasthani miniature painting and Madhubani painting, wide range of merchandises is available keeping their essence alive that makes them accessible to lot of consumers. Furthermore, fusing a painting with other locally available materials not only makes a product versatile but also facilitates the use of local resources of the state.

This research paper highlights a comparative analysis of Kangra paintings with other miniature paintings. This comparative analysis is used to understand the availability of product categories in other miniature paintings. The authors are addressing the issue of limited scope of this craft and tries to sensitize the artisans and product designers to increase its scope by fusing it with other materials and making it available in various product categories. This research paper concludes by proposing various categories of product in home décor and fashion accessories domain to increase its demand and to make it more widely available. Craft is itself a luxury but making it available to most of us is what makes it valuable because it reflects the traditions of a particular state.

Virtual Influencer: A Collaboration with Sustainability

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Collaborations between influencers and sustainability initiatives have emerged as a dynamic force in contemporary marketing and advocacy. The primary purpose of influencer collaborations in sustainability is threefold. Firstly, they harness the persuasive power of influencers to amplify environmental awareness and promote sustainable practices. Secondly, these partnerships bridge the divide between sustainability-focused brands and conscious consumers, making eco-friendly products and practices more accessible and appealing. Lastly, influencer collaborations are designed to inspire tangible behavioural changes, motivating followers to adopt greener lifestyles and support responsible brands. Employing a mixed-methods approach, data is collected through surveys using self-developed questionnaire, content analysis of virtual influencer campaigns to investigate consumer awareness of sustainability and how it impacts their clothing purchasing behaviour. This study adds valuable insights to the current knowledge base in several key aspects. Firstly, it offers a thorough evaluation of how virtual influencers can be harnessed to drive positive sustainability outcomes. Secondly, by utilizing a mixed-methods approach encompassing the need for a balanced approach that maximizes the benefits of virtual influencers while mitigating their potential negative effects on ecological sustainability.

Sustainable Silver Nanoparticles from *Catharanthus Roseus*

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Green nanotechnology, particularly the green synthesis of silver nanoparticles (AgNPs), has become increasingly significant in various scientific fields. Traditionally, the synthesis of AgNPs involved the use of hazardous chemicals, but due to growing environmental concerns, there has been a shift towards more environmentally friendly and sustainable preparation methods. Green synthesis of nanoparticles has gained attention for its numerous advantages, including its non-toxicity, safety for humans, eco-friendliness, and economic viability, in comparison to chemical and physical synthesis methods. Among the different metal nanoparticles, AgNPs have garnered significant interest from researchers, particularly in biomedicine, water purification, cosmetics, the food industry, household products, and clothing, mainly due to their exceptional characteristics such as high electrical conductivity, antibacterial properties, and relative affordability. Textiles are widely utilized materials in everyday life, and there is a growing demand for antimicrobial textiles based on eco-friendly natural agents. *Catharanthus Roseus*, a potential precursor, can be used to prepare nanoparticles from metal salt solutions and acts as an effective nano factory, aiding in reducing the adverse effects associated with microbial growth on textile materials. In conclusion, the sustainable synthesis of silver nanoparticles from *Catharanthus Roseus* represents a significant advancement in green nanotechnology applications.

Everyday as Material in the Ephemeral Art of Dieter Roth

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Swiss German Artist Dieter Roth was associated with Western art movements emerging from the dystopia of World War Two. The art movements such as Dada, Fluxus, later on Neo Dada and conceptual art were guided by the desire to provoke and invoke the viewer to participate as well as the artist to critique the existing art philosophies and practices.

The artists of the time challenged the conventional and bourgeois ideas about the institution, authorship, exclusivity and commodity in art. And, one of their pivotal tool was the emergent everyday aesthetics to reach out to a larger group of audience. This stream of thought became a major influence in Dieter Roth's art practice and guided him throughout his artistic career.

His work with everyday material especially organic materials like chocolate, cheese, bird seeds, organic waste and other forms of impermanence, often celebrating decaying and rotting as a part of his creative process. Hence, a study of his artworks assists in developing the presence of everyday as material and its impact on art as an object. The paper also aims look at the temporary or perishable materials used by the artist within the scope of everyday aesthetics and everyday as material to understand the then transforming philosophy in the art world.

Roth was one of the few artists who persistently dealt with the idea of ephemeral in his art practice from the perception-conception to sharing or display.

The paper will examine how his art practice that consisted of perishable artworks, multiples and artists books/ catalogues challenged the status of art commodity, its exclusivity and the concept of beauty. This innovative and anarchist art process and production methodologies also challenged the role of art museums and galleries. His art practice that relied majorly on physical engagement with the material, opened up a parallel investigation into the interlink between the concepts of - everyday life, material and ephemerality in art.

However, the research paper's main aim is to revisit the influence and relevance of the idea of everyday and ephemeral in contemporary art and creating an alternate sharing and marketing possibilities for artists.

Commercial use of Warli design in Life style Apparels

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Bharat is a country that is full with heritage, culture, and art. Warli design can be tracked back to around 3000 BC. The basic ideas of life, which are utilized to represent human beings, animal figure, houses, etc. are primarily shown in warli art. Warli painting represent the circle of life. Warli tribes' people are from Maharashtra- Malinagar, parts of Nashik and Dhule, Gujarat- Valsad, Navsari and Surat, DADRA AND NAGAR HAVELI & DAMAN AND DIU. Warli designs on sarees have a certain aesthetic appeal, but semi-dresses, Kurtis, palazzos, and other fashion trends have also featured this strange art form . . . An art form that is driven by everyday life stories and these tales also in turn become a reminder of traditional values and cultures cherished by the tribe.

Warli design putting for mainly represents togetherness. To preserve and build our warli culture in lifestyle apparel. as the beauty and uniqueness of this art is also represent the lifestyle of the people through the designs. Warli painting is one of the oldest art forms of India. It originated from the Warli region in Maharashtra, India. It is performed by the warli tribe from the coastal regions of Maharashtra. This helped us to understand the consumers better and also to develop more accurate and acceptable products for them. This way we will be able to reach many consumers all over the world. The western garment - T- shirt will be beautified using the traditional warli paint which will give an indo-western look to the garment as whole. It has both traditional and new warli designs.

This research is conducted for women in the 18-45 age group close ended questionnaire. A sample size of 300 females will be used to gather the relevant variables. Statistical tools like correlation and T-test will be used in find association and difference between variables.

Understanding The Shopping Journey And Challenges Of Disabled Community

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This study delves into the dynamics of the disabled community market, shedding light on the unique nature of this consumer segment. As societies become increasingly inclusive, understanding the distinct preferences, needs, and challenges of the disabled community in the marketplace becomes imperative.

The disabled community market represents a diverse and often underserved group of consumers. Their specific requirements, ranging from assistive technologies to accessible spaces, have created a niche market with untapped potential. This research explores the various dimensions of this market, including the types of products and services in demand, the accessibility of businesses and digital platforms, and the factors influencing purchasing decisions within the disabled community.

By conducting surveys, interviews, and market analysis, this study provides valuable insights into the disabled community's consumer behavior, highlighting the importance of inclusive marketing strategies and product design. It also examines the role of government regulations and advocacy in shaping this market.

Ultimately, this research aims to raise awareness about the disabled community market's potential and challenges, encouraging businesses and policymakers to prioritize inclusivity and accessibility. Understanding the nature of this market is not only socially responsible but also makes economic sense in an increasingly diverse and inclusive world.

Unveiling The Splendour Of Lotus Stem Silk: Extraction, Significance, And Sustainable Prospects In India

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Lotus stem silk, an extraordinary natural fibre extracted from the stem of the sacred lotus plant (*Nelumbo nucifera*), has gained prominence in recent years due to its distinctive qualities and versatile applications. This research paper delves into the intricacies of lotus stem silk extraction, elucidating the techniques involved and emphasising its historical, cultural, and economic significance in India.

Drawing upon works of Pan, Han, Mao, et al. (2011), and Yuan, Gan, et al. (2012), which laid the foundation for understanding the lotus plant's unique properties, we explore the traditional methods and innovative approaches used in the extraction process with modern methods such as microwave irradiation (Cheng, Guo, et al., 2017). We present a comprehensive analysis of the physical and chemical attributes of lotus stem silk, as well as its potential as a sustainable alternative to synthetic fibres.

Furthermore, this paper discusses the implications of lotus stem silk production for rural communities and environmental conservation in India, referencing the pioneering research of Jain, Singh, et al. (2004). We also examine the growing interest of the textile industry in lotus stem silk, inspired by the insights of Gardetti, M.A. and Muthu, S.S. (2015), as a premium material for luxury fashion and textile innovation.

We propose a comprehensive framework for the development of lotus stem silk as a thriving and sustainable industry in India, addressing socio-economic aspects and the potential for India to become a global leader in this emerging sector. We also highlight the importance of preserving and propagating the lotus plant itself, as explored in the foundational works of Sahu, Chandravarshini (2018).

In summary, this paper synthesises knowledge from seminal works in the field, encompassing lotus stem silk extraction techniques, historical and cultural contexts, eco-friendly attributes, and economic prospects in India. By recognising and leveraging this exceptional natural resource, India can not only promote a more sustainable textile industry but also uphold its rich cultural heritage.

Significance Of Local Handicraft In Rural Development: A Case Of Santiniketan Leather Goods Cluster

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Handicrafts have emerged as an eco-friendly and humane industry, making them highly relevant to sustainable rural development in the present context. The Sustainability concepts are built on slow fashion and local production, which are quite inherent in traditional crafts. The crafts sector possesses enormous local resources, reasonable skills, and modernized technical knowledge, making it key source of employment in rural areas. Although India's handicraft production and export are progressive, the trade of Santiniketan artistic leather goods is sluggish, affecting the local rural economy and prospects. As the attributes of the Santiniketan artistic leather goods and the offered product range are the key factors in finding businesses in the prevailing market, it is important to strengthen the products and expand the range of product offerings in order to sustain a progressive economy of the Santiniketan leather goods cluster.

This study aims to identify the key products of the Santiniketan artistic leather goods clusters and evaluate the possibilities of expanding the product range and exploring possibilities for further intensification of the rural craft enterprises for a sustainable growth. The research methodology followed is descriptive and investigative, based on secondary data collected and composed from research papers, books, journals and government reports to understand the relationship between the rural economy and developmental factors like employment generation, product strategies, and role of Government and other stakeholders of Santiniketan leather goods cluster. Further, a structured interview was conducted to obtain stakeholders' opinions on the research goals.

Results of the study have shown a constant decline in the popularity of Santiniketan leather goods among modern customers primarily owing to the lack of new products, product innovation and technology integration. The study identifies the gap areas where interventions are required from the Government, institutions and other stakeholders to upgrade the skill and technology for the overall development of the craft.

Imagination Stifled: Limited Market Acceptance Which Challenges Artistic Innovation In Pottery Town, Bengaluru

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The Pottery Town, a craft cluster, in Bengaluru, is renowned for its skilled artisans specialising in the creation of terracotta products. They usually manufacture tableware and decorative products in accordance with customers. It is observed that artisans demonstrate skills and are inclined to explore distinctive products. However, despite the recognition received for their innovative creations in the past, these products encounter challenges in gaining market traction.

In this ethnographic research, our objective is to identify and comprehensively analyse the factors contributing to the failure of innovative products among craftsmen, despite being appreciated for their work. This lack of market desirability, directly or indirectly, discourages artisans from experimenting with novel design ideas. Instead, compels them to continue producing traditional products like kulhads (teapots), clay glasses, biryani pots, etc. One of the conjectured factors contributing to this issue is the apparent absence of a receptive customer base for new products. The clientele of the Pottery Town, Bengaluru comprises existing patrons who predominantly collaborate with artisans for bulk orders of conventional items.

This study employs an exploratory qualitative approach to investigate the challenges hindering the market viability of artistic innovation. The study is conducted within Pottery Town, Bengaluru, and data is gathered through case studies, open-ended interviews, participant observations, and stakeholder questionnaires involving artisans and their clientele.

This research holds significance as it deciphers the multifaceted factors that challenge the success of innovative design initiatives in pottery towns or similar craft clusters. By understanding these challenges, we can pave the way for future success in implementing innovative approaches within the artisanal community.

Investigative Study on Neurodivergent Students in Design School: Uncovering Their Challenges for Sustainable Education

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The pursuit of sustainable education encompasses the commitment to inclusivity and diversity, recognizing that every student brings a unique set of needs and abilities to the learning environment. Neurodiversity, a concept encompassing a wide range of neurological variations, including autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), dyslexia, and more, is an essential aspect of this inclusivity. This observational study aims to comprehensively comprehend the challenges that neurodivergent students encounter in design schools, a pivotal educational domain characterized by creativity, innovation, and collaboration.

Utilizing a varied group of neurodivergent students enrolled in reputable design institutions in India, this study extends a mixed-methods approach, incorporating surveys, interviews, and classroom observations, with data meticulously analysed.

The findings of this study underscore the multifaceted challenges confronting neurodivergent students in design school settings: communication challenges, sensory sensitivities, executive functioning hurdles, time management, social integration barriers, academic stress, mental health along with the practice of inclusive pedagogy.

In conclusion, this observational study contributes to the sustainable education discourse by offering an in-depth understanding of the challenges faced by neurodivergent students in design schools in India. By recognizing these hurdles and proposing support strategies, the research advances the goal of creating inclusive and sustainable design education environments where all students can thrive.

Smart Jewellery for the Safety of Pets

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In today's world, numerous individuals have a preference for staying up to date with fashion trends, not only for themselves but also for their pets. This includes coordinating outfits and accessories, such as jewelry, to match their beloved animal companions. Smart pet jewelry serves a multitude of functions and can bring advantages to both pet owners and the animals they care for. The rationale behind this design stems from a handful of challenges faced by both pets and their owners. As they are acclimating to their new surroundings, there is a possibility that pets might initially stray. To mitigate this risk, the pendant attached to the pet will transmit real-time GPS (Global Positioning System) location data or use RFID (Radio-Frequency Identification) technology to communicate with the owner's pendant, aiding the owner in promptly identifying the pet's whereabouts. Pets can also experience anxiety, whether due to separation from their owners or unfamiliar environments. In such situations, geofencing technology proves invaluable. Using GPS or RFID, it establishes a virtual boundary, triggering notifications whenever the pet ventures beyond a designated area relative to the owner. Pets have a tendency to create chaos at times, and to prevent this, the pet's pendant can incorporate features such as vibration or sound alerts that activate in response to specific behaviors. These alerts can serve as valuable tools for training and discouraging undesirable actions, like scratching sofas, cushions, mats, and other furniture. Pets can also face unforeseen medical emergencies, and in such cases, the pendant can serve to alert veterinarians or pet owners. Additionally, it can function as a repository for vital pet information, including medical records, contact details, and vaccination history, accessible through a QR code, which can double as their identification tag. To prevent unauthorized removal of the collar, it incorporates additional safety measures, including a loud siren that activates when someone other than the owner touches it. Simultaneously, the owner receives a notification through their pendant. The collar is constructed from hypoallergenic materials, ensuring comfort for both pets and their owners as that is the priority.

Identification and Evaluation of Sustainable Fibers and Consumer Perception and Acceptance

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The growing demand for ecologically friendly and sustainable materials is driving a shift in the textile sector. Our study explores the world of new sustainable fibres, illuminating their creation, characteristics, and potential to transform the textile business. There is an increasing need for alternative fibres that can lessen the industry's carbon footprint and reliance on non-renewable resources as traditional textile fibres like cotton and polyester come under investigation for their detrimental environmental impact.

This study gives a general review of some newly developed sustainable fibres, such as bamboo, hemp, organic cotton, Tencel, and recycled polyester, among others. It examines their distinctive qualities, which make them environmentally beneficial substitutes for conventional fibres and include biodegradability, reduced water use, and lower greenhouse gas emissions. The difficulties of increasing the production of these fibres and guaranteeing their viability in the global textile market are also covered in the study.

This research article assesses the environmental concerns as well as the functionality and customer acceptability of these sustainable fibres. It compares their toughness, comfort, and adaptability to traditional fibres, showing their potential to satisfy fashion-conscious consumers' desires while addressing environmental issues.

In conclusion, this study provides a thorough review of emerging sustainable fibres and how they can completely transform the textile business. These fibres hold the key to a more environmentally friendly and sustainable future for the global textile industry by providing alternatives without sacrificing quality or performance.

Exploring The Sustainability Of Waste-Based Fiber From The Agricultural Byproducts In The Knitwear Industry: An Overview

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In the knitwear industry, the use of sustainable waste-based textiles has several advantages. Firstly, it decreases the demand for traditional raw materials, such as cotton or synthetic fibers, which are often produced using resource-intensive procedures. Consequently, this helps to conserve natural resources and reduce carbon emissions. Secondly, utilizing waste-based fibers can also enhance the quality and efficacy of knitwear products. The natural properties of these fibers can enhance the durability, permeability, and moisture-wicking capabilities of knitted goods. Additionally, waste-based textiles can offer unique textures and aesthetics, adding a distinct element to knitwear designs.

Yes, sustainable waste-based fibers from agricultural byproducts like crop residues, dried stalks of wheat, solid remnants of fruits, woody or fibrous parts, and plant trimmings can be effectively converted into fabric. These byproducts provide a potential source of natural cellulose fibers, which can be processed and transformed into textiles (Mohammed et al., 2019). Through innovative techniques and advancements in technology, it is possible to extract cellulose from these agricultural byproducts and convert them into fibers suitable for fabric production. However, further research and development are needed to optimize the extraction process, ensure the quality and durability of the fibers, and establish efficient manufacturing techniques in the knitwear industry. In recent years, there has been increasing interest in utilizing agricultural byproducts as a sustainable and environmentally friendly source for fabric production in the knitwear industry.

Researchers have made significant progress in developing new and advanced methods for extracting cellulose from agricultural byproducts such as crop residues and plant trimmings. These methods involve breaking down the raw materials and separating the cellulose fibers from other components. Through this process, cellulose fibers with similar properties to traditional fibers can be obtained.

By embracing sustainable waste-based fibers from agricultural byproducts and food refuse, manufacturers can make significant headway in establishing a more eco-friendly and sustainable production cycle for knitwear.

Comprehensive Review On Natural Dyes For Antimicrobial Finishing Of Textiles

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Natural dyes are mostly non-substantive and applied on textiles with the help of mordants, usually a metallic salt which is having an affinity for both the dye and the fiber. They produce unique, earthy, soft shades and some of them have connatural functional properties. In the last decade, there is a huge demand for natural dyes and natural dyed fabrics concern with healthy lifestyles. The increased environmental consciousness and pollution challenges caused by the textile industry have pushed natural dyes to the forefront. The textile industry's trend reflects a progressive shift from fashion to utilitarian clothes and healthy lives. Although direct, reactive, vat, sulphur, indigo, acid, metal complex, disperse dyes, etc have been used after the synthesis of first synthetic dye. Nowever 21st century has witnessed phenomenal focus on antimicrobial finishing of textiles due to the increasing consumer awareness about the health and hygiene. Large number of synthetic antimicrobial agents have been applied to impart antimicrobial activity however there are environmental concerns associated with all those agents. Therefore, the focus has shifted on natural products to impart antimicrobial finishes on textiles and natural dyes are being explored extensively for the purpose. Natural dyes include a high concentration of phytochemicals, which offer distinctive functional finishing to fabrics. This review examines the scientific efforts made in the realm of natural dyes to achieve antibacterial activity. The primary phytochemicals responsible for colour, antibacterial, and anti-fungal activities, as well as their mode of action and manner of application has been presented.

A Comparative Study On The Efficacy Of Selected Plant-Based Bio-Polymers In The Block Printed Kalamkari Of AP

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Textile Printing has become increasingly popular for enhancing the value of the fabrics much more than plain woven and dyed ones. As printing is known as localized dyeing, the artistic placement of motifs with well-defined boundaries, restricting one or more colours to the specific design areas requires the use of appropriate thickening agents. Various thickening agents used in textile printing are polymeric products derived from diversified natural and synthetic sources such as starches, plant gums, seaweed alginate, oil in water emulsions, poly acrylics etc.

Machilipatnam Kalamkari, a heritage craft of Andhra Pradesh is globally acclaimed for its block printed floral sprays of Indo-Persian motifs produced using vegetable dyes. A recent survey undertaken at the cluster revealed the use of guar gum powder as thickener, which is procured from a commercial supplier wherein the stakeholders are not aware of its purity and composition. The traditional practice of using gum Acacia was found discontinued compromising the best quality of prints and the fastness properties it offers due to the labor intensive and time consuming processes involved in the preparation of printing paste.

The intervention of bio polymers that are environmentally friendly, sustainable, non-toxic, renewable, bio-degradable, bio compatible green materials, marked an emerging trend in the sustainable production and has generated a great deal of attention recently. Hence, the present study was undertaken to assess the potential of selected plant gum biopolymers as thickening agents such as organic Guar(GG), Neem(NG), Moringa(MG), Acacia/Kikar (AG), Tragacanth (TG) Xanthan(XG) and Tamarind seed powder(TS) in Kalamkari printing. The performance of selected thickeners was evaluated in combination with selected natural dyes such as Punica granatum (yellow - anar), Rubia cardifolia (red - manjistha), Butea monosperma (orange - moduga puvvu) and fermented rusted iron solution (black- Kasim) with reference to spectrophotometry, colourfastness and mechanical tests. Greater values of colour strength (K/S) were observed with acasia gum (yellow-94.59, black- 198.44), commercial guar gum (orange- 118.03 and red 144.78)) and neem gum (black- 192.98). The results of colourfastness showed a positive correlation with colour strength. Black colour printed samples showed marked reduction in tensile strength. The study signifies huge scope for confluence of biopolymers in textile wet processing.

A Heritage Re-imagined: The Revival of Ujjain Batik Craft through Sustainable Fashion

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Ujjain, a city steeped in history and spirituality in the heart of India, it's known for its ancient temples and unique evolving batik craft tradition. This sheds light on the distinctive Ujjain batik craft, its Historical roots, and Adaptations into day to day Sustainable Fashion.

This research explores Ujjain Batik craft, with its rich history and intricate techniques can be seamlessly integrate into the landscape of contemporary design and can influence fashion. This traditional Indian art form, involves a meticulous process of applying hot wax onto fabric to create intricate patterns, followed by dyeing to achieve vibrant and contrasting designs.

Furthermore, it examines the evolution of Ujjain batik craft technique to align with modern design requirement and sustainability practices. The craft also serves as a bridge between the past and the present, acting as a vessel for preserving cultural heritage. Artisans often draw inspiration from ancient Hindu mythology, incorporating motifs of deities, rituals, and symbols into their designs. This infusion of contemporary design and traditional craft adds depth and significance to the craft.

In conclusion, the research discusses the sustainability aspect of Ujjain Batik craft, as it aligns with the principles of Eco-friendly and socially responsible design. It investigates the challenges and opportunities faced by artisans and designers in preserving and promoting this art form in the modern world. This adaptation through design will be expanding the craft's commercial viability in industry and ensure its survival in a rapidly changing world.

A Review On Smart And Functional Textile

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Fashion is an ever-evolving industry that reflects not only our personal style but also the technological advancements of our time. In recent years, the integration of smart textiles into fashion has ushered in a new era where clothing is not just a statement of style but also a hub of functionality. Smart textiles, also known as e-textiles or electronic textiles, are fabrics or textiles that have been enhanced with technology to provide additional functionality beyond their traditional roles. Smart textiles have a wide range of applications, including in the fields of healthcare, sports and fitness, fashion, military, and home automation. This innovation has enabled designers to go beyond aesthetics and incorporate functionalities that were once unimaginable. The integration of sensors and conductive threads into clothing has given rise to wearable technology, from smartwatches and fitness trackers to smart glasses and clothing that monitors health metrics. Clothing is no longer just about looking good; it's also about feeling good. Smart textiles can provide heating and cooling elements, making it possible to adapt clothing to various weather conditions and individual preferences. It allows designers to create clothing that can change colors, patterns, and textures with a simple touch or through sensors that respond to environmental factors. The energy-harvesting capabilities of some smart textiles contribute to sustainability efforts by capturing energy from the environment, such as solar power, for powering embedded electronics.

As the textile industry continues to evolve, embracing smart and functional textiles offers a gateway to enhanced functionality, improved performance, and innovative applications. This underscores the pivotal role of these textiles in shaping the future of textiles and their immense potential to address the multifaceted demands of diverse industries.

Sustainable Practices In Leather Industry

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The leather market is worth \$100 billion. Demand for leather goods is rising concurrently with a shift in consumer consciousness toward the use of sustainable products. The Higg Materials Sustainability Index assigns leather an impact score of 159, compared to cotton's 98 and polyester is 44, due to its substantial contribution to global warming, water consumption, and pollution. The leather industry prevents millions of animal skins from the meat industry from becoming refuse and polluting landfills. As leather is an exceptionally durable and repairable material, which has been utilized in the craft, art, fashion, home furnishings, and automobile industries for a variety of functional and decorative purposes. Numerous companies, including tanneries, leather product manufacturers, and brands, assert that their products are highly sustainable. Their claim of an eco-friendly waste disposal system and carbon offsetting techniques assures customers that their purchase is both biodegradable and sustainable. This biodegradable material is in high demand, and as a result, it is mass-produced. However, do these companies inform their customers that their products are produced in a sustainable manner? Leather Working Group is an organization that certifies manufacturers of leather and leather products based on a set of criteria. The brands founded on these certifications state their products are sustainable. LWG has granted certifications to over 2,000 organizations in more than 60 countries, including over 200 businesses in India. The purpose of this paper is to investigate the legitimacy of certification criteria and examine organizations that issue certifications for sustainable production techniques. This chapter provides an overview of various raw materials, leather manufacturing processes, leather finishes, and various categories of leather goods. A study will be conducted in which forty participants from the leather industry will be surveyed.

Clothing consumption and disposal patterns of urban Indian men in the city of Kannur, India

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Global textile consumption is estimated to be more than 30 million tons a year, causing social and environmental impacts. Data published in the National Household Survey (2015), India reveals that in 2014, household demand for textiles was \$73.70 billion. A global estimate suggests that around 92 million tonnes of textile waste are created every year of which 95% percent are recyclable but only 25% of it is actually recycled. The current trend in the clothing industry is based on fast fashion in India. Fashion and styles are created, promoted, and then discarded. The demand to minimize environmental pollution is not only from fashion firms but also from consumers. From redesigning products and eco-friendly manufacturing processes, the focus is also required on consumption patterns as consumers themselves are unable to see the link between consumption patterns and the environmental impact. There is a gap in the literature on the clothing consumption patterns and disposal practices among Indian urban men, Therefore, it is important to conduct a systematic study on the current clothing consumption and clothing disposal practices among urban Indian men in the context of sustainability. The objective is to study the clothing consumption and disposal patterns of Indian men in the city of Kannur.

The methodology used is ethnographic research, involving wardrobe analysis and observations during shopping trips to study the consumption and disposal practices of the participants, apart from survey-based research among men of different age groups and professional backgrounds in the city of Kannur.

The findings reveal that there is a lack of a systematic disposal channel that facilitates post-consumer menswear upcycling practices. Lack of opportunities for repair, refurbishment, selling to second-hand stores, and return options for consumers to promote sustainability. The consumers are unable to correlate the impact on the environment during their purchase decisions.

Fabric Scrap To Couture: Material Driven Design Process For Sustainability

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Garment manufacturing industry is one of the most polluting industries in the world. All stages of the garment product life cycle have numerous practices that are not sustainable in every aspect, be it environmental, social or economic. Apparel production processes generate millions of tons of waste each year globally. About 85% of the fabric used in traditional clothing construction methods is used, while the other 15% is wasted and left on the cutting room floor. In the case of smaller set ups like dressmakers, seamstresses, and tailors where each piece is custom made, the fabric wasted is humongous. Initially stacked up to take up space in their workplaces, the trash is eventually disposed of carelessly in landfills, water bodies or incinerated.

This study seeks to demonstrate that the cutting waste from the production process of garment manufacturing can be utilized to create a new and innovative clothing range which would further give rise to new opportunities in fashion design and garment production manufacturing. As a constructive design- based research with a predominant studio approach, this study involves professional creative practices of art and design. A material driven design was used as a design process for this practice based research on sustainability.

There are two phases to the study; first being the studio based research with documented step-by-step product development practices to communicate the results and phase two entails Kansei engineering research methodology to understand consumer emotions while engaging with the product.

For the studio-based study, an average of 150kg of fabric remnants which are generated by 15 workshops of small scale garment producers such as tailor and fashion boutiques in four suburbs of Dehradun region of Uttarakhand were collected. The fabric waste was sorted into types, sizes, colours and textures. These were then used as the raw material to develop a womenswear collection of garments. This material driven design process begins with fabric waste as raw material, but a lot of experimentation and technique was employed to develop products that are high on quality, finishing, aesthetics and functionality. Each product was developed by piecing together the fabric scraps by the

use of various techniques like patchwork, braiding, weaving, frills and pleating, joining with insertion lace and other joinery techniques, cutting and slashing technique etc. Each prototype developed, therefore, was unique, aesthetic, very beautiful and eventually environmental sustainability

In the second phase, subjective estimations of the developed prototypes were conducted using Kansei engineering methods. A semantic tool i.e. the Semantic Differential Method developed 15 feelings into Products by (Osgood et al. 1969) are used. In this way it was possible to quantify the emotions such as feelings of beauty, comfort, harmony etc. to understand the opinion of the targeted audience.

The results of the study were satisfactory and smallest piece of fabric scrap was also utilized in the creation of the products. In the future scope of the study, this can be further researched to develop a sustainable business model where the waste from one industry can be utilized as raw material for another product manufacturing enterprise.

Craftsmanship vs. Automation: A Sustainable Exploration of Bamboo Crafts of Eastern Indian States

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Background: In today's globalized world, mass-produced machine-made products dominate markets, relying heavily on synthetic raw materials and automated manufacturing processes to meet soaring demand. Unfortunately, this approach often stands in stark contrast to the principles of sustainability, which encompass the well-being of people, the health of the planet, and the ethical considerations inherent in the production process. Conversely, the craft sector places a significant emphasis on local production, utilizing regionally sourced materials and traditional, indigenous techniques, rendering it inherently eco-friendly and community-oriented.

Historically, people fashioned everyday objects from locally available resources using these indigenous techniques, collectively known as crafts, and passed this knowledge down through generations within their families. However, with the relentless advance of technology, human lifestyles have undergone profound transformations, consequently reshaping the products required for day-to-day life. As a result, many of the craft-based products that once fulfilled societal needs have yielded to their modern counterparts. To secure their continued existence and relevance, crafts must now explore avenues of design innovation and product diversification.

This paper offers a comprehensive examination of the bamboo crafts of eastern states of the country, tracing their evolution across diverse geographic locations, lifestyle adaptations, cultural influences, and their current state, with a particular focus on sustainability. Their rich heritage in bamboo craftsmanship is intimately interwoven with its geographical diversity and cultural tapestry. Artisans have historically harnessed the versatility of bamboo to craft an array of items, from utilitarian household essentials to exquisite decorative pieces.

However, in recent years, the bamboo craft industry has faced formidable challenges stemming from changing consumer preferences and the allure of mass-produced alternatives. In response, it has initiated a transformative journey, embracing design interventions and diversifying its product range. This strategic shift not only preserves time-honored craftsmanship but also aligns with sustainability principles by

emphasizing locally sourced bamboo, thereby reducing the ecological footprint associated with synthetic materials and extensive supply chains.

Objective: The prevalence of machine-made products has posed significant challenges to traditional craft sectors worldwide. Nevertheless, by embracing innovation in design and product diversification while remaining rooted in local traditions and materials, Eastern India's bamboo craft industry holds the potential not only to endure but also to contribute to sustainable development. This paper sheds light on the trajectory of this craft, from its historical origins to its contemporary adaptations, underscoring the imperative of preserving and promoting such indigenous practices for a more sustainable and culturally vibrant future.

Research Methodology: The study will tab data collected from literary sources and primary data collected from the clusters, interviews and study of the earlier and contemporary products of this craft.

Keywords: Bamboo crafts, sustainability, indigenous techniques, design innovation, product diversification, traditional craftsmanship, eco-friendly, cultural heritage, mass production.

Navigating The Dark: Photoluminescent Pigment Print Development In Home Fashion As Sustainable Source Of Nightlight For The Elderly

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Specialty pigments such photoluminescent pigment emits a bright phosphorous shade on excitation by daylight, incandescent, fluorescent, or ultra-violet light. It exhibits a high initial brightness and a long after glow. The effect of after-glow is dependent on the pigment concentration, surface area and amount of radiant energy absorbed. These pigments can be used on textiles either by incorporation in the dope during fibre spinning or by printing with suitable binders. There is limited experimental study on effect of the photoluminescent pigment concentration, light sources, substrate, and particle size and on the intensity of luminescence on textiles. Limited literature is available to guide textile and fashion designers on how these pigments can be used to create novel illuminated surface- patterns of luminescence for home fashion. Moreover, systematic studies on the possible design effects that can be achieved on fabrics while printing with photoluminescent pigments have not been reported in the literature.

Therefore, this research aims to systematically study the properties of photoluminescent pigments and develop design concepts on textiles for home fashion using user-centric research approach. The research on photoluminescent pigment printed textiles was correlated with user perception studies to gain insights for design and product development. User trials with the elderly people, using photoluminescent printed textile was done to study the application of photoluminescent pigment printed textiles as a source of sustainable nightlight in the dark using observations, interviews, and participatory design. This study is focused on developing product concepts and prototypes using photoluminescent pigment printed fabric that can be perceived by in dim lit environment.

Upcycling And LCA In DIY Material Research: A Practice-Based Experience For Sustainable Products

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This paper explores the Life Cycle Design approach from a de-growth perspective, emphasizing conscious shifts in industrial product design. It advocates a deliberate slowdown in the pursuit of a more sustainable and nature-respecting productive economy, aligning with the ideas of Latouche. The approach underscores the significance of the entire product life cycle, from sourcing materials to disposal and reuse, with the Life Cycle Design methodology becoming increasingly integral to the design process. It incorporates production and disposal phases into the design phase, promoting sustainable practices like upcycling. The paper details a case study within a Master’s degree program in Design for Innovation at the University of Campania “Luigi Vanvitelli,” showcasing a successful product design practice. Collaborating with the CNR-IPCB Institute for Polymers, Composites, and Biomaterials, the research aims to redesign materials that are challenging to recycle, focusing on fiberglass from decommissioned boats. Through the Emulsified Thermoplastic Engineering (ETE) process, developed in collaboration with CNR-IPCB, fiberglass and polystyrene waste are transformed into a recyclable, high-quality technopolymer composite. The paper outlines the ETE process, highlighting its mechanical and thermal properties. It describes the material processing, pellet creation, and sample production phases, including experiments with and without solvents to optimize visual and tactile qualities. The final application involves creating luminaires, necessitating translucent materials. The research at CNR focused on achieving a translucent finish by managing solvent use, incorporating iron powder for color contrast, and adjusting fiberglass percentages for improved translucency.

In conclusion, the paper underscores the strategic potential of a multidisciplinary DIY approach in product design, where material choice and production align with functionality while maintaining recycling standards. Through drawings, prototype images, and material studies, the research demonstrates how this approach effectively addresses diverse functional and ecological needs.

The Life Cycle Design approach from a de-growth perspective.

Within the industrialization of product design, to an increasing extent, a reversal is taking place, a conscious slowdown in the search for a new productive economy capable of subverting the existing order according to which nature is exploited, plundered, and mercilessly destroyed. (Latouche, 2015).

Starting from conscious sourcing to the disposal and reuse of the materials that make up the product, the methodology of Life Cycle Design is becoming increasingly widespread and integrated into the design, which involves an a priori design of the entire life cycle of the product (Vezzoli, 2016), conceived therefore through a more conscious overall design.

A particularly relevant aspect of this approach sees the production and disposal phases taken into account and integrated into the design phase.

According to the Cambridge Dictionary's definition, upcycling can be understood as "the activity of creating new furniture, objects, etc. from old used things or waste materials", reusing the material as many times as possible, and trying to get to disposal, taking advantage of multiple product use cycles. It is evident how in this reuse process, more value is given to the material.

In this perspective, in the adoption of LCA as an approach, in continuity with Latouche's reflections, the contribution intends to illustrate the result of a good practice of product design that occurred within a Master's degree program in Design for Innovation, at the University of Campania "Luigi Vanvitelli"

For a deepening of knowledge regarding the recycling of materials to be integrated into the project, the research was carried out in collaboration with the CNR-IPCB Institute for Polymers, Composites and Biomaterials in Pozzuoli (NA) in order to redesign used or waste materials, verifying them in the laboratory. The intent was to focus attention on materials that are not recyclable or difficult to recycle, in order to reintroduce them into a virtuous circle, through an innovative and proven process of upcycling.

The ETE. An upcycling process for sustainable materials.

During the collaboration with CNR-IPCB, recycling focused on the reuse of fiberglass from decommissioned boats through a process called ETE (Emulsified Thermoplastic Engineering) (Fig.1.), patented by the same institution, for reuse, experimenting with the possibility of increasing its expressive-sensory qualities.

The material resulting from the ETE process is a highly charged thermoplastic technopolymer that can be recycled again, with excellent mechanical and thermal properties. The process is generated by gelling expanded polystyrene with suitable solvents, followed by mixing with fillers derived from grinding thermoset composites. In this way, a composite consisting only of glass fiber and polystyrene is obtained,

which does not require the use of any type of raw material.

From the point of view of the operating protocol of the process achieved to make the samples, the material was reworked and organized in the form of pellets by the following steps: shredding fiberglass; cutting polystyrene; gelling polystyrene; mixing the compound; spreading the mixture on a smooth surface; removing the solvent; and shredding the resulting sheet.

Once the pellet of the mixed material was obtained, it was possible to move on to the stage of making the samples by following these further steps: adjusting the temperature of the Carver hydraulic press; arranging the material inside the mold; inserting the mold inside the press; melting the material for 5 min; applying vertical tension with an axial load of 20kN; cooling the mold; and extracting the obtained material from the mold.

The material was tested several times before arriving at the desired result, experimenting with the difference in the samples depending on whether the solvent was used or not. In a first test without solvent use, samples composed of fiberglass and ABS were obtained that were very visually interesting, but with a particularly rough and uneven surface. In subsequent tests, the presence of the solvent, again in combination with ABS and fiberglass, which allowed the surface to be improved perceptually (tactile and visual).

Initial experiences provided the skills such that they were able to move independently in experimentation. The first results, although obtained arbitrarily, highlighted some possible characteristics of the resulting material.

In the Life Cycle Design perspective, where experimentation starts with the choice of material, the characteristics of the final product begin to significantly influence the choice of material. Since the final application product is a luminaire, the need emerged to compose some parts in materials that let light through. Having highlighted this need, subsequent experiments conducted at CNR focused on obtaining a translucent finish (Fig.2.).

To optimize the properties, the amount of solvent was managed more consciously, the use of iron powder to achieve sharper color contrasts and an improvement in the translucency of the material due to the percentages of fiberglass present.

Conclusions: final applications and future perspectives.

Experimentation in the laboratory made it possible to work according to a multidisciplinary DIY approach, designing a product from the choice and production of materials, according to the most appropriate and congruous characteristics for the intended function. Allowing to maintain the necessary standards for recycling and hybridizing them to the best performing characteristics in terms of strength, aesthetic and perceptual performance.

The contribution concludes, through drawings, prototype images, and studies of the material made, demonstrating how a DIY experimentation approach can be strategic in managing material characteristics so as to respond in a timely manner to various needs, in terms of both functional and ecological impact.

Fading Imprints: Hand Block Printed Textiles Of Uttar Pradesh

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Indian hand block printing technique has been in use for centuries and has carved a niche market for itself due to the brilliance of techniques applied, material used and uniqueness of design. Each region has a choicest selection of pattern, colour combination and style with unique characteristics influenced by religion, lifestyle, culture and nature. Thus, the patterns used in each of the centres in India, bear a distinctive look, with designs in the North being very different from that of South. Though a lot has been written about the famous block printing centers of Rajasthan, Gujarat, Andhra Pradesh & Madhya Pradesh, very little or no information is available for other lesser known, but important centers in Uttar Pradesh. During the Mughal and colonial times, the printed fabrics from these centers were very popular and exported in large quantities. In the present research an effort has been made to find historic data to determine the origin of this craft, printing style and existence of prominent block printing centers of Uttar Pradesh. Historical research has been conducted by collecting data through multiple sources and analyzing it using methodological triangulation technique. It was revealed that in the North the craft was practiced from Kashmir, through Punjab to the former princely state of Awadh (present day Uttar Pradesh) in cities like Lucknow, Farrukhabad, Tanda and Banaras. There were many more important centres once present at Kanauj, Jahangirabad (Bulandshahr), Jafaraganj (Fatehpur) etc. which are today nonfunctional and have faded away without a trace. Presently, the only three centers found to be functional are Farrukhabad, Pilkhuwa and Lucknow but are in desperate need for revival. With time these centers declined and their unique style merged with one another. Thus, for the crafts revival and its sustainability the research highlights the distinct characteristics of each center of Uttar Pradesh.

Sustainability: A study on practices and trends in the Indian domestic floriculture industry

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The floral industry in India has grown in the past decade and has reached INR 231.7 billion in 2022. The domestic market consists mainly of disorganized sectors and a few organized retail and e-commercial platforms across the country. The sourcing of the cut flowers ranges from local floriculture cultivation to the import of exotic flowers. The important floricultural crops in the international cut flower trade are Rose, Carnation, Chrysanthemum, Gargera, Gladiolus, Gypsophila, Liatris, Nerine, Orchids, Archilea, Anthurium, Tulip, and Lilies. Floriculture crops like Gerberas, Carnation, etc. are grown in greenhouses in India. The open field crops in India are Chrysanthemum, Roses, Gaillardia, Lily Marygold, Aster, Tuberose, etc.

The sustainable trends and practices followed by the organized and semi-organized domestic floriculture industry in the southern part of India are not reported in the literature. Therefore, the objective of this paper is to study the sustainable trends and practices in the designing, marketing, and disposal of floral waste in the cut flower industry of the southern part of India.

The methodology used for the study is ethnographic in nature and the instrument used was trend analysis through observations, case studies, and interviews. The main floral markets of Bengaluru were studied along with interviews with a few experts in the organized and semi-organized sectors and government bodies of the floriculture industry.

The data collected was analyzed through systems mapping technique. It was observed that the floriculture industry sources local to be more sustainable, but there is a lack of organized channels for upcycling of dry flowers or recycling of floral waste. Additionally, the floral industry is trying to focus on sustainable design and packaging techniques, but there is no systematic way to segregate materials like wires, sponges, and adhesive tapes leading to environmental pollution.

Future Of Print Publication

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As digitization has become prevalent, people are now less used to maintaining mental focus when reading. There are superficial reading patterns, which such electronic documents are linked to. There are more such trends associated with print media as well as its recent counterpart which this paper is going to talk about. Where exactly does the future lie in terms of the design of print media and digital media?

With the help of case studies and surveys I will also garner public opinion which can help predict future trends and habits. Environmental impact of print and other variables such as reading habits and how generation of prioritization of immediate information is on the rise. Research has shown that reading is an embodied process which involves haptic and tactile perception of the reading medium. The design of digital media and print and how it affects our psyche shall be an important discussion in this paper through which we will also embark onto understanding sustainable practices associated with it. As print media such as fictional novels and books that are meant for artistic expression may hold importance in another aspect other than environmental conservation. Through this paper we can look for ways to render both these aspects possible. As digital alternatives have become a part of our everyday life, it's important to situate the social sustainability of print media. Media platforms and its sustainability is mostly restricted to energy consumption, waste and pollution and the focus on the promotion of digital spaces such as paperless offices or virtual libraries. These questions can be addressed by analysing the materiality of new and old means of communication.

Practice To Profession: A Scope For Transitioning The Bharoon Embroidery

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Bharoon, an indigenous embroidered craft, is practiced by the Labhana tribe of Shantapur, a rural village in Telangana, India. Bharoon, - meaning 'to fill' is a domestic craft practiced by these women. This bold and colorful embroidery is used on clothing as ornamentation for significant occasions by these women. The craft remained a secluded tradition, with limited application and opportunities. This paper delves into the scope of its transition into an embroidered textile. It attempts to highlight the colourful intricacies of this craft leveraging towards a textile craft with an orientation to empower its practitioners. With the focus on incorporating into apparel, this experimentative study is undertaken as a design project to explore the craft's design attributes to market requirements. Commercializing the craft is a means to uplift the community and enhance its economic prospects by providing the women artisans an opportunity to earn an income by utilizing their skills. Like many other Indian crafts that have stemmed from cultural practices and settled as textile traditions, Bharoon has the potential to follow suit. Fashion and culture are closely related and lean on each other to create sustainable trends that are rich, diverse, and unique. This study thus focuses on design intervention to showcase Bharoon as a cultural craft paving its way from a domestic practice to a profession.

Adaptation Of Aipan Art For Development Of Design Suitable For Silk Stoles

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Each state of India has its own custom inheritance of traditional folk art and craft. India is a land of diverse religions, variant art flourish here, one of them is Aipan. In kumaon, the remote Himalayan regions is rich in art of floor decoration which is locally called "Aipan". Aipan is also known as "Aepan" or "Alpana". Mostly all types of Aipan are drawn either for ritualistic use or for ceremonial and festive occasions and these are basically dedicated to God. It is patronize by the women and master craftsman for ceremonies and special occasions. Aipan is made with fingers, so usually uses Likhai (writing) term for this. The beautiful contrast designs are emphasizing by this original white on deep red. Information was collected from primary and secondary sources of Ludhiana and Uttarakhand regarding traditional Aipan motifs and their adaptation for screen printing. Twenty four traditional motifs were shortlisted from the 38 traditional Aipan motifs and modified by using the designing software Corel Draw X7. Twenty four design arrangements were prepared from selected adapted motifs in red and white colours. These repeats and arrangements were further applied to create in three different colour schemes i.e. monochromatic, complementary and analogues. The adapted motifs were evaluated, different arrangements were done and finally eight design arrangements were selected and used in combination to print silk stoles. These modified motifs were accepted well among consumers. The developed designs were found suitable for the creation of silk stoles using screen printing. This study is designed to depict the unique linear art of kumaon according to sole intention of people mind. It is designed in such way so that people should learn, understand and appropriately develop this vanishing creative activity through its practical application and contribute in preserving cultural legacy of kumaon region of Uttarakhand.

Ergonomic workplace assessment for pre-sewing and post-sewing operations

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Apparel manufacturing is a labor-intensive sector and one of the largest sources of employment generation in several underdeveloped and developing countries. With the relatively lesser level of automation, apparel manufacturing is still heavily dependent on human skills. A safe working environment always plays a critical role, and it becomes even more important in labor-intensive sectors such as apparel manufacturing. Traditionally, the sewing process (where the garment is produced) is considered the prime process in apparel manufacturing, however, there are several activities conducted pre and post the sewing process. There have been several studies conducted on the ergonomic assessment of the sewing process, but pre-sewing and post-sewing processes have not been given due attention.

This research aims to understand the work environment-related issues in twelve different operations of the pre-sewing and post-sewing processes. The ergonomic workplace assessment was carried out on the shop floor by capturing data on more than 120 parameters related to five major categories including the human-machine interface, work-station layout, work posture, tools used while working, and work environment. The work assessment was done by capturing data, images, and videos using different applications. The data captured was compared against the benchmark standards for the respective parameters. The ergonomic work assessment carried out in this research revealed some interesting insights about the working conditions in relatively less explored areas of pre-sewing and post-sewing in apparel manufacturing.

Sustainable Extraction And Dyeing Of Eri Silk Using Lac (Kerria Lacca) And Sohkhua Leaves From Meghalaya

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Meghalaya is a hilly state of North East India, also known as the Abode of Clouds. The state is famous for its age-old tradition of Eri silk production and follows sustainable practices. Umden-Diwon the Eri silk village in Meghalaya has unique traditional methods of natural dyeing. The ingredients are derived from plants, insects and minerals, which are locally sourced and preferably uses fresh ingredients. The present study was conducted to explore the colouring potential of Kerria lacca species of Lac and Sohkhua leaves (*Baccuarea Ramiflora*) found in Meghalaya region. The Sohkhua leaves is a natural mordant used to fix the natural colour by pre-mordanting and simultaneous mordanting techniques. The variety of naturally dyed Eri-silk textiles in various colours were traditionally worn by the Khasi and Jaintia tribe of Meghalaya. Now a days, the natural dyes ingredients are not easily found in abundance due to many factors and since chemical dyes are readily available which become a threat to the traditional dyeing methods. Hence, it becomes imperative to document and study the dyeing technique for preserving the traditional practices of the people in the region. This paper aims at studying the raw materials and process involved in natural dyeing of eri silk at Umden-Diwon village, Ri-Bhoi District, Meghalaya. The observation and in-depth interview approach was adopted for primary research. The artisans were purposively selected using snowball sampling technique. The results revealed that many vibrant shades of natural colours are achieved by using fresh natural ingredients such as Lac, turmeric and iron-ore with Sohkhua leaves. It will also highlight challenges and suggested strategic approach for preservation of this natural eri silk dyeing tradition of Meghalaya region.

Mitigating Prototyping Skills And Sustainable Use Of Physical Workshop Through The Concept Of VR Assisted Workshop

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In an era of digitalization, designers frequently find themselves struggling to keep up with emerging technologies and the physical prototyping world. Accessibility to both resources and technology isn't always guaranteed for everyone, and getting a firsthand experience of varied physical tools for prototyping in a constrained environments is a challenge.

In what one might describe as the „product design“ sector within the fashion industry, frequently one encounters the need to bridge the gap between having access to high-level industrial design workshops and acquiring software skills. Nevertheless, it has been observed that the availability of resources may not always be within the control of any establishment, resulting in the unfortunate possibility of one's experiencing inconsistent learning compared to their peers with more advance facilities. In light of this, the concept of Workshop 360° has been endeavoured to amalgamate these challenges. It aims at addressing the physical, technical, and virtual requirements by engaging the realtime experience of physical workshop through the concept of VR technology.

“Workshop 360°” represents a fully immersive manual workshop experience, projected through a VR headset. It not only provides a visual encounter but also enables users to physically perceive the environment using a glove set. This innovative product creates a virtual fabrication space, allowing users to sense the weights, dimensions, and textures of their chosen materials. Furthermore, it offers various training levels, enabling users to develop their material handling skills from the ground up. Since Workshop 360° operates within a virtual environment, it also has the capability to save designs as 3D files, simplifying the CAD modeling and assessment process. It ensures that the 3D models align precisely with one's vision, thereby reducing material wastage during the actual manufacturing process.

The Resurgence Of Sustainable And Handmade Home Decor: A Shift Towards Eco-Conscious Living

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The contemporary world is experiencing a notable rise in environmental awareness, accompanied by a growing commitment to adopting sustainable lifestyles. This shift in consciousness has, in turn, sparked a remarkable surge in the demand for sustainable home decor products. Consumers are increasingly seeking environmentally responsible and ethically produced items to adorn their living spaces, reflecting a collective desire to harmonize aesthetics with ecological values.

At the same time, the conscious awareness and creative drive of individuals have sparked a resurgence in the appreciation and crafting of handmade products, establishing a lasting bond with their elegance and craftsmanship. This revival aligns seamlessly with the increasing demand for sustainable home decor, highlighting the interconnectedness of these trends.

Handmade home decor products represent a timeless and cherished tradition in the world of interior design. These products are crafted from environmental friendly materials, often sourced from recycled or upcycled origins, and manufactured using eco-conscious processes. This article provides an overview of the burgeoning trend in sustainable home decor products and underscores their profound significance in contemporary society.

The shift towards sustainability in home decor products is a multifaceted phenomenon driven by a combination of environmental, ethical, economic, and social factors. It reflects a broader cultural shift toward responsible and mindful consumerism. Together, these factors emphasize the profound transformation in consumer preferences and purchasing behaviors towards more sustainable and responsible choices in the realm of home decor.

This transformation is not just a passing trend. It signifies a deeper societal change towards environmentally responsible and ethically conscious living. The growing awareness of our environmental impact, cou-

pled with a desire to harmonize aesthetics with ecological values, has driven consumers to seek out sustainable and handcrafted alternatives. This collective commitment to responsible consumerism highlights the profound significance of sustainable home decor products in shaping contemporary homes and values

Exploring The Clothing Disposition Practices Of Young Adults In India – Using Qualitative Focus Group Discussions

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Individuals decision to dispose clothes can have an important impact on the environment as that affects the clothing lifespan as well as results in recycle or reuse of the same. The lifespan of a clothing corresponding to disposal depends upon how long the consumer wore the garment in every day basis (Zhang et al., 2020). Laitala, (2014) highlights when a product has finished its potential life due to any reason in a consumer's home, then the attitude through which it ought the consumer to do so is defined as Disposition behaviour. Jacoby et al., (1977) suggests three ways through which the consumers dispose of the products: throwing it away, saving it or temporarily getting rid of it. In India, 3944 kilo tons of textile waste is disposed every year.(Sattva Consulting & Fashion for Good, 2022), out of which about 90% of the waste is dumped (Kumar et al., 2017). However, there are very few researches which have highlighted the disposition of clothes in developing nations, particularly in India (Rotmi, Topple & Hopkins, 2021). In this backdrop, the study aims to understand disposition behaviour of clothing by youngsters in India. The chosen method for this study was Focus Group Discussion (FGDs). 6 FGDs involving 37 respondents between the age group of 18-35 years was the sample for the study. Using the premises of theory of planned behaviour, the data was recorded and analysed. The data collected was transcribed and themes were generated to develop a conceptual model to represent the disposition behaviour of youth in India. The study conducted has important and novel policy implications for the policy makers and and practical implications both for the consumers as well as the industries which are involved in this sector.

Elevating Bhujodi Handloom Tradition Through AI-Enhanced Sustainable Luxury Shopping

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Bhujodi is a village in the Kutch region of Gujarat state of India. Chatterjee, A. (2023) It has long identified for its exquisite handwoven textiles. Generations over generations, weavers have dedicated their manpower and crafting skills to perfect the art of handloom, to create textiles deeply rooted in tradition, culture, and craftsmanship. Hegde, M. (2019) traditional handlooms in general, for multiple reasons were unable to position itself as a luxurious textile experience, despite having unique characteristics and opportunities.

This research explores the factors such as Preserving Heritage, Craftsmanship, Empowerment factors for Artisans, Awareness about sustainable Luxury, global recognition, and international collaborations to check the potential for positioning Bhujodi as a Luxury handloom textile experience. Hazarika, B., & Goswami, K. (2018) empirical research design aims to investigate the potential for positioning and for Bhujodi handloom, a luxury textile experience focusing on key factors can be discussed. Non parametric Sampling method is adopted to collect desired sample size from weavers, artisans, designers, and consumers associated with the handloom. A quantitative data analysis using statistical techniques will be employed to extract meaningful correlations and measures of dispersion patterns among the identified factors to related to luxury positioning.

Research also checks the potential of AI chatbots, as means to provide a hassle-free luxury shopping experience for the costumers of bhujodi textiles. Pereira, A. M., (2022) these virtual assistants could help to save time and cater to all needs and demand if trained properly. Shafi, P. M., et al., (2020) if the Artificial intelligence chatbot has advanced natural language understanding (NLU) capabilities, it could help the chatbot interpret and solve complex and precise queries and questions.

The research is significant for a comprehensive understanding of Bhujodi

handloom's potential as a luxury textile experience. It will offer insights into preserving cultural heritage, enhancing craftsmanship, empowering artisans, promoting sustainable luxury, gaining global recognition, and fostering international collaborations, contributing to the sustainable growth of this traditional craft.

Designing Mobile-Based Application For Food Delivery In Train

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The Indian Railways system serves a vast number of travellers daily. However, the existing food services provided on trains often fall short of what passengers expect regarding quality, variety, and convenience. In this study, a mobile-based application, TrainDine, was developed to revolutionize the food ordering experience for passengers traveling on Indian Railways. The application addresses travellers' challenges in accessing quality food during train journeys. By utilizing technology and collaboration with restaurants, TrainDine offers an easy and efficient solution for passengers to order and have their desired meals delivered directly to their train seats. TrainDine seeks to connect this gap by providing a user-friendly platform that connects passengers with a wide selection of restaurants across different cities and allows them to place orders seamlessly. The proposed app has significant practical implications for the railway and food service industries. It has the potential to enhance the availability and quality of food choices for train passengers, presenting attractive business prospects for restaurants and food delivery providers in the process.

Threads Of Tradition- Unravelling The Silk Weaving Communities Of Tripura

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This research is an attempt to present a kaleidoscopic view of the diverse communities of silk weavers, from Tripura, one of the seven sisters of In-dia, often referred to as the 'paradise unexplored', which harbours the distinguished traditional handloom weaving craft, majorly performed by women using a home-spun thread and a loin loom. The handloom sector of Tripura plays a vital role in shaping of the lifestyles, attires, and economy of the state, as it provides a secondary means of employment and income to the weaving communities, along with promoting the tour-ism and creative economy of the State. A total of nineteen tribal groups or communities – Riang, Jamatia, Tripuri, Chakma, Mogh, to name a few, are engaged in the process of weaving, although each community features personalised products and weaving styles. Moreover, the tech-niques and materials used in the entire process are age-old, eco-friend-ly and sustainable. This paper especially focuses on understanding the existing contrasts within their lifestyles, approaches to weaving and fu-ture aspirations.

Up to nineteenth century, every family had a handloom irrespective of caste or community and the craft of weaving was passed down through the generations as an intangible heritage. However, the craft is going through a huge decline and almost vulnerable to extinction due to sev-eral factors that are highlighted in the paper, which provide valuable in-sights to issues, fragility and vulnerability of each community that needs to be meticulously evaluated, and specific interventions customised f or the identified communities and households. The documentation is done based on cognitive mapping, on-site interaction and participatory stud-ies, and narrative enquiry. The outcome of this study shall be a broad road-map for celebration, rejuvenation and dissemination of the unique silk weaving crafts of Tripura, showcasing the indicators for furtherdis-course concentrating on specific cluster/ community/ ho usehold, and focussing towards a common goal of promoting this creative-cultural industry.

From Stone To Craft: Understanding The Ideation Process Of Soft Stone Jali Work Artisans Of Varanasi In Creating Product Design

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Over the ages, the jali craft work on the soft stone in the Varanasi city of Uttar Pradesh has come to be recognised as one of the rich traditions in the domain of stone craft with this wisdom being transferred from one generation to another. The soft stone jali work of Varanasi has created its own unique identity not just in the domestic circuit but in the global markets too. While, earlier, this craft was used mostly on temples, sculptures of gods and goddesses and some other architectural structures; today, it has also evolved to cater to the utility and decor needs of the market. Consequently, the artisans have started creating utility products using the jali craft like – pen-stands, paper weights, coasters, tiles, lampstands, trays, bowls, boxes, tabletops etc.

This paper attempts to study the ideation processes going into the determination of the designs of the products created using the craft. It aims to capture the strategies applied in understanding the design needs of the market in creating the products and the factors that artisans consider before finalising the designs of their crafts.

Methodologically, the paper builds on qualitative approach deploying in-depth interviews and focus group discussions (FGDs) for data collection with the soft stone jali work artisans of Varanasi. The data collected through these methods would be transcribed and analysed using qualitative data analysis techniques. In terms of contribution, the findings of the paper would underline the recent trends and innovations in the craft from design perspective which may be seen as a humble addition to the existing knowledge.

A Study Of Ready-Made Object Practices In Installation Art Entwined With Fashion: With Special Reference To The Work Of Vivan Sundaram

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In the 20th century onwards the concept of ready-made object is an everyday thing that has been selected by the artist and shown as a work of art in the context of Installation art. The ready-made items evolved into the practice of using eco-friendly materials and production techniques in artistic products is known as sustainability in art. This entails using sustainable or repurposed materials, cutting back on waste, and minimizing the environmental impact of the artwork. The development of immersive and interactive environments or displays inside of a predetermined site is a requirement of the contemporary art form known as installation art. According to this perspective on installation art, viewers frequently interact with artwork in a participatory and experiential way. Installation art can use a variety of media, is more immersive and participatory, and aims to challenge conventional ideas of what constitutes art. In other words, the tools utilized can range from more conventional ones like performance or conceptual installations to more unconventional ones like traditional media, like paint or sculpture. This paper has analysed the iconic installation art work called 'Gagawaka' of Vivan Sundaram. 'Gagawaka' the word related with pop star Lady Gaga and Shakira. This paper discusses the installation art piece is related to Marcel Duchamp's idea of the ready-made and also combines new aesthetic expressions with fashion and how it is linked with fashionable popstars. Originality, inventiveness, and self-expression are highly valued in both the fields of fashion and installation art. Vivan Sundaram's 'Gagawaka' installation art are frequently used as backdrops or exhibits for designs in runway shows by fashion designers. As a way to explore identity, culture, and societal standards, installation artists frequently incorporate clothing or fashion into their works. As a result, two creative media that push the frontiers of art and fashion come together to create a dynamic and frequently thought-provoking whole.

Development Of A Kiosk-Based Metro Signage

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Metro stations usually have multiple entry-exit gates, platforms, and routes. Finding routes in large and busy metro stations is difficult and could waste time. Traditional signage at metro stations often falls short of providing specific information on routes that the passenger is looking for. Hence, the current traditional signage at the metro stations lacks interactivity. This revolves around improving the user experience associated with wayfinding in metro stations. The survey was conducted among passengers to understand the users' perceptions and gain insights about their needs. Based on the findings, an interactive metro signage prototype was proposed, considering accessibility and navigation aspects. The proposed system is expected to make it easy for passengers to navigate easily and effectively in metro stations.

Instrumental Role Of Sustainable Natural Fibres In Sustainable Future

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The advancement in lifestyles of the people has put the world in an alarming situation where the world fighting with its own inventions and technologies. The fashion and textile industry has undoubtedly contributed to the economic development of the world but yet ought to play a game-changing role in sustainable development.

However, the higher use of man-made textiles and chemicals has also led to many health issues, especially skin-related problems. Also, some have been classified as human carcinogens by the International Agency for Research on Cancer (IARC). Moreover, prolonged exposure to formaldehyde can lead to a range of health problems, including eye, nose, and throat irritation, coughing, headache, and skin irritation. Natural fibres due to their lower carbon footprint and instrumental role in designing sustainable textiles have been a trending demand now. There are many natural fibres being produced but the question arises of how some are more sustainable than the other fibres. Hence in this paper, properties of various plant-based fibres like kala cotton, banana fibre, pineapple fibre, snake plant fibre, lotus fibre, hemp, nettle, ramie, abaca, orange fibre etc have been discussed and their impact on reducing the carbon footprint of designed textile.

Diferent brands using natural fibres such as 11.11, Rashmi Varma, Anav-ilaMisra, Earthpiece, Aslee, Sui, Hemploom, Kai Atleir, Pangaia etc. are discussed with respect to their design approach. Moreover, how diferent research driver companies are contributing to the development of more sustainable fibre processing technologies and their potential usage in various sectors of the textile and apparel industry have been elucidated. This paper would serve as a source of valid information to various stakeholders of the sustainable fashion industry be it consumers, manufacturers or designers and pave the way for a more sustainable future.

Puggal Embroidery: Crafting Identity For Community Sustenance And Cultural Expansion

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Identity shift has been noticed as a global phenomenon whenever the migrations have happened from one region to another across the borders. It poses a threat to the identity of the migrant communities, loss of cultural traditions and practices including craft making. However, craft making can be used as a tool for both migrating and receiving communities. After partition of India and Pakistan in 1947 the migrating communities have suffered loss of their land, people and community identity. There were various communities such as Non-Muslim Sindhi, Rajputs, Meghwal, Suthars, Charans etc. who have migrated and settled in India since partition. One of such community was Meghwal (Hindu) Community whose migration was recorded in the year 1971 to the Puggal, Bikaner and nearby region of Rajasthan, India. The cultural sustainability and preservation of the material culture of the communities became one of the concern in this stressful shifting paradigm. In such a situation communities have always tried continuing their craft practices to stay rooted to their culture. This paper aims to investigate and delineate the role of sustainable embroidery craft practices adopted to reiterate the cultural identity of the Meghwal community women migrants. The ethnographic study involves inductive approach by using observational and in-depth interview as a tool for primary data collection. The artisans were purposively selected using snowball sampling technique to understand the Meghwal community's embroidery practices, its motifs and cultural significance. This is to ensure the social cohesion, sustainable consumption and production patterns adopted by the migrant origin community thus helping them to remain connected with their roots. The result revealed that earlier this craft was localized but migration of community has led to expansion of this craft practice, economic growth of the women artisans and scope for design intervention. Hence embroidery craft practice can be used as a tool for creating an ecosystem that fosters a sense of community by promoting sustainable development and improving the quality of life in the local communities.

Smart Technology (AI) Shaping Future

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Given the long history of the fashion industry being linked to ethical dilemmas and environmental deterioration, it faces a compelling need for sustainability. Our lives have gotten simpler, more productive, and more interconnected as a result of technological advancements. Technology has brought about many good improvements that have altered the way we connect and the environment, from cell phones to virtual reality to artificial intelligence. Smart technology has both physical and logical applications. Such technology has the potential to adapt its behavior to better suit the environment. Many designers and brands must embrace the latest technologies to push the limits of manufacturing, production, marketing, and wearability as customers' real lives become increasingly intertwined with the digital world.

The revolutionary potential of artificial intelligence (AI) to advance sustainability in the fashion industry is examined in this research study. The industry can forge a sustainable future by utilizing AI-driven breakthroughs, from supply chain optimization to eco-conscious design. These technologies highlight how AI is the bastion of future developments in the fashion industry, shaping everything from trend forecasting to how consumers may actually see and buy products. The Problem statement of the research is how AI systems analyze data from a variety of sources, decreasing waste, cutting energy use, and improves cost-effectiveness and market responsiveness. Based on criteria including durability, biodegradability, and a smaller carbon footprint, AI can evaluate materials and make recommendations for eco-friendly ones. Additionally, by maximizing material utilization and minimizing fabric waste, generative design powered by AI promotes creative, sustainable fashion designs. The dataset is collected from customers and store managers to study the impact of AI in fashion.

The aim of the paper is to discuss how Smart technology (AI) is shaping the future to understand the needs of the customer and improve their shopping experience to reduce their carbon footprint.

Enhancing Efficiency With Pick And Place Robotic Arm In The Garment

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Purpose: The garment industry is a dynamic and multifaceted sector of the global economy that encompasses the design, manufacturing, distribution, and marketing of apparel and textiles. The manufacturing process encompasses crucial stages such as pattern making, cutting, sewing, quality control, and packaging, all of which require a delicate balance of precision and efficiency. This research paper presents a comprehensive study on the development and implementation of pick and place robotic arm systems. As the manufacturing industry is continuously striving for higher productivity and improved working conditions, the proposed robotic arm system aims to address these challenges by automating the material handling process while considering the ergonomic well-being of the operators.

Design/methodology/Approach: The methodology encompasses simulation-based experimentation with quantifiable metrics used to assess the system's performance in terms of SAM reduction. In order to evaluate the ergonomics of the operators in the garment industry, a structured questionnaire is used.

Originality/Value: This study investigates the impact of robotic automation on worker ergonomics and well-being and it assesses how the introduction of robotic arms can alleviate physically demanding and repetitive tasks.

Review On Human Fatigue Measurement Methods In Apparel Manufacturing

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When compared to other industries, the manufacturing of clothing is far less mechanized and more dependent on human talents, where employees must put in longer shifts. The majority of sewing-related tasks are repetitive and boring as well. When a task is carried out for a prolonged period of time at a certain pace, it becomes difficult and wearisome for the workers. Such work procedures result in the reasonable consideration of various allowances (including personal, fatigue, delay, and other allowances) in an operation time for the workers' efficient operation. The productivity, efficiency, expense of the work, and ultimately the payment of wages to the workers are all impacted by these work allowances because they make up large percentages of the work content.

In the apparel industry, determining fatigue levels is crucial. Allowances for basic fatigue are usually a constant supplied to account for the energy expended while performing the work & to relieve boredom, especially when operators perform the repetitive task continuously. According to the ILO, light work that is performed in good working circumstances with normal use of the hands, legs, and senses requires 4 percent of a worker's basic time. When working conditions change, such as with poor environmental conditions, more stress and strain, etc., variable allowances are added to fixed allowances.

Human fatigue is measured using a number of techniques, including conventional techniques and cutting-edge approaches based on sensors and wearable technologies. In the upcoming years, wearable technology for measuring human fatigue is projected to make more strides. The integration of AI for real-time tiredness prediction, increased sensor accuracy, and the creation of fatigue management treatments based on wearable data are possible future advances. In-depth analysis of current methods for measuring human fatigue in the manufacturing industry is the main goal of this paper. This review paper also makes suggestions for potential human fatigue measurement techniques that could be used in the production of clothing.

Assessing The Efficacy Of Common Facility Centers In Sustainable Craft Cluster Development: A Longitudinal Case Study Of The Stringed Musical Instruments Cluster, Miraj

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The paper investigates sustainable models through the agency of common facility centers developed for craft clusters. Sustainability is defined as the intersection between social, economic and environmental parameters and as such all three parameters are critical for craft development. Common Facility Centers have been designed to support craft clusters for common requirements. However, their overall effectiveness and shortcomings remain debatable. Anchored in the theme of 'Sustainable Design Practices,' and the 'Co-Design and Design for Community,' this research aims to evaluate the cluster's CFC through the lens of community-centric sustainable design.

The research method used to inquire into this query is an in-depth longitudinal case study of effectiveness of Common Facility Centers (CFCs) in bolstering sustainable craft cluster development, focusing on the Stringed Musical Instruments Cluster (SMIC) in Miraj, India. Developed to offer affordable access to advanced machinery, CFCs primarily aim to enhance sustainability by amalgamating social, economic, and environmental facets. Yet, questions persist regarding their performance, limitations, and potential setbacks.

The study employs a triangulated approach incorporating interviews, observations, and document reviews. Key findings aim to demonstrate that although CFCs positively impact cost-efficiency and ecological conservation, they are marred by issues of limited community engagement, multi-layered red tape, and suboptimal localization of resources and skills. The paper posits that the concept of co-design could mitigate some of these issues by enhancing community participation and fostering localized sustainable solution.

In conclusion, while CFCs exhibit substantial potential as catalysts for sus-

tainable craft development, their full efficacy is predicated on adopting a more nuanced, community-oriented approach. The study culminates in a set of pragmatic guidelines aimed at optimizing the CFC model for craft clusters. These recommendations are poised to serve as invaluable frameworks for stakeholders engaged in the planning and execution of CFCs to attain a socio-business balance.

History-Based Travel App

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India is a country with rich cultural significance and historical heritage. It presents an ideal backdrop for history enthusiasts and travelers. However, planning such journeys, accessing historical information, and creating immersive experiences can be challenging. Traditional guidebooks often fall short in providing up-to-date information and immersive experiences, hindering the ability of tourists to fully appreciate India's history. This research addresses the need for an app that seamlessly bridges the gap between design, history, and technology. The primary aim of the research is to develop, design, and conduct an in-depth survey and evaluate a history-based travel app that seamlessly blends historical narratives, geolocation technology, augmented reality, and user-generated content using AI to enrich travelers' experiences while exploring India's historical sites. The app aims to provide personalized trip planning and serves as a platform for documenting and sharing their journeys. The app is expected to provide historical content, a planning journal where they can keep a record of photos, videos, or audio, AI-generated suggestions for places based on location, and augmented reality features to provide real-time experiences, additional features can be added based on more extensive research, for example, the incorporation of already existing travel guides to provide them an interconnected social platform. This research seeks to provide a holistic solution that engages users in a deeper understanding of India's diverse history. This paper encompasses historical research, content curation, design solutions, and usability testing. Primary historical data is sourced from archives, academic texts, blogs, and cultural institutions. The paper delves into the potential impact of the app on historical tourism in India. The development of a history-based travel app for India represents a significant step towards democratizing historical exploration and fostering a deeper appreciation of cultural heritage through technology.

Exploring Sustainable Practices Of Assam Handloom Through Design

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Handlooms, which used to be a traditional source of livelihood and a rich depiction of one's cultural and natural heritage, has today become bespoke. It is rampantly being adopted by mega luxury ateliers, entering the couture scene as an ethical and responsible fashion choice as customers become more informed and divisive in their purchases. Sustainability focus in fashion is on four factors, i.e., "environmental protection, social justice, economic fairness and cultural validity" as noted by Parker (2011). Awareness of environmental impact of fashion, in both production and consumption, has increased (Niinimäki, 2010). Indian Textile and handloom is highly fragmented and offers large employment of skilled and unskilled labour (Kopper, et.al., 2023). However, availability of cheap and low-quality clothing, loss of skilled workers and diminishing knowledge of practices of handloom are threatens the very authenticity and in turn, the above mentioned sustainability factors of this industry. And while large power looms and knitting machines have been installed, the value and quality of hand woven fabrics is unbeatable and is recognised by the customers (Pradhan and Khandual, 2020). Through this paper (oral/poster presentation), traditional handloom practices of Assam whilst designing for a younger customer base is empirically explored through hands-on design. The design exercises revealed potential for sustainability improvements to the current practices, particularly from an affordability and user-centric perspective, as well as ethical implications of such interventions. The findings inform the development of new and innovative products that can contribute to sustainable development.

Design Of Smart Accessories Towards Inclusive Fashion

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The fashion industry is constantly evolving beyond the conventional purposes of protection and expression and smart products and wearables are a growing trend (Lee, 2020). Initially designed to do various tech-intense activities like tracking health data, provide notifications, and controlling other connected devices and appliances, there are various other wearables, beyond the fitness tracker and smartwatch, that are presently being developed due to a growing market. Blazquez, et al. (2020) have reported through empirical findings that “perceived hedonism and usefulness are the most important factors that motivate adoption intentions, followed by subjective norm and perceived conspicuousness, indicating that luxury smartwatches are perceived as both a technological device and luxury fashion accessory”. However, presently user survey reveals that ‘smart watches’ do not reflect one’s personal style and in spite of efforts to spruce up the design through changeable straps and covers, the device continues to remain a misfit with traditional or couture attires. This implies that there is a profound need and possibility to explore other accessories, such as jewellery, bags, shoes, scarfs and ties, hats, belts, etc. to improve the user experience. User-centered design approach, Technology adoption model 2 (Venkatesh and Davis, 2000), and luxury perception models (Wiedmann et al., 2007) underpin the design process to ensure that the smart accessories must primarily addresses the user needs of ‘expression’ and ‘usefulness’. Through this paper (oral/poster presentation), the potential to expand on the smart product line is explored through the user-centred design perspective whilst acknowledging the difficulty of integrating technology into daily change-able fashion accessories, without compromising their style.

Small Scale Business Operational Improvement In Indian Carpet Market: Supply Chain Sustainability Constraints

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It is very important to find out the core dependency index of Supply chain sustainability also build a long term supply network are very important for Indian carpet industries in the present scenario. These small scale industries are very much prone to business loses due to stone-aged supply chain comprehensibility or operational methodology. In these current studies, we had chosen one of such small scale business sector in Panipat, Haryana in India. as our sample and we have investigated the business model and also examine the lacking factors affecting the supply chain management of this carpet sector over the years.

The Designer'S Role In Facilitating Sustainable Solutions In The Craft Sector - A Study On The Raghurajpur Craft

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With the onset of Industrial Revolution, Indian hand made goods faced 30% import duty while cheaper mill made goods from England had no import duties to pay in India that led to India's economic decline. Many crafts swam against the tide but the crafts of Raghurajpur kept its heritage intact. Raghurajpur is known for its sustainable process of making the craft.

In spite of being rich in its craft, Raghurajpur is suffering from the current crisis of unsustainable livelihood. (INTACH Report). Design is essential to all human activity and designers have the potential to act as trans-disciplinary integrators and facilitators.

Objective: The goal of this paper is to study the sustainability pattern of the Raghurajpur craft and to understand the role of the designer to facilitate the survival of the craft through design approach that will bring back the lost viability. This paper will help us to think about design in the context of an urgent need for sustainable solutions in the face of uncertainty and rapid change.

Methodology: A pilot study was done to understand the current state of Raghurajpur crafts. 20 artisans were interviewed with probing and narrative analysis in order to draw larger meaning of narratives. Transcripts of the interviews have given an in-depth understanding of the life of the artisans, their tools, techniques, markets, consumers etc. A special focus is given on their design methodology and design tools used. After this, a design flow chart is formed. This new sustainable design framework is the final output of the research.

Findings: This new sustainable design framework for Raghurajpur cluster may be emulated to revive the dying crafts.

Relevance: This study explores sustainable design framework to reinvent the craft through fashion. The findings gained from this study serve as a valuable reference for local craft development and design practice.

To Understand And Analyze The Gap Between The Industry And Consumer Behavior Towards Sustainable Garments

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In today's business context, sustainability has emerged as a fundamental need and critical subject in today's consumer market, impacting brand preferences and buying decisions. The clarification and knowledge about sustainability among consumers act as a stumbling block among brands to give them an understanding of the market.

By emphasizing the concept of inventive goods, circular economies push the frontiers of environmental sustainability, establishing a feasible link between ecosystems and economic growth. UNICEF has defined 17 goals for sustainability and everyone is working on one or other goals in order to have a better lifestyle. For this research responsible consumption and production, industry innovation and infrastructure have been considered, where industries are working on supply chain management.

Although the TAM (Total addressable market) of sustainability is growing on a large scale because of its future benefits, this market is still struggling and is facing penetration issues and the rate of conversion of consumers toward sustainability is very A research Methodology has been planned to study the Current Market and Consumer behavior toward sustainability through qualitative and quantitative data collected through primary and secondary research methods of a particular region (DELHI) of India. Experimentation towards contributing to a circular economy and seeing the potential in the industry towards sustainable lifestyle economically, environmentally, and on human lives has been planned. The observation from the data will directly impact the outcome by helping in the growth according to user-centric aspects of thinking towards the products. The brands will be able to keep track of green manufacturing and green retailing keeping the consumer needs for the growth of a brand sustainably and production chain.

Sustainability, Corporate Reputation And Employee Commitment In Fashion Retail Industry

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In recent years, sustainability has become a paramount focus, with extensive research exploring its implications from both production and consumer perspectives.

Traditionally corporate social responsibility been a key component, the focus has broadened to encompass holistic sustainability approach that includes environmental, social, and economic dimensions.

Within this transformative context, the fashion retail sector stands as a significant arena of exploration, given its substantial environmental footprint and extensive influence on consumer. While considerable research has been done on the interplay of sustainability, production processes, marketing and consumer choices within the fashion industry, a critical dimension remains less explored: the relationship between sustainability, corporate reputation, and employee commitment.

This study addresses the very notable research gap, seeking to uncover the intricate dynamics that link an organization's sustainability commitments with its reputation among employees and the ensuing effects on employee commitment.

Expertise plays a pivotal role in this endeavour, as experts were engaged to determine the sustainability levels of the two fashion retail organizations under investigation. Their comprehensive evaluations guided the selection of organizations that exemplify varying degrees of sustainability commitment, while offering similar benefits and work environments.

The Indian fashion retail sector, where brands vie for recognition and loyalty in a crowded marketplace, understanding of interplay between sustainability initiatives, corporate reputation, and employee commitment holds immense strategic relevance.

This research embarks on an empirical journey, by accessing employees of the distinct fashion retail organizations independently.

Analysis, conducted using SPSS, reveals interesting results. It demon-

strates that employee commitment is notably higher in organizations with robust sustainability practices. Moreover, employees perceive organizations with a strong sustainability focus to possess a superior reputation. Consequently, research offers enriching insights for both academia and industry practitioners and concludes that organizations committed to sustainability not only benefit from enhanced reputations but also foster higher levels of employee commitment.

for the development of kid's wear collection such as A-line peter pan collared puff sleeved outfit; a hairband; a sling handbag and a pair of booties. The approach towards the sustainability was accomplished with the design and development of the naturally dyed, assembled and hand embellished kids products.

Design And Development Of A Kids' Attire With A Sustainable Approach

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Recently, with the growing demand for non-allergic and sustainable children's textile products, the kids' wear brands are focusing on the development of products which are sustainable and non-allergic to the kid's skin. Keeping in mind, this, research work was conducted with the design and development of kids' wear attire using bamboo fibres dyed with naturally extracted dyes from marigold flowers in the light of bundle dyeing methods. It is a common observation that on certain occasions, the temples and idols are decorated with flowers and garlands. However, these flowers would be discarded and just end up in either garbage or in rivers. Therefore, it is extremely important to utilize the discarded flowers in some best possible manner. Moreover, these flowers could be used for fabric dyeing and could also be converted in to composts, to make agarbattis, candles, etc. In addition, the botanical dyes have less affinity towards the textile fibres, which can be improved by utilizing mordanting agents. Being a natural fibre, the bamboo fibre possess various essential properties namely smooth handle, good moisture absorption, antibacterial properties, biodegradable, and most importantly it offers UV protection which makes them the best suited for use in kid's wear apparels.

In this project, the fabric samples (2x2 plain) were developed on pit handlooms at the Industrial level using 100% bamboo yarns. The prepared fabric samples were dyed with bundle dyeing techniques using discarded and collected marigold flowers. The prepared fabrics were utilized

Design Analysis Of Utilitarian Bag For Students

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Now a days the college students carry lots of books, IPADS, Laptops, stationeries and along with water bottle, mobiles, air pods. Subsequently, students have to carry chart holders, drafting papers, maps, etc. It makes it uncomfortable and tiresome for the students to simultaneously hold these stationaries. In order to overcome these limitations, it is purposed to develop a bag to facilitate all the essentials of a college student. The methodology followed to assess the problem across faced are explorative survey method, questionaries and interviews. Furthermore, brainstorming was done using cause and effect diagram. Sketches were developed to ideate the utilitarian bag followed by flat paper pattern making. Prototype was developed in canvas in order to check the ergonomics, durability, strength and functionality of the bag. The multipurpose bag proved to be the better design solution for the problems faced by the students.

Design Optimization Of 3D Printed Bracelets Using Fused Deposition Modeling

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Additive manufacturing (AM) is process of layer-by-layer addition of material to fabricate complex geometry, multi materials and tailored mass production. It has eliminated the use of dies to fabricate plastic products as done in injection moulding process. Strength to weight ratio is an important factor to be considered to save the material and simultaneously maintain the required mechanical properties to meet the functional requirements. In this paper, various geometrical structures i.e circular, oval, ellipse shaped interlocks of polylactic acid (PLA) material were designed in bulk density of 10% and 15 % of bracelet using computer aided designing. Using finite element analysis, the mechanical properties such as tensile strength and flexural strength were analyzed along with the factor of safety. Various geometric structures were 3 D printed and experimentally analyzed for the mechanical properties. The results show that among the geometrical structure at both bulk densities, ellipse shaped interlocks have significant tensile strength and flexural strength. In future, several combinations of geometrical structures may be explored to identify the required mechanical properties.

A Comparative Study Of Pattern Making Principles Used By Textile-Craft Oriented And Upcycle Brands To Develop Distinct Collection

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Traditionally, pattern cutting has not been viewed as a sound course, but rather as a secondary by-product of the fashion design discipline. In contrast to the Asian culture, pattern cutting is viewed as a profession requiring very little formal schooling. Nevertheless, the addition of creative pattern cutting as a specialisation within tertiary design education is starting to dispel preconceived notions and change the function of pattern cutting as a complement to fashion design (Tan & Chon, 2016). Pattern making research are mostly paired with technical studies, education sector and relation between designer-pattern master. Brands are studied on the basis of entrepreneurship, administrative capabilities of the designer, and sustainability. Several research papers talk about importance of education in pattern making and how education sector is growing by offering special courses and awards for it.

The study refers to utilisation of pattern making principles by the brands – knowingly or unknowingly. In the ever-evolving landscape of sustainable fashion, the realms of textile- craft oriented and upcycle brands have emerged as innovative forces reshaping the industry. This study delves into the pattern-making principles employed by these two distinct segments of the fashion world, with a focus on their strategies for creating unique and environmentally responsible collections. This comparative study explores the core principles of pattern making. The findings of this research not only shed light on the distinct approaches employed by these two segments but also highlight areas of convergence, where traditional craftsmanship meets modern sustainability practices. By understanding the pattern-making principles that drive textile-craft oriented and upcycle brands, fashion designers, educators, and industry stakeholders can gain valuable insights into the development of distinctive and eco-conscious fashion collections. Ultimately, this study contributes to the ongoing dialogue surrounding sustainable fashion, offering a nuanced perspective on the dynamic interplay between tradition and innovation in the pursuit of a more responsible and creative fashion future.

Crystal Pulse: Elevating Crystal Energy With Technology

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The concept of smart jewellery, relevant in contemporary society, represents a significant departure from discussions that transpired three decades ago. This paper acknowledges the existence of early smart wearables, such as quartz watches, which leveraged the remarkable properties of quartz crystals. Quartz, renowned for its potential healing attributes, has earned the moniker of the “universal healer” (Caragh Medlicott). Its unique molecular structure is scientifically acknowledged to emit vibrations. In cultures like India, individuals adorn themselves with Sphatik (Quartz) jewellery, attributing it with various beneficial properties. This research delves into the idea of enhancing and amplifying the inherent vibrations of crystals within smart jewellery to harness their full potential for holistic well-being. The amplification of vibrations and accompanying sound emission aims to augment the healing benefits associated with natural crystals. The proposed methodology can be extended to a variety of crystals, each possessing distinct properties. India, as a subcontinent, has a deep-rooted tradition of wearing religious jewellery believed to have efficacy by its wearers. In this context, the diverse healing properties attributed to naturally occurring stones hold considerable significance. To infuse scientific validity and create a holistic experience, external stimuli in the form of sound and tactile sensations generated by the crystals represent a ground-breaking approach. The working principle of the smart jewellery is elegantly simple, with a piezoelectric transducer converting mechanical vibrations into electrical signals. A microcontroller interprets these signals, subsequently instructing actuators, such as motors and speakers, to convey the final orchestrated experience. This interdisciplinary exploration marries technology, crystal science, and cultural practices, offering a promising avenue for advancing the field of wearable technology while enhancing well-being through the transformative potential of smart jewellery.

A Pervasive Investigation On Techniques For Green Manufacturing In Apparel Industry

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Green manufacturing is a modern manufacturing model considering both environmental impact and resource efficiency under the premise of guarantee the quality, the features and the cost of the product, make the products environmental pollution minimized from the design, manufacture, use to scrap in the whole product life cycle, so that the resource utilization rate is the highest and energy consumption is the lowest. The main objective of the green manufacturing is to save the environment and to reduce the cost of the product. The paper gives the survey of green manufacturing, what is green manufacturing why it is needed and This study focuses on the enduring cultural and sustainable aspects of two revered traditional crafts from India: Nirmal wooden toys and Udayagiri wooden cutlery. These crafts have stood the test of time as both culturally significant artifacts and exemplary models of sustainability. Additionally, the research explores the durability and timeless appeal of Nirmal toys and Udayagiri cutlery, emphasizing how their long-lasting nature reduces the need for frequent replacements and minimizes waste, thus contributing to sustainability.

Furthermore, the study underscores the cultural significance of Nirmal toys and Udayagiri cutlery, emphasizing their crucial roles in fostering communities, facilitating education, and preserving oral traditions.

In this research, both crafts underwent meticulous examination, including documentation of their manufacturing processes and insights into their business models. Another vital aspect addressed in this study is the critical issue of craft conservation. It highlights the importance of supporting artisans and safeguarding their crafts to make them accessible to a broader audience while promoting sustainability. Moreover, the application of the four pillars of sustainability leads to additional recommendations for improvements and offers well-founded comparisons with plastic toys, providing compelling reasons for why these traditional crafts should be favoured. This research also demonstrates their potential to compete effectively within the plastic toy market. Additionally,

suggestions and strategies for enhancing the crafts themselves are included.

The methodology employed in this study involves a comprehensive approach, including literature review, participant observation, interviews, and secondary research. This multifaceted method ensures a thorough examination of the cultural significance and sustainability aspects of Nirmal toys and Udayagiri cutlery, highlighting their potential to thrive in a contemporary, eco-conscious world while preserving India's rich heritage.

methods of green manufacturing that reduces the waste and even pollution. The paper focus on the green design for environment of green manufacturing system, energy conservation, development of product with less wastage. The paper also highlights the use of green manufacturing to form a sustainable product and to reuse the product, shorter life cycle.

A Study On Optimization And Analysis Of Madder And Annatto Natural Dyes

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Textile artisans, including weavers and dyers, have utilised natural resources to create a spectrum of colours. As the scope of organic and natural products increases day by day, the use of natural dyes in textiles is also picking up pace. In this scenario, lots of scientific research is going on to increase the use of natural dyes. Several sources are available that produce a red or orange color, madder (*Rubia cordifolia*) and annatto (*Bixa Orellana*) are widely used to obtain these colors. This paper has attempted to understand and analyse the dyeing behavior of madder and annatto. The dyeing parameters are optimised for three dyeing variables, viz. pH, temperature, and time. Cotton cambric fabric was pre-mordanted using alum, and 17 samples were dyed using exhaust method as per the Box-Behnken sampling method. It was found that madder produces various tints and tones of red at different pH levels and is a highly pH-sensitive dye. The effect of pH is not that much on annatto-dyed fabric samples. The effect of temperatures and time also shows the increase in colour yield. The colorimetric parameters L a b h and colour yield (K/S) values for all the samples were calculated. Madder and annatto dye colour parameters and colour fastness properties were analysed and compared. The findings of the analysis may aid the dyer in selecting the optimal dye to achieve the desired outcomes.

Adoption Of Technology In Fashion Waste Reduction

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It is now clear that human activities, principally through emissions of greenhouse gases, have caused global warming. Climate actions taken so far, in terms of pace and scale are insufficient. (IPCC, 2023). The inter-governmental panel on climate change highlighted that even a 1.5-degree temperature rise will still cause a loss of ecosystems and habitable land, and more than 100 million people will be driven into poverty (Masson-Delmotte et al., 2019). As per the Fashion for Good five-year progress report of July 2022, there is a substantial innovation gap on the road to a climate-positive environment that cannot be addressed by leveraging existing solutions, and in waste reduction. The gap is highest (142mmT waste in 2030. % of gap in 2030 83%).

The circularity gap report 2023, that with a circular economy, people's needs can be met with just 70% of the materials we currently use. AI and digital technologies have considerable potential to reduce waste, time, and cost optimization (Rathore, 2023). The systematic bibliometric analysis of 321 Scopus and 333 Web of Science documents reveals some best practices in cutting, sewing, and end-of-life to eliminate waste. Still, there needs to be empirical studies on adopting artificial intelligence in this space.

Primary research on the barriers to implementing artificial intelligence by micro-small-medium enterprises in India is still lacking. The gap in applying these technologies will be essential to develop interventions to help Indian Apparel MSMEs move forward. The first exploratory step in this quantitative research is to understand if the industry is using these tools and is aware of the impact.

A questionnaire using non-probability sampling produced insights that were revealing. For instance, sustainability measures, tools usage, CEO's agenda, CE Implementation plan, Eco-innovation principles, and Industry 4.0 implementation responses indicate that our industry needs to take drastic and urgent steps.

Assessing The Self-Sustainability Prospects Of Nirmal Wooden Toys And Udayagiri Wooden Cutlery: A Study

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This study focuses on the enduring cultural and sustainable aspects of two revered traditional crafts from India: Nirmal wooden toys and Udayagiri wooden cutlery. These crafts have stood the test of time as both culturally significant artifacts and exemplary models of sustainability. Additionally, the research explores the durability and timeless appeal of Nirmal toys and Udayagiri cutlery, emphasizing how their long-lasting nature reduces the need for frequent replacements and minimizes waste, thus contributing to sustainability.

Furthermore, the study underscores the cultural significance of Nirmal toys and Udayagiri cutlery, emphasizing their crucial roles in fostering communities, facilitating education, and preserving oral traditions.

In this research, both crafts underwent meticulous examination, including documentation of their manufacturing processes and insights into their business models. Another vital aspect addressed in this study is the critical issue of craft conservation. It highlights the importance of supporting artisans and safeguarding their crafts to make them accessible to a broader audience while promoting sustainability. Moreover, the application of the four pillars of sustainability leads to additional recommendations for improvements and offers well-founded comparisons with plastic toys, providing compelling reasons for why these traditional crafts should be favoured. This research also demonstrates their potential to compete effectively within the plastic toy market. Additionally, suggestions and strategies for enhancing the crafts themselves are included.

The methodology employed in this study involves a comprehensive approach, including literature review, participant observation, interviews, and secondary research. This multifaceted method ensures a thorough examination of the cultural significance and sustainability aspects of Nirmal toys and Udayagiri cutlery, highlighting their potential to thrive in a contemporary, eco-conscious world while preserving India's rich heritage.

Social Entrepreneurship: A Reflection On Community-Driven Approach To Bring Societal Change

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This paper explores the concept of social entrepreneurship as a community-driven approach to catalyse societal change in India. Drawing inspiration from the philosophies of John Ruskin, Mahatma Gandhi, and William Drayton, the paper delves into the historical context of India's socioeconomic landscape, highlighting the influence of Gandhi's principles during the independence movement and examining post-independence transformations in the field.

The paper emphasises the relevance and applicability of social entrepreneurship in India, particularly in addressing the nation's unique socioeconomic challenges and empowering marginalised communities. It also explores how India's rich cultural heritage creates possibilities for an integrated and inclusive approach to discovering holistic dimensions of socio-environmental development.

Focusing on the Indian handicraft sector, which faces challenges such as limited access to resources, global design trends, and market access, the paper reviews successful initiatives. These initiatives showcase principles like fostering innovation, co-creation, and local community engagement by social entrepreneurs. These principles can enhance artisans' livelihoods, create market linkages, and contribute to cultural preservation.

Using an auto-ethnography of a social entrepreneurship initiative in India, the paper demonstrates the impact of community-driven approaches. It reflects a co-author's practice in the Himalayan state of Himachal Pradesh, which empowers Indian artisans for sustainable livelihoods. The authors recognise that the challenges lie in bridging traditional craft with contemporary markets and see co-creation with

communities ensures a blend of traditional wisdom and modernity. The initiative envisions clusters' self-sufficiency and decentralising power for true sustainability.

In conclusion, the paper explores the policy environment and the supportive ecosystem necessary to nurture social entrepreneurship within this sector. It underscores the critical importance of social entrepreneurship as a way forward for the Indian handicraft sector.

Social Media Influencers And Content Moderation Promoting Sustainable Fashion

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As a growing number of social media platforms, the use of social media influencers has emerged as a crucial component within the marketing tactics employed by agencies. Advertisers want to capitalise on the extensive following base of influencers, who possess the ability to influence their audience via their trusted recommendations. The use of influencer marketing engenders a significant advantage for marketers due to the establishment of trust. The sustainable fashion business has seen growth due to heightened consumer awareness, leading to the use of social media influencers as a means to influence customer perspectives and purchase patterns. This study used semi-structured interviews to examine the utilisation of influencers as a promotional technique in the sustainable fashion sector. The objective is to analyse the social media practises and monetization techniques employed by influencers in the realm of sustainable fashion.

The concept of “sustainable fashion social media influencers” is coined to refer to prominent individuals who engage in discussions about sustainable fashion on various social media platforms. Significantly, the study highlights the concept of ‘content production calibration’, which refers to the practise of social media influencers adjusting their material in accordance with their ethical considerations and financial motivations. The study sheds light on the forthcoming obstacles that marketers and influencers may encounter when associating sustainability with entrepreneurship within the realm of influencer marketing.

Fall-Shield: A Smart Ring For Minimizing Injuries During Fall

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People usually wear jewelry for aesthetic reasons, but smart jewelry is a notion that not only makes things look good but also fixes a problem. Numerous health concerns can be avoided by wearing smart jewelry with a purpose. My major goal is to find a solution for patients who are extremely frail and prone to falling, which might result in significant injury to their bodies. For the prevention of negative and long-term health effects, fall risk assessment and fall detection are essential. In addition to giving more useful data about gait characteristics, wearable sensor systems have been utilized to evaluate fall risk and detect falls (Majumder S, (2019). Inertial measurement units (IMUs), which collect data from accelerometers and gyroscopes, are often used in wearable systems for this purpose (Majumder S, (2017). However, this gadget merely alerts the caregiver to the patient's fall; no extra safety precautions are taken to lessen the fall-related damage. Therefore, this Smart jewelry will have one more companion like a neck vest that will aid the patient in reducing fall-related injuries, especially in the upper body and head. The neck vest will respond to the neck jewelry's notification of the fall and the direction the patient is falling by opening a thin airbag to reduce harm. The caretaker (s) will be directly notified of heart rate measurements and blood pressure checks via a mobile application, and this ring will also contain capabilities like those that allow the caretaker to check the patient's condition whenever they wish. Existing smart rings have a number of issues that need to be addressed and fixed in order to make things simpler, such as reducing the GPS button's charging options or extending base unit ranges. In addition to that, this ring will be rechargeable, water-resistant, and have less radiation than other options.

Protective Finishing On Cotton And Khadi Fabric Using Neem Leaves (*Azadiractha Indica*) Extract

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Herbal medicinal plants are boon for human being as treatment of many diseases are being developed either directly or indirectly with the usage of various plant material. Neem (*Azadiractha indica*) is a medicinal tree, used in treatment of several diseases such as acne, nourishing skin, detoxification, increases immunity, early symptoms of malaria, heals wounds, and also inhibits growth of microbial infections. In the present study Neem (*Azadiractha indica*) leaves were extracted using methanol solvent by Soxhlet method. Chitosan was used as wall material in the formation of microcapsules by complex coacervation method. The antimicrobial finish was applied on bleached cotton and khadi fabric to impart antimicrobial property by direct and microencapsulation method, after application of finish untreated and treated fabrics were tested for antimicrobial efficacy against Gram-positive (*Staphylococcus aureus*) and Gram-negative (*Klebsiella pneumonia*) bacteria. Then treated and untreated fabrics were subjected to SEM, FTIR and wash durability. The microencapsulated treated fabrics showed higher antimicrobial activity up to 10 washes compared to direct application method on both the fabric.

Sustainable Work Space: A Green Approach To Beautifying Spaces (Organic And Natural Dyes)

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Eco printing using natural resource is a Sustainable design approach that combines artistry with sustainability principles to revolutionize the way adorn our home and working spaces. Eco printed Sustainable Decoration represents a holistic and environmentally conscious design philosophy that emphasizes the use of natural and sustainable materials, as well as eco- friendly Batik printing to create visually stunning and ethically responsible decor. This approach seeks to strike a harmonious balance between aesthetics and ecological responsibility, offering a myriad of benefits to both individuals and the planet. Natural Indigo clothing has been used as a remedy for skin trouble or eczema, while also repelling insects. Now a days the importance for natural sources is eminent due to the increased awareness created due to most of the adverse effects of synthetic products. In this work, Myrobalan, an important natural source is chosen as dye and mordant applied on cotton fabric. To enhance the colouring capacity, the natural sources such as Indigo, Madder, Red sandal wood were combined with, Myrobalan. To achieve the additional functional properties Nocchi, Amla, Aloevera and Neem were mixed with these combinations. The development and promotion of sustainable home linen products represent a pivotal step towards a more environmentally conscious and responsible future. These products not only offer tangible benefits to consumers but also contribute significantly to global efforts to reduce the ecological footprint of the textile industry.

Value Creation Through Entrepreneurship: Promoting Sustainable Success

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Entrepreneurship has become a critical driver of economic growth, innovation, and social change all around the world. Entrepreneurship has traditionally been associated with generating profit, but today's entrepreneurs prioritize a broader perspective that emphasizes sustainability. The shift reflects the recognition that businesses can contribute more to society and the environment than just creating wealth. A particular focus of the paper is on the role that entrepreneurship can play in promoting sustainable success through value creation. To begin with, the paper defines entrepreneurship in the contemporary context, acknowledging its evolution that catalyzes sustainable development. It highlights the symbiotic relationship between entrepreneurship and sustainable success, emphasizing how entrepreneurs can harness their creativity, and innovation to address pressing global challenges, such as sustainable development, robust startup ecosystem and economic resilience. In addition, it emphasizes the need for resilient and adaptive entrepreneurial ecosystems to support small businesses and startups in the long term. As well, the study examines the role of incubation programs hosted by academic institutions for encouraging value creation through entrepreneurship

Smart Jewellery To Determine The Dehydration In The Human Body

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Maintaining personal hydration plays an important role in all aspects of life, including exercise, health, wellness, and safety, especially during work. To determine the appropriate level of hydration, physicians must pay attention to a variety of physiological parameters specific to each person, situation, and environment. Therefore, paying attention to one's body water is important to prevent life-threatening problems. Current hydration solutions are often considered ineffective, destructive, or dependent on medication. This innovation has great potential for protecting the health of people working in hot weather, increasing sports and safety, and monitoring water in the elderly or patients with many diseases. It can also give an idea about the performance of skin moisturizers in cosmetic applications. It is important to have an effective, non-invasive water monitoring system that can ensure regular updates of the water level. The system uses the power of machine learning (ML) and deep learning (DL) to accurately predict human skin moisture levels by analysing galvanic skin response (GSR) data and contribute to the advancement of the field by solving these problems and introducing new methods of water management. It improves people's understanding of health and safety in many places by offering innovative solutions that can have a significant impact in the fields of sports, health, safety, and cosmetics.

Development Of Leak Free Swimwear

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This research delves into the challenges confronted by women during menstruation as they engage in daily activities leading to menstrual leakage in public settings, causing psychological and emotional distress; underscoring the exigency for a comprehensive mitigation strategy.

Hence, this research focuses on the development of a product – a specialized swimsuit crafted to facilitate swimming for women amid their menstrual cycles. Questionnaires based on requirement analysis, exploration of innovations in swimwear, and the need for the product were filled by 31 Indian female respondents aged 13 – 40. Further primary research included visits to pertinent industries and organizations, facilitating interactions with key stakeholders. Secondary research comprised an in-depth examination of existing market competitors and materials used in swimwear and analogous garments. Furthermore, a conceptual framework attuned to specific requirements and detailed technical specifications was produced. Raw materials were sourced from diverse channels, and prototype development underwent rigorous testing to ensure functionality and quality. Fit trials were followed by product modifications and the ultimate development of the final product was validated through real-life testing.

This resulted in an innovative solution of a specialized swimsuit constructed to provide a hassle-free experience to menstruating women whilst swimming. It also extends its utility to encompass women grappling with bladder control issues and post-pregnancy complications. Ultimately, the swimsuit fulfils a dual purpose of not only efficaciously serving its specialized leakproof function, but also offers comfort and practicality. Moreover, development of odour-resistant and antimicrobial properties further improves its overall utility and hygiene.

To conclude, this study underscores both the potential and the challenges in developing innovative solutions to address women's needs during menstruation while acknowledging the limitations and complexities of manufacturing, and cost implications. Avenues for licensing and market

launch as a conventional period swimsuit warrant consideration. Nevertheless, the culmination of this research provides a foundation to leak-proof swimwear and further holds significant promise, meriting exploration for potential patenting to safeguard utility and construction aspects on a global scale.

My Darjee: Innovating Tailoring With Augmented Reality And User-Centered Design

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The tailors play an important role in India's textile and apparel sector. Customized apparel gives better fitting compared to mass-produced clothes. Tailored clothes also help in building a personal style for an individual. With the increasing demand for event-personalized clothing, enhanced tailoring services are gaining popularity. Taking measurements for personalized apparel requires skilled tailors, and for multiple reasons, people are hesitant to give body measurements in the traditional way. While the fashion industry represents craftsmanship and skills, it also struggles with sustainability issues impacting customers and tailors. This study employs a user-centered design method to improve the tailor-customer interaction experience and address the sustainability issue in the garment industry. A design thinking process has been followed to achieve the study's aim. Retrospective think-aloud and system usability scales (SUS) were used to measure the perceived usefulness of the proposed solution. The proposed design intervention includes an innovative tailor app – 'My Darjee' which uses augmented reality (AR) for non-contact body measurements for personalized clothing, thereby improving the tailor-customer experience. The proposed design concept would also promote sustainable practices in the garment industry by minimizing fabric waste and would connect customers with skilled tailors.

Inkle Weaving: Bridging Tradition and Technology

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Inkle weaving refers to the hand production of narrow woven fabric like tape, band, strap, belt, back strap, trim etc. This experimental design research paper pioneers a transformative fusion of the traditional Inkle weaving technique with cutting-edge technology, yielding smart and functional fashion accessories. Inkle weaving, renowned for its intricate designs, converges with sensor technology, offering an innovative bridge between indigenous craftsmanship and modern tools.

The primary objective of this project is to forge a symbiotic relationship between the world of slow fashion crafts and fast-evolving technology. It seeks to revitalize indigenous weaving traditions, foster sustainable livelihoods, generate employment opportunities, and uplift the weaving art form by harnessing the capabilities of technology. By embedding sensors and advanced components into Inkle weaving, this research opens up new avenues for fashion accessories, including environmental sensing, communication enhancement, and personal health monitoring.

This interdisciplinary approach marries tradition with innovation, promising a harmonious coexistence where heritage crafts thrive alongside digital progress. Through this study, we envision a dynamic space where the past and the future intersect, empowering artisans and offering consumers sustainable, unique fashion choices. This paper outlines the research methodology, key findings, and underscores the profound potential of this integration in reshaping the landscape of fashion accessories, bridging the gap between tradition and technology.

Advancing Sustainable Textile Design: Flame Retardant, Stain & Water Repellent Innovations

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One of the three essential requirements has existed since prehistoric times. Originally used for apparel, the material has now been expanded to include domestic and household uses. But today, fabrics have advanced significantly. The basis of this study is “flame retardant cum oil and water repellent kitchen textile.” Why are flame retardants used? In 2020, it was anticipated that household air pollution caused 3.2 million fatalities annually, including around 237,000 deaths in children under the age of five. Due to their exposure to the different thermal risks in household kitchens, kitchen workers experience one of the highest rates of burn injuries. Thus, the avoidance of such mishaps can significantly benefit from the use of these flame-resistant kitchen linens.

Rising customer concerns about leading healthy lives have influenced innovative kitchen fabrics. Kitchen textiles may be kept hygienic, simple to maintain, secure, and pleasant with value-added finishes like oil, water, and flame retardant created after considerable research and development. They preserve textiles stain- and odor-free. Therefore, this research aims to create multipurpose kitchen clothing that is water, stain, and flame-retardant. Multipurpose cookware was made using a two-step finishing procedure. Following the application of fluorocarbons to the previously prepared fabric, flame retarding agents were used to finish the samples of linen fabric. Techniques including FTIR, EDX, TGA, and DSC were used to characterize the completed cloth. Cone calorimetry testing determined how quickly heat is released from the fabric. A spray tester analyzed the water repellence of the finished fabric.

The outcome demonstrates that after 15 washes, the final cloth still exhibited excellent flame retardancy. The resulting fabric's water-repellency experienced the same outcome. The kitchen made use of the final fabric samples. Reversible aprons, mittens, tablecloths, coasters, napkins, potholders, gloves, and other items were the final products. When purchasing textiles for their kitchen, every homemaker likes luxury and

comfort; thus, the beauty of the textiles is equally important. There are numerous opportunities; however, this product isn't yet offered to home-makers. However, since most contemporary items utilized by end users must be more sanitary and health-friendly, flame-retardant kitchen textile products may receive an overwhelming reaction.

Sustainable Material: Processing Of Soybean Fibre And Its Blends

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Natural fibres are attractive because of their distinctive look and characteristics, and not only are design and durability required but also comfort in clothes. But these fibres are expensive and hard to get. Synthetic fibres eventually replace these ones, but they have some severe drawbacks of their own, including dependence on oil supplies that are slowly running out, the creation of some items that pollute, and issues with comfort. In order to address these pressing issues, efforts are being made in three areas: first, the adoption of abundant and affordable natural resources from forestry, animal husbandry, and agriculture as raw materials; second, the use of an environmentally friendly and clean production process; and third, making them comfortable for human skin. These demands led to the creation of synthetic fibres with qualities/features like those of natural fibres like silk and wool but at a cheaper price. In this regard, numerous regenerated protein fibres, such as those based on seitan, peanut, zein, gelatin, etc., are created, although all of these have less economic viability. One uncommon fibre that has achieved commercial success is SPF (Soy Protein Fibre), which is derived from plants. The SPF is collected from the leftover by-product of the manufacture of soybean oil or tofu, making it a great choice to turn trash into treasure. It's also vital to note that India is the third-largest producer of soy. The soy fibre demonstrates excellent physical and transmission qualities. In addition to the benefits, fiber's distinct natural health functions support human health.

The amino acid can help the skin stay dry, resist tickling, and activate the collagen protein in the skin when it comes into touch with the skin. This effort aims to investigate the viability of producing pure soy yarn and soy yarn mixed with polyester, wool, jute, and ramie in various compositions, including 100%, 65/35, 50/50, and 35/65. These union fabrics were created using the same building requirements. After that, the study of comfort, insulation, and dyeability was conducted.

Chamba Rumal: An Embroidery of Dhauladhar Hills

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Embroidery is the traditional art form of Himachal Pradesh. Its Cham-
ba, a hill state of Himachal Pradesh known for most artistic and dazzling
embroidery "Chamba Rumal". Chamba Rumal is also known as Needle-
Wonder or Embroidery. It is the mesmerizing interplay of Literature and
Painting. The "Dorukha -tanka", a double satin stitch is used in Chamba
embroidery is unique as it both sides are identical. It is a proud symbol of
the Feminine craft tradition of Chamba. Chamba Rumal is a depiction of
the colorful history of Himachal on a handkerchief. This research process
includes information about how Chamba Rumal is influenced by Pahari
miniature style which reflects the social and cultural life of people of this
region, color scheme, and time-to-time changes in motifs and styles of
Chamba Rumal. This research is focused on the contribution of Women
to take this traditional art form to great heights and to preserve it, impor-
tance in Hindu mythological epics and cultural and Traditional Heritage.
Although, Chamba Rumal was embroidered by royal ladies in their leisure
time since the 17th century for wedding dowries, and important wedding
gifts due to the development of new technologies, machines, and the
influence of the Western lifestyle this art form is dying. Today's generation
is more involved in social media and does not indulge in these traditional
art form practices which results in the decline of this handicraft.

Radiant harvest: The Elegance of solar energy collection from Artificial Light

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The comprehensive study is to ascertain the effective utilization of artificial light energy which is addressing it as a current partial wastage of energy resources.

An 80-watt solar panel generates 480 watts, powering a lamp or other light source that operates between 40 and 60 watts, producing 380 to 800 lumen. A light sensor is integrated with the lamp and other kind of light source for efficient light management.

The solar panel accumulates artificial light energy, like incandescent and fluorescent bulbs, over 10 to 12 hours for later use. When ambient light decreases, the light sensor activates a dimmer light, reusing stored energy for energy-efficient nighttime illumination. This approach exemplifies sustainability and efficient lighting practices.

The technology and approach described in provided information can find applications in various settings such as outdoor lighting, indoor lighting, emergency lighting, residential, electronic devices, business purpose and etc.

This research strives to address the current partial wastage of artificial light energy, ultimately promoting a greener and more efficient energy landscape.

Sustainable Operations and Supply Chain Management: A Literature Review

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Sustainability has become a critical consideration in modern operations and supply chain management. In a rapidly changing global landscape, organizations are increasingly recognizing the importance of integrating sustainable practices into their operations to enhance efficiency, reduce environmental impact, and meet evolving consumer demands. This literature review provides a comprehensive overview of the key themes, trends, and challenges in sustainable operations and supply chain management (SOSCM) and sets the stage for discussions at the forthcoming international conference.

The review begins by defining the core concepts of sustainability, operations management, and supply chain management, highlighting their interdependence and the need for a holistic approach. It then explores the emergence of sustainability as a strategic imperative, driven by factors such as climate change, resource scarcity, and stakeholder pressures. Literature from both academic research and industry reports is synthesized to provide a multifaceted perspective on SOSCM.

Key themes explored in the literature include:

Environmental Sustainability: This section examines the integration of eco-friendly practices, including green manufacturing, recycling, waste reduction, and carbon footprint management, into operations and supply chains.

Social Responsibility: It delves into the ethical dimensions of SOSCM, focusing on fair labor practices, supplier diversity, and community engagement, and their impact on brand reputation and consumer loyalty.

Economic Viability: The review discusses the financial implications of sustainability initiatives, including cost reduction, risk mitigation, and opportunities for revenue growth through sustainable product offerings.

Circular Economy: The circular economy model, emphasizing resource efficiency and minimizing waste, is explored as a cornerstone of SOSCM.

Technological Advancements: Innovations such as blockchain, Internet of Things (IoT), and data analytics are examined for their potential to

enhance transparency, traceability, and sustainability performance in supply chains.

Challenges and barriers to SOSCM implementation, such as resistance to change, lack of standardized metrics, and supply chain complexity, are also addressed. The review underscores the importance of collaboration among stakeholders, including governments, businesses, academia, and civil society, to drive sustainable practices in operations and supply chains.

In conclusion, this literature review offers valuable insights into the evolving landscape of SOSCM and provides a foundation for discussions at the international conference. It highlights the need for continued research and practical applications to navigate the complexities of sustainability while achieving operational excellence in global supply chains.

A Study On Headgears Of Rajasthan And Its Depiction In Indian Cinema

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Rajasthan as the name suggests is a land of Rajas and Maharajas. It is a very vivid and colourful state when it comes to their costumes and pieces of jewellery. Headgears worn by the Royal families denoted their stature, as well as different occasions and festivals. Whether we delve into the mythological stories of Ramayana and Mahabharata or study the history of the world through its earliest civilizations and medieval times, the idea of looking reputable and gorgeous has always been prevalent. The tradition continues to the modern and current times as well Headwear and Jewelry have always been significant for expressing charm, personal style, and social status. Head Wears embodies social, cultural, and traditional values in the culture and creates traditions, character, and ethos. Indian Rulers at all times wore a headgear adorned with several gems, beads, and other decorations and accessories.

Bollywood has always been very inspired by the royal states of the Rajasthan and there have been a lot of period drama cinema, and web series that have been made taking inspiration from the Royal families of Rajasthan. The paper focuses on the comparative study of Rajasthani Rajpur Royal costume and headwear with the Indian cinema. The study is vivid, graphic, and analytical in nature.

Eco-Friendly Leather Alternatives: A Sustainable Approach

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Leather production, an age-old industry, has been under increasing scrutiny due to its environmental and ethical implications. This paper explores the burgeoning field of sustainable leather, highlighting innovations, challenges, and future prospects. Sustainable leather encompasses a range of environmentally and socially responsible practices aimed at reducing the negative impacts associated with conventional leather production. The various innovative approaches that researchers and industry stakeholders have been exploring such as lab-grown or plant-based leather. These innovations offer not only reduced environmental impacts but also the potential to disrupt conventional leather production methods. One key challenge in the pursuit of sustainable leather is striking a balance between environmental concerns and quality.

The role of technology and innovation is pivotal in advancing sustainable leather production. Recent breakthroughs in bio fabrication and biotechnology have enabled the creation of leather-like materials without the need for animal hides. A process is developed and optimised for producing leather from natural resources. The developed leather is characterised for various properties and discussed in the paper. The paper explores the potential of these technologies and their scalability.

The paper underscores the urgent need for a paradigm shift in the leather industry towards sustainability. It calls for collaborative efforts among researchers, manufacturers, and policymakers to address the multifaceted challenges in sustainable leather production. By embracing innovative materials and processes while upholding ethical standards, the leather industry can transform itself into a more sustainable and responsible sector. The paper ultimately seeks to inspire further research and action to drive the evolution of sustainable leather, paving the way for a more environmentally friendly and socially just future in the leather industry.

Painting With Non-Biodegradable Material (Plastic)

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Our environment is getting polluted due to non-biodegradable substances, due to which we are facing a lot of problems. Degradation of non-biodegradable products is not possible with these products because they are manufactured and do not occur naturally. Therefore, they damage our environment when they exist in the ecosystem for a long time without decomposing. Examples of non-biodegradable garbage include polystyrene, metal, aluminum cans, tires, paint, poisonous chemicals, and plastics.

According to research plastic bottles takes 450 years for decompose, Plastic bags takes 20 years, Plastic toothbrush takes 500 years and Plastic straws takes 200 years for decompose.

Painting through non-biodegradable materials is increasingly becoming a medium to address environmental challenges and studies have shown that the art form offers many opportunities when included within work of sustainable development. This study has investigated artist's motivations to pursue environmental art and asked whether artists believe that painting can contribute to sustainable development. Nine out of ten artists agreed that art can contribute to sustainable development. As an artist we are very connected from our nature and environment so this is the very big responsibility to protect the nature. Many Artists want to work on these thing which is protected to our nature so there is very big opportunity. It will give the employment of worker who collect the plastic stuff and sell them.

My objective of writing this research paper is to use non-biodegradable products in the right place and get rid of the problems caused by it. In this we will see how a plastic can be processed and made capable of making a painting.

Mud Mirror Paintings Of Kachchh, India: It's Resurgence Documentation And The Development Of Textile Design

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The culture of India collectively encompasses thousands of distinct and unique customs and traditions of various religions and communities prevailing in India. Kachchh, is a district of Gujarat state in western India, which has a wide variety of arts and crafts, like weaving, dyeing, embroidery, printing and painting. Mud mirror painting is one of the lesser-known art which has garnered attention from the modern world for its intricate patterns and aesthetic perfection, transitioning from its once-unknown modest stature to mainstream art, adorning the walls of urban homes. The present research is an effort to revive the traditional art of mud mirror painting of Kachchh, Gujarat through documentation and design development. The major objective of the study was to document the mud mirror painting and develop designs using AutoCAD software (Version 2017) and Photoshop CC (Version 2018). A descriptive research design was planned, and data were collected through multi-method approach. The research was well accepted.

Development of a medical consultation application

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In recent years, managing our health and wellness can often feel overwhelming. A medical application was designed and discussed in this paper, making it easier for people to access a better healthcare platform for consulting doctors and easy access to medical information. In this study, first, the challenges faced by the users when they interact with existing healthcare applications were identified, next the users' opinions were gathered to enhance the satisfaction of users. Based on the findings, the features were prioritized to improve the users' experience in healthcare application. It is expected that the proposed app could enhance the overall user experience and easy for them to use and attract more users in the future.

Fashioning Sustainability: ISO Standards For Greener Packaging

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The packaging industry is a vital part of the global economy, but it also presents significant environmental challenges. ISO standards play a critical role in advancing sustainability within the packaging industry by fostering environmental responsibility, encouraging resource efficiency, and guiding the adoption of sustainable packaging practices.

ISO standards go beyond mere recommendations; they provide a structured pathway for businesses to navigate the complex landscape of eco-friendly packaging. They actively contribute to waste reduction, resource conservation, and the minimization of environmental footprints across diverse industries.

This paper demystifies the intricacies of ISO standards, making them accessible and relevant to both industry insiders and newcomers. It showcases real-world examples, success stories, and tangible outcomes to illustrate how ISO standards are reshaping the packaging industry.

This paper imagines a future where businesses use ISO standards to combine packaging and fashion in a way that seamlessly integrates environmental responsibility into operations, creating a more sustainable and responsible global marketplace.

Emergence Of Capsule & Modular Fashion - A Gateway To Sustainable Fashion

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The unpredictable pandemic changed the dimensions of life irrespective of geographic, demographic and socio-economic stature of masses. The global economic slowdown and repetitive lockdowns have adversely affected almost all industrial establishments. The fashion industry is no exception as the supply chain has been disrupted and inflicted to several deleterious consequences owing to declining sales, changing consumer preferences and obsolescence of fast fashion concept in the otherwise progressive and fast paced industry. The imposed lockdowns forced most of the working professionals and millennials to work safely indoors enjoying the comfort and warmth of home thereby leading to a transition in their attires from aesthetics to functionality and comfort. Apart from work from home, workout indoors had become new normal with fitness centers and gyms shut down due to obvious reasons of safety and containment of infection. Accordingly, fitness aficionados have been proactively indulging in work out and leisure activities indoors thus fostering the apparel designers to come up with funky and quirky athleisure so that the consumers can have the gym like experience indoors by dressing up in workout suits, leisure wear and athleisure. Furthermore, the face masks have become a crucial part of one's existence in pandemic era owing to safety considerations.

The major transformation in fashion industry is the inception of capsule and modular fashion with fast fashion archaic in present times accounted to shrinking employment opportunities, financial crisis and watchful purchases by consumers

The paper reviews the ardent need of capsule, sustainable and modular fashion in the current times with an indent to revive some traditional textile approaches to avert deleterious impact of fast fashion and unprecedented pandemic.

To Create A Real Time Shop Floor Control System Through Mobile Application For Production Statistics

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Digitalization has brought different in our life. People nowadays are more depending on technology to do works daily. It is a new brand world that brings technology as a something essential and important, unprecedented changes are seen in each and every field. Digitalization has changed the business in each and every filed. Tasks which were assumed to be unachievable are realistic now. All these because of digitalization. Fashion industry is not far behind with the impact of digitalization.

The aim of this paper is to evaluate the effectiveness of App in terms of efficiency and output. Indian apparel Industry which is the second largest contributor in the retail industry after food and grocery is seeing some major shifts. Entry of international brands, changes in preferences from non-branded to branded, the fast growing economy, large young consuming population in the country has made India a highly lucrative market. India has the world's largest youth population, which is becoming fashion conscious owing to mass media and social media penetration. This has opened unprecedented retail market opportunities. The total market is expected to grow from Rs. 6.2 lakh crores to approx. Rs. 14 lakh corers by 2025-26. Addition of nearly Rs. 8 lakh crores market would require commissioning of more than 40 lakh sewing machines in India by 2025.

As per the recent era there is automation and application implementation seen in each and every field of life. The textile and apparel industry is also not untouched from this. Digitalization in the apparel production sector will prove a asset in the future.. It will decrease the decision making time and will allow a swift flow of data. In this paper selected 3 KPI's were s developed to evaluate and recorded out of 10 KPI based on the effectiveness of the KPI. Effectiveness of the app was evaluated based on the performance comparison on production floor of selected parameters pre and post implementation of the app. It was found that there was substantial improvement in terms of Swift and timely transfer of production information between different Levels of organizational hierarchy (top management & production staff) in the given industry.

The Impact Of Greenwashing On Consumer Behavior In The Fashion Industry

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Greenwashing is the technique of deceiving customers about an organization's environmental policies, or those of a product or service. Since the fashion sector is one of the significant industries which are currently posing negative influence on the environment, it has become the centre of the sustainability wave. To cope up with the changes and adapting to sustainable practices, some fashion sector brands are setting up various greenwashing techniques. Also, it is undisputed that many fast fashion businesses frequently exploit the information to camouflage the unsustainable aspects of their operations through fake green marketing initiatives in an effort to attract more customers.

This paper assesses the intricate connection between greenwashing and consumer behaviour in an effort to clarify the complicated influences of false environmental claims on consumer buying decisions. The study begins by defining greenwashing and describing the typical strategies adopted by businesses to deceive consumers into considering their products or operations are more sustainable than they actually are. For a thorough review of the subject, this research paper incorporates data from numerous case studies, market evaluations, and consumer surveys. The study also addresses how consumer scepticism caused by exposure to greenwashing claims might erode trust in brands and their environmental goals. Additionally, it emphasises the potential for greenwashing to stifle the development of sustainable practices by diverting resources away from businesses that are truly eco-friendly. The study also delves into methods that consumers can use to spot greenwashing, including as certifications, third-party endorsements, and open reporting. It emphasises how important these procedures are for facilitating informed decision-making and reestablishing market trust.

The conclusion of this study demonstrates how greenwashing has a ubiquitous impact on consumer purchasing behaviour, emphasising its potential to skew consumer preferences, undermine consumer faith in brands, and obstruct sincere sustainability initiatives.

Development Of Khadi Kurtis With Tie And Dye Technique Using Natural Dyes

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The present investigation was undertaken to study the development of khadi kurtis with tie and dye technique using natural dyes. Four natural dyes and one mordants were purposively selected. The study was conducted on the college going girls in colleges of Swami Vivekanand Suharti University. An interview schedule was used for collecting data from 100 respondents regarding their preferences for styles and tie and dye design of kurta for men, women and kids. The results were interpreted using simple percentages and average weighted mean scores. All four dyes (sapanwood, flame of the flower, alkanet and madder) on female kurta with vertical and crumple technique and fan fold and horizontal technique with madder, alkanet for male kurta and madder and sapanwood dye used with fan fold and strip fold technique in kid wear kurta. Eight khadi samples were produced with combinations of selected natural dyes and mordants using different tie and dye techniques according to optimum dyeing conditions referred from secondary sources. Out of these samples, four were shortlisted by the Advisory Committee. The constructed kurta were evaluated by a sub sample of 100 respondents on the basis of overall appearance on a five point scale and were ranked excellent or very good. Hundred percent respondents liked the idea of natural dyed khadi kurta using tie and dye and majority of them considered the estimated price of the kurta adequate and were ready to buy them.

Transforming Waste Into Art: Upcycling Paper In Household Origami Decor And Jewellery

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In a world grappling with mounting environmental challenges, there is a growing imperative to redefine our relationship with waste. This paper explores an innovative and accessible approach to sustainable living: the upcycling of paper waste within individual households, transforming it into exquisite origami decor and jewellery. This practice, though rooted in ancient artistry, takes on new significance in our modern era, offering an opportunity for anyone to engage actively in environmental stewardship.

The paper begins by elucidating the environmental crisis posed by paper waste. It highlights the staggering statistics of paper consumption and waste generation, underlining the urgency of sustainable alternatives. Against this backdrop, the paper unfolds the art of upcycling, demonstrating how a simple yet profound shift in our approach to discarded paper can make a meaningful contribution to the cycle of sustainability.

The core of this paper lies in its practical guidance for individuals seeking to embark on their own upcycling journey. It provides a step-by-step guide, enriched by photographs, enabling readers to transform mundane paper items into intricate origami masterpieces. From delicate jewellery crafted from paper bits to stunning home decor woven from magazine pages, these examples, personally created by the presenter, serve as tangible evidence of the transformative power of upcycling.

Beyond the creative process, the paper emphasises the broader implications of such endeavours. It highlights the reduction in household waste and the conservation of valuable resources that result from upcycling. Furthermore, it underscores the emotional and psychological benefits of engaging with art and the environment, fostering a sense of connection and mindfulness.

Ultimately, this paper is a call to action, inviting individuals to become agents of positive change within their own homes. It argues that through upcycling, we can play a pivotal role in helping the Earth achieve sustainability. In doing so, we become alchemists, turning the ordinary into the extraordinary, the discarded into the cherished, and, most importantly, paving the way for a more sustainable and harmonious future.

Sustainable Union Fabrics From Lyocell And Eri Silk

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Ever since it became clear that human activities pose deteriorating impact on environment, the need and commitment towards sustainability came into picture. However, fashion industry is the major cause of resource depletion and hence there is a pressing need for sustainable/green manufacturing and responsible consumption as well. Green manufacturing, a vital approach in today's industrial landscape represents a promising approach to reduce the environmental impact of manufacturing process while ensuring economic viability. This innovative concept seeks to harmonize industrial production with environmental stewardship by minimizing resource consumption, waste generation and harmful emissions. Green manufacturing encompasses a wide range of strategies from eco-conscious material selection and design to energy-efficient production methods and responsible waste management. In fashion grounds, green manufacturing could be achievable through some practices including usage of natural yet sustainable fibers, implementing eco-conscious design, production process and escalating the usage of organic colours in dyeing and printing etc. Thus, the present study is a planned approach to sustainably construct union fabrics on handloom using lyocell and eri silk yarns of three different counts in warp and weft respectively. While lyocell is a new generation fiber known for its innovative manufacturing process, eri silk is an eco-conscious fiber that is ethically produced. Thus, three sustainably produced union fabrics were evaluated for their thermal comfort properties which include thermal conductivity, air permeability and water vapor permeability. It was observed that with increase in yarn thickness, the thermal comfort of developed union fabrics was depleted. However, the developed union fabrics can have extensive scope of application in sustainable fashion arena.

Tale Of Sustainability Crafted Through Crafts, Recycling, Reimagining, Waste Management And Social Accountability - A Case Study Approach With Reference To Apparel Industry

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This paper is a confluence of thoughts, approach and practices to sustainability in the Textile and Apparel sector. All these industry practioners have their own Midas touch to sustainability in Textile and Apparel. Their success story is the story of success of Sustainability at the grass root level. This paper creates a mosaic picture of their steps towards sustainability which directly impacts the waste generators who cannot deal with it, the lives and livelihood of people involved in the values chain, and largely the consumers.

These industry practioners have revived the age old culture and tradition of practicing Sustainability in Indian Textiles through craft. The glory of the crafts is resurrected through outreach to the global market and falling in tune with the trends. Goes unsaid that through participation of craftsmen, the industry practioners have exhibited a 360 degree approach to sustainability.

Dealing with the bits of fabric solves a huge problem. Those katan (fabric waste/ scrap) are crafted into beautiful products and the fabric bits reimaged into new products, They have changed the form of waste to treating it as a resource in wrong place and transforming them into up cycled products. The sweet taste of resource from waste is worth admiring. Circular economy (textile) presents a \$500 billion opportunity to the fashion industry. [The Ellen MacArthur Foundation (2017) – “A New Textiles Economy: Redesigning Fashion’s Future].

What can Sustainability mean without social aspect of it. After all Social sustainability is all about creating socially responsible enterprises. It is through social accountability that there can be fair use of human workforce. Social accountability is the heart and soul of sustainability

The synergy of thoughts from practitioners who have gone beyond words to practice sustainability is worth learning and emulating. This is the tale of their "Entrepreneurial Success through sustainability". Tale of Sustainability crafted through Crafts, Recycling, Reimagining, Waste Management and Social Accountability.

Unconventional Sustainable Textile Fibres And Their Potential In The Luxury Fashion Industry

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In light of growing trend towards sustainability in the fashion industry, the search for eco-friendly textile fibres continues to gather attention. The significance of natural fibres and their contribution towards sustainable development was also acknowledged by the United Nations in a resolution passed by the General Assembly in December 2019. This paper presents a review of selected, cellulose-based bast and leaf fibres which were traditionally used to create exclusive one of a kind textiles. The properties of such fibres and their potential use as textile fibres for the sustainable luxury sector have been discussed. Lotus fibre, Pineapple leaf fibre, Ramie and Banana fibre have been found to be suitable for creating delicate, luxury apparel. Coarser fibres such as Nettle and Hemp find their application in home furnishings as well as for making winter garments.

This paper also attempts to address the relationship between the concepts of luxury and sustainability, which were traditionally considered to be incompatible ideas having divergent meanings. An in depth analysis of the literature reveals that luxury and sustainability are more closely related to each other than we originally believed. Both these concepts are characterized by qualities like durability, longevity and also craftsmanship, which can preserve social and cultural values as well as traditional production techniques. This relationship between the two concepts can encourage the applications of unconventional textile fibres for the environmentally conscious consumers of the luxury sector.

This paper concludes that using these unconventional fibres in the sustainable luxury industry can provide two positive effects: it can lighten the burden on conventional textile fibres while also fostering local craftsmanship, and helping to safeguard priceless skills for future generations.

Plant Based Essential Oils: Its Potential Application In Textile

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In recent years, due to the potential threats from environment and consciousness towards it, awareness for antimicrobial textiles has increased to several folds. Textiles, being omnipresent and its application is widespread, it can become carriers for many microbes present in the environment. Eventually the users will be affected by it. It can also interact with microflora present in the skin of wearer and may adversely affect microenvironment of the wearer's skin. Plant based essential oil possesses several medicinal properties. In recent years, essential oil application is horizontally expanding into numerous sectors. Textile is one of the areas where application of plant based essential oil is being witnessed. Due to the highly volatile nature of essential oil, its durability is ascertained and short term. To sustain the properties for longer duration there are advanced technologies which are coming to the forefront for enhancing durability of finish. Essential oils are micro/nano encapsulated in suitable shell material to enhance durability of finish. Present review is focused on application of essential oils in textile, its functionality, with emphasis on antimicrobial characteristics of essential oils. A methodological review of antimicrobial test for essential oil is also discussed in the present review.

Fashion Brand Engagement In The Metaverse: A Generative AI-Driven Approach To Virtual Retail And Brand Experiences

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In the current era characterized by pervasive digital transformation and immersive virtual environments, the convergence of fashion, technology, and the metaverse has emerged as a central nexus for brand engagement. This research addresses the pressing need to explore and comprehend this evolving landscape, where fashion brands harness generative artificial intelligence (AI) to redefine virtual retail and brand interactions. The research problem is rooted in the transformative potential of the metaverse, a groundbreaking digital realm seamlessly interwoven with the fashion industry. Fashion brands, as pioneers in this digital frontier, are actively shaping virtual stores, showrooms, and pop-up boutiques. Here, generative AI plays a pivotal role, dynamically molding these virtual spaces to effectively engage users. AI-driven customization further tailors virtual products to individual preferences, thus fostering inclusivity within the digital fashion landscape. It also explores how generative AI enhances brand engagement by facilitating immersive experiences within the metaverse. Fashion brands strategically curate interactive fashion shows, virtual events, and augmented reality initiatives. These captivating narratives artfully blur the lines between the physical and digital realms, deeply engaging users, cultivating brand loyalty, and leaving an indelible imprint on metaverse inhabitants. The results of our investigation demonstrate that generative AI acts as a catalyst for personalization within the metaverse, thereby enhancing user satisfaction, fueling brand loyalty, and driving sales. As the metaverse continues its evolutionary trajectory, the symbiotic relationship between fashion brands, generative AI, and virtual reality promises to redefine the landscape of consumer engagement. In conclusion, this research anticipates a forthcoming comprehensive study that will shed light on the transformative potential of AI-driven virtual fashion and its profound implications for the future of fashion engagement. In the ever-expanding metaverse, generative AI is poised to exert a significant influence on the trajectory of fashion in the digital realm, inspiring innovation, personalization, and sustainable brand experiences.

Creating Motifs By Using Computer-Aided Design (CAD)

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Design is an artistic endeavor that bestows aesthetics upon various elements in the world. Designers employ this designing to transform their ideas and experiences into tangible forms. The design process shows the potentials to enhance the value of objects by fostering creativity and innovation. It enables the development of numerous innovative and unique products. In the realm of fashion, there is a perpetual demand for fresh and artistic designs; some of which captivate the majority. Drawing inspiration from wall paintings, this study was conducted under the title „Creating Motifs by Using Computer Aided Design“ during the 2019, Kumbh Mela celebrations in Prayagraj city.

In an era embracing contemporary trends, textile designers find an opportunity to develop motifs. motifs represent a stylized interpretation of various design concepts. This research generated six contemporary motif designs by using CorelDrawX7 and conducted a survey among 100 individuals; primarily females aged 20-45 years, in Prayagraj city. With modern perspectives guiding the way, the potential for reimagining design is immense. These patterns can yield a multitude of variations, offering a fresh take on traditional designs in the form of modern expressions. This investigation aims to explore the domains of textile design and the potential applications of stylized art patterns.

Exploratory Study Of The Plastic Packaging Material Used In Apparel Industry And Its Sustainable Alternatives

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The consumption of plastics is often oxymoronic with a typical ambivalence; valued for its ubiquitous utility and condemned for its deleterious consequences to the environment. Despite, supposedly serious attempts by the policymakers and the industry alike, the discarded plastic used in packaging often ends up in landfills, un-segregated and thus unfit to be recycled causing significant damage to the environment as well as our physical health. The apparel and textile industry is one such site that exuberates the harmful effects of plastic because of its utility and convenience in packaging, the ever-increasing consumption because of the fast fashion trends, and the lack of segregation mechanism during its discarding. The packaging material used in the apparel industry primarily include various petroleum-based, non-biodegradable polymers which are used to produce single-use plastic packaging (polyethylene, polypropylene, etc.). By quantifying the extent of plastic used in apparel packaging as well as the potential damage to the brand's reputation in the eyes of the end consumers, this paper attempts to review the feasibility of either replacing plastic with other viable alternative materials or reducing its usage wherever possible in packaging. This paper is also an attempt to map the available sustainable alternatives for the plastic material that is used in the apparel business and rank them using suitable statistical methods. The findings should help the apparel brands to incorporate socially responsible decisions across their supply chains with clearer financial and social outcomes.

Transforming Tradition: Thanjavur Art In Craft-Based Fashion Accessories Through Upcycling And Sustainability

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In the historical and cultural milieu of Thanjavur, the classical South Indian art form known as Thanjavur Painting has deep roots. It traces its lineage from Chola frescoes to contemporary expressions, underscoring its enduring connection to Hindu mythology. This art form's distinctive features, encompassing its signature style, thematic content, arrangement, drawing methods, color palettes, and embellishments, are meticulously delineated. The religious ceremonies intertwined with its creation are delved into, offering a glimpse into the spiritual dimension of this craft.

Focusing on the traditional painting process and employing a relatively simpler method to extract elements from these paintings, they are then seamlessly integrated into craft-based fashion accessories. This approach is poised to breathe new life into this time-honored craft, opening up fresh economic prospects and engaging a younger demographic.

By translating these artistic elements into intricate jewelry and accessories, the market transcends the confines of conventional wall adornments. What distinguishes this research is its investigation into the process of transforming this craft into various materials. Moreover, the article demonstrates the adaptability of Thanjavur art by repurposing discarded materials, thereby giving rise to a diverse array of fashion accessories. This strategy aims to render the craft more versatile, less time-intensive, and financially accessible.

Reviving Tradition: Integrating Madhubani Painting And Creative Hand Embroidery Into Women's Apparel

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This study attempts to investigate the integration of Madhubani painting, a traditional Indian folk art, with creative hand embroidery methods in the context of women's clothing. The Bihar state's Madhubani art has been in transition, and as a result of current social and economic developments, its use in original composition has decreased. It is necessary to look at options for this art form's preservation through different kinds of artistic expression for future generations. To keep our designs or motifs alive and prominent, traditional motifs are used in clothing. In terms of design, colour, style, and technique, the fashion industry needs to evolve to meet increasing customer demands. The objective of the study includes to study the history, cultural significance, and techniques of Madhubani painting, to identify design elements and motifs that can be incorporated into women's apparel and to study consumer preferences for the developed products. 10 designs out of 21 were asked to choose by the focus group that belongs to fashion industry. Then out of chosen designs/ motifs finally five articles were developed keeping in mind their suitability for denim jacket, oversized shirt, dress, cord set etc. Then, 203 respondents evaluated the acceptability and appearance of these products using a Google form, evaluating aspects including material quality, value for money, and desire to promote them to others. The results of the survey are encouraging because responders uniformly appreciated and recommended all of the articles. This study is a fruitful undertaking that not only integrates tradition and contemporary but also indicates a more positive future for Madhubani art in the dynamic world of women's clothing. This research paper will provide valuable insights into the fusion of art and fashion, offering a fresh perspective on preserving and promoting traditional Indian art forms while appealing to modern sensibilities.

Design Of A Sustainable Portable Room Leaf Air Purifier

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Population density increased the social development in cities, contributing to extreme air contamination on the inside. As a result of these developments, greater attention has been paid to the problem of safe and balanced indoor environments. To enhance the indoor air quality, various air purifying techniques were adopted. Air filtration techniques can eliminate air contaminants and effectively reduce worsening air quality indoors. Product Development needs to be sustainable, for it is a process of long-term exposure for a sustainable future, so design for sustainability should be at the center of curvature for any product development process, as air pollution is rising, air pollution is a major health hazard affecting the developed and developing countries alike, the effect of air pollution on health is complex and indoor air pollution is a major concern, so there will be consumption of more product like air-purifier, this research paper will examine the problem in present air purifier in the Indian market and explore the possibilities of the role of design in sustainable product development procezs of air purifier considering leaf shape design and development of the next generation of air purifiers for indoor use. Further, it will be used as a customized design of a portable room leaf air purifier for indoor applications.

Redesigning Circular Fashion Legacy In Pune: Thrift Culture Outlook Among The Youth

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This research intends to explore on the topic “Redesigning circular fashion legacy in Pune: thrift culture outlook among the youth”. The main aim of this study is to understand the youth’s perception towards circular fashion with flourishing thrift culture approach to promote sustainability. Circular fashion is a structure that migrates from linear approach to sustainable practices by circulating and reusing the garments to extend their shelf lives. The study highlights the development of various approaches to thrift culture, including upcycling, second-hand marketplaces, and community-driven initiatives. Furthermore, the research identifies potential problems faced by young individuals in adopting this new culture, such as social status and limited access to resources. Understanding the rise of reusing the pre-owned clothes in Indian perspective. Also it helps us to recognize how thrift culture supports to reduction of fabric dump in fast fashion industry. Here we will use a combination of quantitative and qualitative analysis with the sample size around 300. The data will be collected through a structured questionnaire as well as through interviews (thrift store owners). The finding for this research paper will be a contribution from primary and secondary research. This specific research study will highlight the evolving landscape of thrift culture among today’s youth, examining consumer attitude, preferences and how they adapt to the concept of thrifting. Through the information we have studied during the secondary research, we predict that the youth of Pune are positively moving towards accepting circular fashion ideology of thrift culture in India.

Roselle- A New Sustainable Fiber

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Recently, many researchers have switched to using natural fibers in their research since it was economically feasible and sustainable to make high-quality natural polymer for various applications. Natural fibre is a type of renewable sources and best known for their bio degradability, non-carcinogenic and eco/health-friendly nature. Natural fibre roselle (*Hibiscus sabdariffa*) found in abundance in nature. Due to lack of knowledge on its suitable extraction, degumming, and mechanical processing, the said fiber is not finding any potential applications in textile industry. So, researchers are interested in studying its uses in textile and apparel industry. The chemical composition of roselle fibres consist cellulose, lignin and hemicelluloses. Roselle fibres are also well known for their physical properties such tenacity, elongation and bending strength. Roselle fibre can be blend with other natural and synthetic fibres. The properties are comparable to kenaf and jute, which are already established in composite products. Roselle fibre is used mainly by local people in the state for cordage, ropes, canvas fabric, and household utility items. The present study was an approach to know about the physical and mechanical properties of the fibre and value addition of the fibres so that its scope can be enhanced in textile market through product diversification. Proper utilization of roselle fibres in the form of attractive handloom products will add to its commercial value.

Making Aal Dyed Handloom And Weavers Of Kotpad, Odisha :A Case Study Approach

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The Aal-dyed handloom from Kotpad is a part of the indigenous knowledge systems of textile of local communities. This knowledge has been passed down through generations, which includes expertise in extraction of natural dyes from barks of trees and root skin, dyeing the yarn and weaving. Weaving on pit looms includes developing intricate patterns using extra weft techniques. The motifs represent the life around them reflecting nature, rituals, and daily life. The dyes used are eco-friendly and non-toxic resulting in environmentally sustainable products that has an increasing world-wide demand now. This knowledge has helped to preserve their tribal history and culture. The transmission of knowledge occurs orally, and through practical training and apprenticeships. The craft is practiced as a primary occupation at household levels. The study primarily focuses on the livelihoods of the weavers through this craft. Their livelihoods are affected by major factors like accessibility to resources, role of social institutions and organizations that influence their livelihood strategies, accessibility to markets and market linkages, vulnerabilities and risks to different natural and social phenomena.

Methodology: It is an exploratory study. The authors have used a case study method. Case studies are best for gathering detailed descriptions of complex and multi-level social phenomena about an individual, group, or event. Data from publications and depth interviews were used to collect data from the master weavers and government officials working in that area. Data collected from various sources will help to gain multiple perspectives and will result in Data Source Triangulation for validation.

Originality and value: The study aims to find out the sustainability of livelihoods of these weavers in a highly competitive environment. It will provide insights into how this indigenous knowledge of Aal dyed products can fill the gap in a market driven by natural environmental sustainability issues.

The Mughal Carpet: History, Culture And Aesthetic Analysis Of Design

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The term “culture” acts as a universal term for several facets of the region and its inhabitants. Language, religion, music, art, dance, eating habits, family structure or hierarchy, distinctive styles of architecture, convictions, values, and fashion are all included. Any rich culture is molded by its history of being overthrown, colonized, and ruled by various groups over a long period of time. The carpet is not only used as a daily article for keeping the area rich and warm but also as a sign of prosperity, aesthetic value, and cultural sophistication.

The carpet industry is one of the most established and well-known in the world. Carpet weaving exemplifies man’s quest to combine beauty and utility, unlike perhaps no other form of art. Babur, a Muslim monarch from Central India, invaded Northern India in 1526, ushering in the Mughal era. The great emperor Akbar, invented the craft of carpet weaving in India in the 16th and 17th centuries. The Mughal era is regarded as Indian artists’ golden age. Akbar was an influential patron of the arts and culture. The Mughals had a rich tradition and a passion for decorative arts and oriental carpets.

The article focuses on the tradition of making carpets as a cultural and social activity dating back to the Mughal era. It also addresses its history, patterns, colors, sustainability, and the symbolic significance of the motifs used in carpet design on the fundamental beliefs, philosophies, and concepts of the people who produced them. Spectacular works of art, and craftsmanship, often emerge as a result of the prosperity, and power of an empire, which has a direct impact on the creativity and work of a society’s artists and craftspeople. In addition to being useful, carpets made during the Mughal Empire were also seen as significant prestige and wealth symbols.

Sparkle With Aurora Of Dental Cosmos

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Tooth jewelry is an emerging trend in cosmetic dentistry, offering a novel and non-invasive means of personalizing one's smile. This innovative practice involves the application of small, decorative gems or metals to the surface of teeth, often using safe dental adhesives. While primarily a cosmetic enhancement, tooth jewelry has gained popularity due to its versatility and temporary nature, allowing individuals to experiment with different styles and remove them at will.

This explores the burgeoning field of tooth jewelry within dentistry, highlighting its aesthetic appeal and the minimal impact it has on oral health. It delves into the variety of materials and designs available, emphasizing the importance of professional application to ensure safety and durability. Furthermore, it addresses the cultural and societal influences behind this trend, reflecting how individuals increasingly view their smiles as canvases for self-expression.

Tooth jewelry represents an intriguing intersection of art and dentistry, presenting a unique option for those seeking to add a touch of glamour to their smiles. While not without its considerations, the practice showcases dentistry's evolving role in offering innovative solutions that go beyond oral health, aligning with the broader concept of enhancing overall well-being through self-expression and confidence.

Green Furniture For Sustainably Designed Interior

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Usage of resources which are not eco-friendly, jeopardises the natural environment. They do not disintegrate easily, and contribute to the landfills. Due to this, our need to implement sustainability into our lives has increased tenfold. Sustainable furniture, also termed as eco-friendly furniture or green furniture, is one of the most impactful ways through which we can edge further towards a green future. Green manufacturing helps us implement sustainability in the process of manufacturing of products. It ensures that the carbon footprint is minimal and incorporates methods such as recycling, into it. They do not contribute to the landfill and the products produced this way helps us coexist with the natural environment.

Renewable resources, or easily accessible materials which do not negatively impact the environment, and all the other salvageable materials' usage should be promoted more in industries, especially the ones which contribute tremendous amount of waste in the landfills. Nowadays, products are made from resources which are supposed to be used not more than once, which in turn accumulates when not properly disposed of. If eco friendly resources are given more priority, it will also improve the quality of human life, one's personal surroundings, as well as help correlate with the natural environment more.

This paper's main objective is to help save the environment by urging people to use eco-friendly materials and to promote green furniture with a short life cycle, and are not a risk to the environment. In this study, sustainable home décor manufactured by green manufacturing, along with the positive impact of the same on the environment is discussed in detail.

This research is descriptive research. This paper uses interviews and online surveys to elucidate the current state of green furniture and implementation of the same in one's living spaces, from the perspective of companies manufacturing green furniture and its users.

Exploring The Aesthetic Fusion Of Warmth And Softness: Techniques, Aesthetics, And Significance Of Wood Embroidery

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Wood embroidery is an evolving artistic technique. This Technique combines the intricate appeal of traditional embroidery on the surface containing the organic texture, warmth and durability of wood. This research paper dives deep into the world of wood embroidery, offering an exploration of its techniques, aesthetics, and sustainability.

This study begins by illustrating the historical roots of wood embroidery, tracing its origins back to traditional wood crafts and embroidery. Reviewing existing literature, we uncover the various techniques artisans employ to create this intricate design on wooden surfaces. These techniques include pyrography, inlay work, and carving and many more.

The aesthetic dimensions of wood embroidery are examined next, focusing on the interplay of colour, texture, and dimensionality of the craft. Through some case studies and visual analysis, we understand how wood embroidery transforms boring and flat wooden surfaces into captivating aesthetic works of art. The incorporation of different types of wood, finishes, and other embellishments enhances the artistic possibilities, this contributes to the uniqueness of each and every work of art.

Furthermore, this research paper explores the sustainability of wood embroidery, highlighting its role in providing livelihoods, reviving traditional craftsmanship and promoting slow and conscious actions towards life. in a contemporary context.

To provide a holistic perspective, this study also discusses the challenges and opportunities in wood embroidery, including sustainability concerns, technological advancements, and market trends. Additionally, the potential for collaborations with other materials and innovations is discussed emphasizing the relevance of wood embroidery in contemporary art and design.

In conclusion, this research paper sheds light on the fascinating craft of wood embroidery, celebrating its heritage, creative potential, and relevance in contemporary times. It invites artists, scholars, and enthusiasts to further explore this dynamic and evolving art form.

Including Craft-Based Education In The Design Curriculum: Reference From Developing A Hand-Spinning Syllabus

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The National Education Policy (NEP) 2020 emphasises on the Traditional Knowledge of India and promotes research on all aspects of the Indian Knowledge System (IKS). Under the IKS categories, Folk Culture is one of the areas of the subject which has to be preserved and disseminated for further research and societal applications.

The sheep herding, production of sheep wool, hand-spinning and hand-weaving to make woollen products is an indigenous traditional knowledge of Himachal Pradesh. The practice of hand-spinning is a household activity in most of the districts of the state. In recent years, with various technological interventions, this tradition has transformed to a great extent, inclined more toward factory-based production, mechanised tools and the inclusion of synthetic fibers. The tradition of wool production, which was part of the indigenous culture of the people, their way of life and their belief system, is slowly becoming a superficial factory-centred production system.

Emphasising the traditional knowledge of hand-spinning in Himachal Pradesh, an experiment is done on developing a syllabus for hand-spinning to include in the curriculum as an elective subject in NIFT, Kangra. The objective is to understand the possibilities and limitations of such a course structure and the practicability of including the course in the curriculum. The research follows methods and frameworks of qualitative research methodology for data collection, which includes field visits, interviews, participant observations, photographs, videos, and collection of samples of tools and raw material of hand-spinning. Further, the collected data were analysed and the samples were experimented in the lab for the development of the syllabus. With the development of the syllabus and including it in the design curriculum, the research is an attempt to contribute towards the preservation of the traditional knowledge system of Himachal Pradesh.

Green Manufacturing: A Sustainable Way

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Indeed, environmental, resource, and population challenges are among the most pressing global issues today. The degradation of the environment poses a significant threat to human survival and progress. The wastage that occurs during the transformation of resources into products contributes to severe environmental pollution. Green manufacturing represents a contemporary approach to production that takes into account environmental impact and resource efficiency while ensuring product quality, features, and cost-effectiveness. It aims to minimize environmental pollution throughout a product's entire lifecycle, from design and manufacturing to use and disposal. This approach prioritizes maximizing resource utilization and minimizing energy consumption. In contrast to the traditional manufacturing model, which often relies on end-of-pipe solutions to address environmental concerns, green manufacturing adopts a closed-loop system. It integrates environmental considerations into the product's attributes and life cycle. By doing so, it seeks to address environmental objectives while maintaining product performance, quality, and durability. The process of "greening" industry involves strategies such as reducing the use of non-renewable resources, recycling and reusing waste materials, and minimizing emissions to reduce waste. Environmental accounting and green supply chain management (GSCM) are key components of this approach. The ultimate goal of green manufacturing is to protect and preserve the environment while simultaneously reducing production costs, making it a sustainable and economically viable model for the future.

Sustainable Vendor Selection And Evaluation Criteria In An Apparel Export House

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A vendor is a procedure used by an organisation to find, assess, and work with vendors. Effective vendor selection is necessary to obtain the desired material at the required time and price. A significant portion of a company's financial resources are expended during the supplier selection process, which is essential to the success of any organisation and its supply chain management. Reduced purchase risk, increased total value to the buyer, and the establishment of close, long-lasting relationships between buyers and vendors are the primary goals of the vendor selection process. A successful organisation has to have a comprehensive supply chain management (SCM) plan in place because of how quickly the local and global business environment is changing. In order to obtain material, develop those materials into intermediate and completed products, and distribute those finished items to clients, a supply chain is a network of facilities and distribution operations. Vendor evaluation criteria are essential in the apparel business for producing high-quality clothing and sustaining a productive supply chain. These requirements cover a number of essential elements that assist fashion brands and manufacturers in choosing the best vendors. Quality is crucial, and vendors are judged on their capacity to consistently produce clothing that complies with predetermined requirements for material quality, workmanship, and durability. Vendors' compliance with labour laws, environmental regulations, and social responsibility standards is taken into account when evaluating them, and ethical and sustainable practices are becoming more and more significant. Also, organisations should add environmental and social considerations to the traditional supplier selection criteria in order to maintain the sustainability of the supply chain in light of corporate globalisation, competitive market conditions, and changing customer needs. This research reviews different vendor evaluation methods and studies various criteria of vendor selection, as well as sustainable selection criteria.

Eco-Friendly Approach Towards Scarp Denim Through Recycling Down Cycling And Upcycling

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The aim to develop products from denim fabric by using the three techniques i.e. Recycling, Downcycling and Upcycling is an indirect way of sustainability. To practice sustainability in whichever way possible. In today's period of time not all products can be thrown away after the purpose of the product is fulfilled. It can be further upcycled and used for some other purpose and can be further recycled as well.

Recycling and Upcycling both are a much better alternative than sending items to landfills. Upcycling is arguably better than recycling as it extends the life of a product – through fixing and upgrading.

Recycling, on the other hand, has become a billion dollar industry and is treated as such. Employing hundreds of thousands worldwide, with established supply chains, huge investments and seriously impressive research and development departments.

Downcycling, or cascading, is the recycling of waste where the recycled material is of lower quality and functionality than the original material.

We are finally starting to take the effects of our consumption more seriously, and whether you are upcycling or recycling, what's most important is that you are actively trying to reduce our damaging wastage. Stylish ways to Recycling Downcycling and Upcycling Denim Fabric.

Upcycled Apparel: Design And Construction With Post-Consumer Textile Waste

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In recent years, there has been a notable surge in the adoption of the concept of creating clothing from discarded textile materials, largely driven by its potential to address environmental concerns within the fashion industry. This innovative approach entails repurposing leftover or discarded fabrics to fashion new clothing items, thereby mitigating the adverse environmental effects of textile waste. This paper meticulously documents the design and garment construction process of two fashion collections that harnessed post-consumer textile waste for their creation. These collections were developed under the guidance of the authors and presented at the annual ,Shears & Ruban' fashion show held by UIFT&VD at Panjab University, Chandigarh.

The first collection, titled „Denims Upcycled“ by Ms. Malyca Singh, exhibited a remarkable fusion of creativity and sustainability by exclusively fashioning garments from discarded denim. This innovative approach involved repurposing patchwork, buckles, chains, belts, and buttons sourced from old clothing belonging to her family members. The collection showcased a diverse array of designs, including patchwork dresses, deconstructed jeans, skirts, and tops adorned with bleach art.

The second collection, named „My Mini in a Glitch“ by Shreya Verma, employed discarded apparel sourced from acquaintances, family, and thrift stores to craft garments that seamlessly blended braids and weaves with innovation, meticulously stitched together in a glitch-like pattern. This outstanding collection featured designs such as braided sleeves, deconstructed jackets with woven surfaces, vibrant tops, and skirts comprised of woven fabric strips, embellished with chains. The designer augmented the look by incorporating woven and braided clutches, handbags, and colorful eyewear.

Both of these collections serve as poignant examples of the transformative potential of creative vision and sustainable practices in the realm of fashion design. Through the process of repurposing old clothing into stunning garments, these designers not only showcased their exceptional skills but also paved the way for a more environmentally conscious and inspiring future in the fashion industry.

Product Packaging Design With Respect To Impulse Buying Behaviour In Consumers

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This qualitative study explores the impact of aesthetics and product packaging on impulsive buying behavior. The study is based on New Product development which focuses on the development of a multifunctional stationary organizer that is eye-catching, functional, and sustainable, and examines how changes to the product packaging design can influence consumer preferences and purchase decisions. The research involved a qualitative approach, including a total of three surveys with sample sizes of 75,100 and 63 respectively, using both random and purposive sampling techniques. The initial baseline survey resulted in finalizing the lifestyle product category as Stationery. Once the category was finalized, further brainstorming led to the ideation of the product as Multipurpose- stationery organizer. Whereas, the mid level survey helped in selection of three variations of the same product based on their cover designs, the survey also suggested scope of improvements to the product to catalyse impulsive buying and further led to prototype development. The production process involved a combination of hit-and-trial methods and critical planning for material selection, design, and other techniques to be undertaken. The final survey was all about gathering inputs from the potential consumers to understand the practical product positioning of the Multipurpose organizer.

The results gathered from the research found that consumers are highly influenced by the visual appeal of product packaging, with aesthetic factors playing a significant role in impulse buying behavior. Through the development of the multifunctional stationary organizer, the study proposes methods to enhance packaging design at every step of the product development process to boost interest and appeal to consumers. Overall, the study concludes that product packaging design is crucial in influencing consumer behavior, and aims to collaborate with other stationery ventures to enhance its acceptability in the physical market.

Co₂ Laser Capabilities In Various Materials With A Parametric Approach

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Since the laser's discovery more than 60 years ago, research into its applications in numerous domains of technology has begun. Cutting and marking diverse materials is one of the most prevalent applications of laser technology. While various metals have been investigated and employed extensively, the use of lasers in non-metallic materials has received far less attention. A CO₂ laser was used to do research on numerous materials, including fabrics, felt, transparent and opaque Plexiglas, and other materials having broad applications in technology and economics. The best parameters for conducting different operations on this sort of material have been discovered and are depicted in tabular and graphical form. There have been studies using varied laser beam strength and speed. The appropriate conclusions are provided based on the acquired results. similar materials are widely utilized in industry, including the production of automobiles, airplanes, ships, and other vehicles and machinery, and the findings demonstrate the efficacy of laser cutting and marking when compared to previous ways of doing similar operations.

Nanomaterial Application In The Ceramic Body, Glazes, And Glass In The Historical Process

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Nanoscience is concerned with the occurrence of nanometers in systems, which are 10^{-9} times smaller than the unit. It was initially described scientifically by Richard Feynman in 1959 and then exploded into the public awareness in 1982. With the advancement of technology, the usage of nanoscale materials has become quite prevalent in the industrial and materials sectors, medical and health sectors, aerospace research, and many other industries. Aside from science, the usage of nano-dimensional materials in arts, particularly pottery and glass art, has been widely documented from the Bronze Age to the present. The employment of nano-sized coloring metal oxides in ceramics and glazes, as well as glass shards discovered during excavation, was determined using several analytical methods such as XRD, TEM, and Raman. The usage of Nano-sized metal oxides in glass and glaze production is distinguished by the color shift of these materials as the light changes. This is because of the dimensional features of metal oxides. As an example, the Lycurgus glass cup made in Rome in the 4th century or antique luster glazes are examples of the materials whose colorant is a Nanosized metal oxide. The use of nano-sized elements, particularly metal oxides, to lower the sintering temperature of the ceramic body and produce distinct aesthetic effects using glazes is still going on today. Various analyses on materials will be used in this study to investigate the usage of nanostructures in the creation of pottery from ancient times to the present.

Exploration Of Artistic Techniques Of Kangra Painting And Its Relationship With Cultural Identity

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Kangra painting, an intricate and profound art found in the lush green hills of the Himalayas, harbours its own concealed wealth. The artworks explore themes that showcase the cultural tapestry, geographical splendour, and religious fervour while the painting has an intertwined connection with the natural elements.

Thus, this research paper delves deeper into the narrative of the art, unearthing its artistic techniques as a reflection of not only its extraordinary style but as a profound embodiment of Kangra's essence and the identity of its people and its importance in carrying forward a legacy.

The techniques used in Kangra painting are a testament to the tangible elements that form the basis of Kangra's identity. The colours sourced from its abundant surroundings, the diligent brushwork, and the radiant addition of gold leaf are not merely artistic choices but echo the region's heritage and instincts. They are tangible embodiments of Kangra's natural fortune, artistic prowess, and opulent traditions.

Kangra painting bears witness to the enduring bond between art and identity, underscoring the capacity of traditional art forms not only to safeguard but also to revitalize cultural identities. In a world increasingly connected through digital networks and globalized influences, Kangra painting serves as a vivid reminder that the past remains irrevocably intertwined with the present and future. It beckons us to recognize that the echoes of heritage reverberate through art, preserving the essence of cultures, reminding us of where we come from, and guiding us toward a future enriched by the wisdom of the past.

Advanced Knitwear: A Sustainable Journey Towards Couture Innovation

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This paper focuses on the dynamic relationship between knitwear, technology, and sustainability and their application in the creation of a couture collection. With the ever-evolving fashion landscape, designers are increasingly seeking innovative approaches to address both aesthetic and environmental concerns. Knitwear, with its inherent versatility and adaptability, has witnessed significant advancements in recent years due to technological innovations. This study investigates the potential of integrating advanced knitting techniques and sustainable practices to develop a couture collection that showcases the symbiosis of artistry and responsible fashion. This paper underscores the potential for knitted garments to become key contributors to a more sustainable and responsible fashion industry. It investigates environmentally friendly materials, such as recycled yarns and organic fibres, and examines the concept of circularity in knitwear production.

Finally, the research discusses the creative process of developing a couture collection that considers the learning from the research. The collection serves as a case study, providing insights into the challenges, successes, and lessons learned in creating couture pieces that push the boundaries of innovation while honouring sustainability principles.

Influence Of Mithila Painting On The Sujani Work Of Bihar: An Intrinsic Study

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India has one of the finest textile traditions in the world, and each state of India displays a variety of designs, producing distinguishable textiles and crafts indigenous to the region. The traditional textile crafts of Bihar are appreciated and adored all over the world because of their aesthetic value, workmanship, and adherence to customs and tradition. This explores the intricate relationship between Mithila painting, a traditional folk art form of the Mithila region, and Sujani work, a distinctive embroidery tradition from an Indian state, Bihar. It explores cultural, social, and artistic connections between these two folk art forms, highlighting the ways in which Mithila painting, including Bhittichitra, has influenced design in terms of motifs, colour, and storytelling aspects of Sujani's work. Through an examination of the evolution of these artworks and the craftswomen who practice them, this aims to shed light on the profound impact of Mithila art on the Sujani work of Bihar, showcasing the enduring legacy of artistic cross-pollination and creative innovation in the region. The Sujani craftswomen of the Mithila region have skillfully incorporated the motifs, colours, and layout of Mithila art into their embroidery, creating a fascinating fusion of these two distinct art forms. This synergy has not only enriched the visual and aesthetic appeal of Sujani's work but has also added layers of meaning and symbolism drawn from the mythology and folklore of the Mithila region of Bihar.

In conclusion, there is a great influence of Mithila painting on the Sujani work of Bihar, and through this exploration, it becomes evident that Mithila painting, with its vibrant colors, motifs, symbols, and storytelling elements, has left an indelible mark on the Sujani embroidery work.

An Inquiry Into The Impact Of Collaboration Of Traditional Artisans And Design Institute: A Quasi-Ethnographic Narrative Of The Artisan's Perspective

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The ever-evolving path of craft practice in India, has witnessed the dis-course of 'craft practice' from multilayered standpoints. It is imperative to acknowledge the influence of the changing nature of the patronage in craft. Throughout its history there has been a mediator in form the of a 'ruler', 'activist', 'social scientist', 'middleman', 'designer' or 'academician'. 'Within an educational environment, documentation of craft practices or collaboration on innovation projects between artisans and students provides an excellent and enriching learning experience for the students. However, this collaboration may or may not always manifest in a similar-ly satisfying or valuable experience for the craftspeople.

With the narrative of co-design as the backdrop, this paper reflects on the academic collaboration project that was conducted at Karnavati University (KU), where traditional artisans and design students worked together for specific modules. The study investigated the knowledge exchange relationship between the artisans and the students. The re-search thus aims to find the gaps and opportunities within the 'newly formed community' for a sustainable and enduring positioning of arti-sans. The artisans chosen for the study were categorized on the ba-sis of their pattern of engagement contract with the institute. The study aims to enable a dialogue to understand why artisans co-work with students and design institutes and how it impacts them and their com-munity. Furthermore, the study explores the impact of such collabo-ration on the artisans through their own narratives and perspectives. This qualitative study is quasi-ethnographic. Data collection adopts semi-structured questionnaires for interviews and observation of the arti-sans. The findings present the notions and views of the artisans on their involvement in the collaborative project and an analysis of the mod-ules to draw conclusions on the scope of identifying areas that may need attention for a positive impact on the craft and the community.

E-Commerce Mobile-Based Application For Stationery Products

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Stationery products like art and office supplies are essential for daily use and creative hobbies. Since the COVID pandemic, more people have started working remotely and engaging in creative hobbies. Hence, the demand for these products has increased significantly. However, limited existing e-commerce platforms specifically cater to the needs of users who predominantly use stationery products. This study focused on developing an e-commerce mobile application prototype for stationery product users. A mixed methodology and user-centric approach was adopted for this research, which included in-depth surveys and interviews to understand user requirements and their perceptions towards e-commerce applications. The findings revealed that users expressed concerns regarding lack of variety, especially international stationery brands like Staedler and Japanese stationery. In addition, users were looking for features, including video descriptions on how to use products, product descriptions, and community pages in stationary applications. The designed application focuses on uplifting creative individuals' art communities and providing a wholesome stationery and art supplies platform. The designed application will be tested in the future to understand the usability of the products in aspects of user satisfaction. The application is expected to facilitate fast delivery options, detailed product reviews, video descriptions explaining how to use certain products, and a community page where users can share their artwork and interact with other artists.

The Painted Diary Of Prachi Valley's Artistic Portrayal

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The Prachi Valley, a region renowned for its scenic beauty and natural grandeur, has long inspired artists to translate its captivating landscapes into artistic expressions. This research paper delves into the world of sculptural representations of the Prachi Valley through the medium of paintings. Through a comprehensive analysis of both historical and contemporary artworks, this study seeks to elucidate how artists have employed the canvas to convey the unique topographical, cultural, and emotional dimensions of the Prachi Valley.

By examining the evolution of artistic techniques, styles, and thematic interpretations across various eras, this research paper uncovers the rich tapestry of sculptural motifs within Prachi Valley paintings. It explores the intricate interplay of colors, textures, and forms employed by artists to capture the valley's lush vegetation, flowing waters, and imposing landscapes. Additionally, the paper delves into the symbolic significance of sculptural representations, exploring how artists use this genre to convey not only the physical attributes of the valley but also its cultural and spiritual essence.

Furthermore, this study investigates the role of sculptures within the broader cultural context of the Prachi Valley, shedding light on the influence of local traditions, rituals, and beliefs on artistic representations. It also examines the impact of external artistic movements and global perspectives on the evolution of sculptural depictions of the valley.

Bio-Resources As Sustainable Fibers In Advanced Textiles: A Review

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The requisition for renewable or waste raw material for extraction of new fiber is growing steadily as the spur for a green economy and sustainable future accelerator. Escalating environmental problem and changing attitude of consumer have made petroleum-based (synthetic) manufactured product more expensive, less desirable and less economic in present world.

It is important to have fair understanding that almost nothing is entirely sustainable. Fibers have been used not only for clothing but also for technical applications such as composite materials, building materials, filtration and insulation materials. Every case and every fiber is different by their own features, by summarising all the information about one and make a choice that reduces any harmful impact on people and environment can be consider as a good approach in some way. It can be more or less sustainable depending on the perspective someone looking from.

Petroleum free source of fibers for the textile industry will have a significant positive impact by reducing dependence on fossil fuels and cost effective compare to synthetic fiber. This study attempted to review the emerging source of new sustainable fibers which will more eco-friendly and have huge impact on sustainability in future. In this paper biore-source waste (lotus, orange peel etc.), biofibers from animal protein (spider silk, hag fish slime etc.), regenerated cellulose (sea weed etc.), and regenerated protein (milk fiber etc.) are discussed in depth. The raw material, properties, application and ecological impact are also discussed in this paper.

Characterisation And Evaluation Of Knitted Fabrics Finished With Marine Macroalgae Extract

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In the recent time, all over the world there has been an increase in the participation of active sports. In the highly competitive world of sports has given a greater number of professional sports persons. In addition, the people also consider sport as a vital part of their day-to-day activity, as it helps directly to keep them physically and mentally fit. Both the quality and quantity of the active sportswear being consumed globally has increased enormously. Special properties are incorporated in garments using specialized fibres, yarns, engineering design of fabric with various sustainable finishes. In the proposing study, the seaweed extract was investigated. The species used in the study include three *Ulva lactuca*, *Caulerpa scalpelliformis* and *Gracilaria corticate*. In the present study, acetone was found to be the solvent for extracting the antimicrobial principles from fresh algae and Soxhlet method is used for extraction method. Thus, the coated on knitted fabric by dip and dry method with sea weed extract. The optical, crystalline and morphological features of the functionalized with sea weed extract were confirmed by UV-Visible analysis. The antibacterial activity of coated fabric was investigated against *S. aureus* (Gram positive) and *E. coli* (Gram negative) microbial strains. Durability of the coating was also tested after repeated washing. The application as antimicrobials for the development of natural and eco-friendly sports textiles and should be further explored as alternatives to current synthetic based finishing.

Sustainability Of Graphic Design Profession With The Rise Of Artificial Intelligence

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Artificial Intelligence (AI) is the latest addition in computer technology. Computers have already become the essential parts of human lives. Now AI is coming with high probability of becoming essential part of human lives in future. The Graphic Design is Profession which gives visual branding solution of a product using contemporary computer technology with advance software tools like Adobe Illustrators, Adobe Photoshop, Adobe InDesign, Coral Draw, Canva and others. As the computer technology is moving further the creation work of graphic design is becoming easy. But as few AI creative tools like Midjourney have come to the market the graphic designers are surrounding with the thoughts of possibilities of their less requirement or no requirements of job in future. This paper will summarize the sustainability of Graphic Design profession in future. The non structured interviews of senior graphic designers and art directors is used for the methods of research findings. The result concludes that AI will not take the jobs of the graphic designer but it will reduce or end the skill based work and graphic designer's work will become more conceptual and instructional.

Operational Resilience... A Step Towards Sustainability

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Problem Statement: The apparel industry today experiences myriads of challenges due to the multiplicity of disruptions. Organizations need to cope with emerging threats, adapt quickly in times of crisis, and satisfy stakeholders' requirements in a consistent fashion.

Objective: Explore the global-level research available to understand the vulnerability of the apparel industry against disruptions, along with how operational resilience helps towards the sustainability of an organization against disruptions.

Study the sustainability assessment criteria available for industries, and explore if it can be used along with Operational Resilience drivers to come up with an assessment method specific to the Apparel Manufacturing Industry.

Methodology: The study followed a comprehensive literature review followed by focus group discussions with senior industry executives.

Results: The study distinguishes the high vulnerability of the apparel industry and the imminent need for operational resilience towards the sustainability of the industry.

The study discusses sustainability assessment and identifies common factors with operational resilience, if any, that can be utilized specifically to the Indian apparel manufacturing industry for sustainability assessment.

Discussion: In today's turbulent, complex, ever-growing global system, organizations face various challenges such as pandemic diseases, natural disasters, economic recession, human error, terrorist attacks, equipment failure etc. These challenges pose a severe threat to the operational continuity of organizations. Companies need an understanding of their exposure, vulnerabilities, and potential losses to inform resilience strategies (Mckinsey 2020 report - Risk, resilience, and rebalancing in global value). This vulnerability brings resilience forward as an important issue since it is a necessary precondition for sustainability.

According to (Khurana K, 2022), till now no proper framework is adapted by apparel manufacturing sector towards operational resilience. Even (ILO report, 2022) had given primary guidelines for apparel manufactures, an action-oriented checklist for managers to continue their working in a better and safer environment. When a disruption occurs, many business assumptions are put to the test. Operational resilience is the best foot forward towards making a company sustainable. Failure to develop resilience at the right time may be a cause of huge financial loss for the whole value chain which may ultimately erode sustainability in the long run.

Conclusion: This paper discusses key concepts and practices that are being employed across industries and across countries for sustainability and operational resilience in organizations. The paper showcases how these operational resilience practices align with the sustainability goal of the organizations and can be useful for the Indian apparel manufacturing industry too.

Bridging the Divide: AI-Generated vs Artist-Crafted Designs in Cultural Context

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In the realm of design and visual communication, a profound transformation is underway, driven by the integration of artificial intelligence (AI). This delves into the intriguing distinctions between designs and visual communications produced by AI and those crafted by human artists and graphic designers, with a specific focus on the incorporation of cultural elements.

AI-generated designs exhibit unique characteristics that set them apart from human-created works. Firstly, AI relies on vast datasets and complex algorithms to generate designs, resulting in a remarkable degree of scalability and efficiency. This scalability can be both an asset and a challenge when incorporating cultural elements. AI can swiftly adapt to various cultural contexts, but it may lack the depth of understanding that human artists possess.

One of the most significant distinctions is the absence of genuine cultural empathy in AI. Human designers have the innate ability to empathize with the cultures they engage with, allowing them to create designs deeply rooted in cultural symbolism and meaning. AI, on the other hand, lacks this inherent empathy and often relies on superficial patterns, potentially leading to designs that lack authenticity and cultural sensitivity.

Moreover, AI's reliance on historical data may perpetuate biases and stereotypes present in the data, inadvertently reinforcing cultural misconceptions. In contrast, human artists and designers can challenge and subvert these stereotypes, promoting more nuanced and culturally aware visual communications. Despite these challenges, AI brings novel opportunities to the field of design. It can facilitate cross-cultural exchange by quickly adapting to different cultural styles and aesthetics. AI can also assist artists and designers by automating repetitive tasks, freeing them to focus on creative aspects that demand human insight and emotional intelligence. To bridge the gap between AI-generated and artist-crafted designs in cultural contexts, it is imperative to combine AI's computational prowess with human creativity and cultural understanding. This can be achieved through collaborative efforts where AI serves as a tool for artists and de-

signers, aiding them in exploring new dimensions of creativity and cultural expression.

In conclusion, the differences between AI-generated and artist-crafted designs in terms of cultural elements are both apparent and nuanced. While AI offers efficiency and adaptability, it often lacks the depth of cultural empathy found in human creators. Recognizing these distinctions and promoting collaborative approaches that leverage the strengths of both AI and human creativity can lead to more culturally rich and sensitive visual communications in the digital age.

Sustainable Practices In Textile, Leather And Apparel

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The environmental harm caused by the fashion industry is well-documented, with a substantial body of information amassed over the years. In recent times, there has been a heightened level of concern about the industry's ecological impact, fuelled by mounting evidence of global apparel consumption. This surge in concern has spurred a noticeable movement towards concrete, measurable action. The fashion industry's environmental consequences are no longer a revelation but a pressing call to address its footprint with tangible measures.

With the abundance of information surrounding the subject of sustainability in the fashion industry, this research paper intends to employ a systematic research and business case analysis process, analysing a wide range of literature and scrutinizing business case studies to uncover exemplary sustainable practices and reveal existing shortcomings in the fashion sector.

One notable example is the rise of "circular fashion" initiatives, where brands emphasize recycling, reusing, and upcycling clothing. This approach aims to extend the lifespan of garments and reduce waste in landfills. Emphasis is placed on the textile, footwear, and leather industries, with an examination of both scientific research and real world business scenarios to understand current practices in processes, products, and strategies encouraging industry sustainability. By embracing contemporary scientific advancements and promoting their incorporation into sustainable business strategies, this research seeks to update existing knowledge. Policies and potential solutions to the fashion industry's ecological difficulties were also considered.

Thereby, the objective is to present a summary of the current state of events in terms of recent scientific research and ethical business practices that may be helpful for further in-depth study and improvement

Sustainable Practices In Textile, Leather And Apparel Industry

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Sustainability can be achieved when all people on Earth can live well without compromising the quality of life for future generations.

Every human has the right to a comfortable existence. However, the environment shouldn't be sacrificed to obtain this comfort. The concept of sustainable development emphasizes on preserving resources for future generations. It also highlights the need to conserve nature, biodiversity, and ecosystems for the present and future. In terms of production volume and employment, the textile, leather and apparel industry is rapidly expanding and as a result, the industry has a significant impact on society, the economy, and the environment. The textile leather and apparel business is a thirsty industry, consuming 425,000,000 gallons of water daily, a resource that is getting scarce day by day.

Adopting sustainable practices is crucial for safeguarding the ecosystem and the environment since the textile and clothing industry is one of the most polluting sectors across the globe. The majority of industrial processes must adhere to sustainability criteria, which are currently being modified as per the current environmental hazards. Utilising less water, harmful chemicals, pesticides, and fertilisers; adopting environmentally friendly production techniques; utilising less energy throughout production processes; and implementing the 3 R's—Reduce, Reuse, and Recycling—are all examples of sustainable practices in the textile and apparel industry. The general public is becoming more aware of green consumption and is seeking out eco products, thus it is crucial for the apparel and textile sector to adhere to sustainability standards. Consumer, manufacturer, societal, and environmental safety are all addressed by sustainability standards and certifications.

This paper provides an overview of the different sustainability standards relevant to the textile and apparel industry, how the standards guide the industry toward sustainability, the components of sustainable development, and more.

Design Collaborations In Men's Fashion: Amalgamation Of Kota Doria And Mandana Motifs

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Kota Doria, a renowned textile originating from Rajasthan, once known for Men's turban. However, with the passage of time, turbans faded from the fashion landscape, making way for the prominence of women's sarees and suits. Presently, there exists a noticeable absence of Kota Doria articles designed for males. In response to this gap, the study aims to reinvigorate interest in men's fashion by creating an entirely novel product range made of Kota Doria articles by printing Mandana motifs on it. To achieve the objectives of the study a variety of sources, including books, magazines, research papers, articles, and internet searches, were used to gather the secondary data. The first-hand information was gathered by making numerous field trips to the villages in Rajasthan's Tonk and Sawai Madhopur districts and meeting Mandana artists. To curate an innovative range of men's fashion articles i.e., Kurta & Turbans, several motifs were identified to be sources of inspiration and a set of unique designs were meticulously developed for men's fashion articles using Adobe Illustrator, which were then circulated amongst a set of respondents mainly fashion lovers, designers and field experts for evaluation using a preferential choice index ranging from poor to excellent on a scale of 1 to 5. Their preferences for the following parameters were determined: motif selection; motif placement & layout; color scheme used; uniqueness of design and overall appearance. Top three rated designs for both men's turbans and men's kurtas, were identified and articles were developed using digital printing method. This study will offer traditional Mandana embellishments a new form, simultaneously providing Kota Doria a completely new product range especially designed for men which will further help Doria weavers to boost their sales.

Investigate The Effect Of ARSG (Augmented Reality Smart Glasses) On Customer Co-Creation As A Key Driver Of Innovation, Customer Well-Being & Sustainability

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Investing in innovative technologies and services, especially by large hi-tech companies, has gained interest (Anett et al, 2023). In the competitive environment, it is important that brands offer beyond product attributes to differentiate themselves. (Natarajan et al, 2017). One such innovative technology is Augmented Reality Smart Glasses (ARSG). The global ARSG market is projected to reach \$33.16 billion by 2027 (Allied Market Research, 2021). Google Glass Enterprise 2, Microsoft HoloLens 2, Lenovo Think Reality A3, Apple Vision Pro, and Vuzix Blade Upgraded are some of the leading AR glasses available to customers (ZDNET, 2023).

Both fashion and tech companies have been eyeing smart glasses (Vogue, Jun 2023). Balmain partnered with Meta on a small collection of branded Oculus VR headsets in 2018, Gucci collaborated with Snapchat on a version of its smart glasses in 2019 and Ray-Ban partnered with Meta on its first smart glasses, introduced in September 2021. This (ARSG) is a luxury accessory and this is the moment for developers at maisons to start developing for this device (Vogue, Jun 2023). Users will be making a fashion choice to use the device or not and what it signals to others (Cathy Hackl, Magic Leap, ARSG manufacturer).

This research proposes to study how Augmented Reality Smart Glass - ARSG customers (users) can Co-create value through the investment, (viz. brand-related interactions) of their resources (e.g., time, money, creative ideas et al), and knowledge sharing (e.g., eWOM).

And how Customer Co-Creation can drive innovation, well-being and sustainability.

The S-D logic (Vargo and Lusch 2004) – informed customer engagement, integrative framework (Hollebeek, et al. 2019) established generalizable insight into Customer Engagement. The framework comprises

three CE foundational processes (FP) (customer resource integration, customer knowledge sharing, and customer learning) and identifies three CE benefits (customer individual/interpersonal operant (Vargo and Lusch 2004) resource development, and co-creation). The framework contributes to the development of theoretical parsimony in CE/S-D logic research and increases our understanding of CE's theoretical relationships.

The research intends to therefore study the relationship between CE/S-D logic FP and benefits viz. (i) customer resource integration (ii) customer knowledge sharing and (iii) customer co-creation. And how Customer Co-Creation drives (a) perceived innovation (v) customer well-being, and (vi) sustainability

Within the context of ARSGs (Augmented Reality Smart Glasses) and the above-mentioned relationships, the study shall also investigate the possible moderating effects of customers' ARSG attitude, perceived Fashionability and wearable comfort, physical risk of using ARSG, health risks, and customer's environmental concern.

NFC Chip Infused Belt Loop Brooch, For A Tech Savvy And Modern Age Indian Men

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In the realm of men's fashion, innovation has been scarce, creating an opportunity for novel solutions to enhance men's professional appearance and adapt to increasingly internet-dependent world. This research project addresses this challenge through meticulous market analysis and the development of two pioneering solutions: integrating NFC (Near Field Communication) technology into men's trousers and creating an Android-based application. This enables wearers to digitally exchange business cards via NFC, eliminating the need for an internet connection.

Objective

The aim is to rejuvenate men's trousers by introducing innovative features and functionalities, enhancing the customer experience, and setting the product apart.

Sub Objectives:

Create an NFC-based trim and an Android application for effortless business card sharing.

Incorporate unique functionalities with creatively designed pockets.

Analysis:

Market Analysis: Research reveals a growing demand for multifunctional products, including inventive pocket styles, comfortable fits, and advanced fabrics.

Product Gap: Existing trousers lack forward-thinking features, yet working-class men can significantly benefit from technologically advanced attire.

Technical Solution: Technical analysis led to selecting the NTAG213 NFC tag and a detachable trim for seamless accessibility, complemented by a user-friendly Android application.

Fabric Sustainability: Introducing finishes for moisture-wicking, thermal regulation, UPF protection, anti-static, and anti-odor properties with environmental considerations.

Conclusion:

In summary, this research project introduces a transformative concept that leverages NFC technology to enhance men's trousers. The NFC-based belt loop trim, with its accompanying software application, holds immense theoretical potential and offers compelling benefits.

Effortless Connectivity: Simplifies digital interactions for sharing information.

Enhanced Accessibility: Improves access to digital content and services without an internet connection.

Eco-Friendly Approach: Promotes sustainability by reducing the need for physical business cards.

Digital Business Card Sharing: Facilitates seamless exchange, fostering networking and collaboration.

Data Security: Ensures controlled access, safeguarding user privacy.

Versatile Utility: Expands functionality to support various NFC-based features.

Practice To Profession: A Scope For Transitioning The Bharoon Embroidery

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Bharoon, an indigenous embroidered craft, is practiced by the Labhana tribe of Shantapur, a rural village in Telangana, India. Bharoon, - meaning 'to fill' is a domestic craft practiced by these women. This bold and colorful embroidery is used on clothing as ornamentation for significant occasions by these women. The craft remained a secluded tradition, with limited application and opportunities. This paper delves into the scope of its transition into an embroidered textile. It attempts to highlight the colourful intricacies of this craft leveraging towards a textile craft with an orientation to empower its practitioners. With the focus on incorporating into apparel, this experimentative study is undertaken as a design project to explore the craft's design attributes to market requirements. Commercializing the craft is a means to uplift the community and enhance its economic prospects by providing the women artisans an opportunity to earn an income by utilizing their skills. Like many other Indian crafts that have stemmed from cultural practices and settled as textile traditions, Bharoon has the potential to follow suit. Fashion and culture are closely related and lean on each other to create sustainable trends that are rich, diverse, and unique. This study thus focuses on design intervention to showcase Bharoon as a cultural craft paving its way from a domestic practice to a profession.

Consumer Behavior Towards Sustainability And Its Influence On The Market Supply For Denim Fabrics

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In the rapidly advancing world, the issue of sustainability poses a significant challenge. Organizations striving for sustainability cannot achieve their goals without the active participation of the general public. Hoekstra, A. Y. (2015) Denim production is notoriously water-intensive, leading to substantial environmental consequences. Picoli, J. F., et al., (2023) Sustainability encompasses economic, social, and environmental aspects, and its development holds the promise of better resource availability in the future.

This research follows a related literature review on consumer behaviour, sustainability in fashion, denim production, and marketing strategies. The research design encompasses quantitative and a qualitative approach based on the research objectives. It will administer a structured questionnaire to collect data from the selected participants. The analysis involves use of SPSS statistical software for quantitative data analysis to identify patterns, correlations, and trends in consumer behaviour. Based on the above the findings will be interpreted to relate them to the research objectives. As an outcome, it will provide recommendations for denim producers and marketers on aligning their strategies with consumer preferences for sustainable denim.

This study is crucial for shedding light on the influence of consumer behaviour on the denim market and how it shapes market trends. It delves into how denim products available in the market affect consumers and, in turn, how consumer behaviour influences the supply of denim-based products. The findings suggest that sustainable marketing significantly enhances brand image, ultimately leading to increased sales of sustainable denim products. This positive brand image also contributes to higher purchase intentions for sustainable denim.

Inclusivity In Fashion Design

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In this cutting edge of Fashion Design Industry, the role of a fashion designer has been constantly evolving. Demand for a fashion designer is not only from the perfect figured models runway and mainstream consumers of the society but also fashion design landscape has now spread across all the segments of the society. Fashion industry should provide functional clothing for various necessities as patients, senior people, new born babies, toddlers and also for working professionals, with aesthetics, functionality and comfort. For this generation of gender neutrality, unisex clothing is a new dimension.

In this modern era, fashion designers also need to focus on sustainability of the product. For ethical fashion design practices, we need to sow the seeds of sustainable designs for students, theoretically and practically in their pedagogy. The outcome of it would be beneficial for the industry landscape in numerous ways.

The data collection is the key process in research. Primary data has already been published in recent years. The secondary data will be collected by random sampling method from ordinary public from various segments of the society about their expectations from a fashion designer. Also data will be collected from the students of Fashion design about their expectations of work in the industry, as they would be the fashion designers of the future. Online method of data collection with a structured tool of questionnaire will be used and analyzed for the standard non bias outcome of the study. Research will be carried out by sample size of fifty of consumers and fifty fashion design students.

This paper will enlighten in various aspects and enhance the understanding and knowledge of the concept of inclusivity in fashion design, which can lead the students towards the sustainable and inclusive fashion design practices. The study recommends about making the curriculum and pedagogy more inclusive for Fashion Design.

NFT Art And Sustainability

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In recent years, NFTs have rapidly gained traction in the blockchain and metaverse space. NFT platforms can alleviate the limitations of traditional art methods, such as the need for chemical pigments, brushes, and paper. Digital art through NFT platforms can transform the entire creative industry.

The environmental impact of blockchain technology due to its high energy consumption is a cause for concern. NFTs have strengthened their operations and evolved from serving as indicators to contributing to reducing carbon emissions. By optimizing carbon reduction strategies, NFTs could capture a large market in the future due to sustainable practices.

The purpose of this study is to measure the current carbon footprint of traditional art methods and NFT digital art, taking into account U.S. Environmental Protection Agency (EPA) Goals 1, 2, and 3. Understanding the roles of artists, investors, collectors, and governments. Additionally, considering policies to promote sustainable practices in the NFT market.

This includes the latest national greenhouse gas emissions studies, EPA absorption trends reports, and key insights and data from key sources and sectors. We also review NFT, art market publications and reports, and interviews with NFT art advisors and collectors from around the world. This includes both quantitative and qualitative research methods.

This article aims to benefit researchers and the digital economy through a comparative analysis of the carbon emissions of NFT digital art and traditional art methods. As climate change and carbon emissions challenge the status quo, we need to must deepen our understanding of incorporating sustainability into the dynamic art field.

Virtual Influencers In The Post-Pandemic Era: Exploring Hyperreality And Impact On Fashion

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The Post - Pandemic era witnessed rise of many tech-oriented business models and economies particularly pertaining to AI led business tools or NFTs becoming the new form of art. One such rise has been of the AI generated Virtual Influencers and Avatars that engage with audiences across social media platforms and have become the “new normal” in the marketing landscape. These digital avatars/robots/virtual influencers are designed to emulate human-like appearances and personalities and are now considered as influential marketing tools. In the current epoch, virtual influencers have also become catalysts for meaningful dialogues surrounding social issues such as body positivity, gender-equality, celebrating diversity and inclusivity. These digital personas are increasingly assuming the roles of social activists, shaping opinions, and influencing their vast digital audiences. This study explores the hyper-realistic nature of virtual influencers, examining how their digitally crafted appearances blur the lines between reality and artifice and critically examines the extent to which these virtual influencers have impacted fashion especially in the realm of virtual fashion space, and whether their engagements in social issues translate into meaningful progress or remain performative gestures.

This research employs a qualitative approach, drawing on literature review and content analysis of virtual influencer campaigns to understand the factors contributing to their rise, especially, in the post-pandemic era, shedding light on their rapid growth within the brand collaborations and marketing industry and their profound impact on the global fashion landscape. As virtual influencers continue to gain prominence, this study also explores their hyperrealistic representations, addressing concerns related to over sexualisation, perpetuation of unrealistic beauty standards which further encourages critical discourse and promotes an ethically responsible virtual influencer marketing landscape that can expand and connect key players in fashion for a positive future society.

Design Thinking Methods To Design And Develop Strategies Of Adaptive Clothing For Sustainable Fashion. A Project Based Learning Pedagogy That Focuses On Inter-disciplinary Learning

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Fashion has moved in space and time, it is more interdisciplinary than ever. Scholars, academicians spanning science & technology, sociology, anthropology, ethnography are collaborating to explore different dimensions of fashion; visual, cultural, semiotics or socio-economic. From being a product of industrialisation, fashion is becoming more conceptual, a topic of interest for thinkers and intellects (Singh Lavdeep 2021). Considering the ubiquitous presence of fashion, it must be used as a social tool to bring about a positive change in the society and meet the third global sustainable development goal of “Good Health & Well Being”. Especially, in times when the narrative around sustainable fashion has moved beyond just going green or organic consumption and inclusivity has become an integral part of sustainability ensuring that benefits of sustainable practices are shared equally among all. For fashion industry to be truly sustainable, it must take society’s needs into consideration.

Over 1.8 billion people around the world have a disability – and when combined with their friends and family members, people with disabilities have a combined spending power of \$13 trillion (Ludke Robert, 2021). A research by Coherent Market Insights found that the global adaptive clothing market will be nearly \$400 billion by 2026. This massive market opportunity calls for an action to make inclusive clothing an integral part of the fashion industry. This study aims to develop a pedagogical approach to use Design Thinking tools that places humans with special needs at the centre of the design process, enabling designers to empathise with the target consumers, thus, leading to a participatory decision making & co-design process which further promotes inclusivity in fashion. The study provides a portfolio of strategies and solutions that could be used as set of principles to guide fashion designers regarding accessibility, adaptability, affordability and inclusive sizing to make fashion truly inclusive and sustainable.

Sustainable Design Practices On Organic And Natural Dyes

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The clusters of Lahaul and Pangri in Himachal Pradesh, India, have long been known for their vibrant textile craft traditions, particularly their expertise in wool-based crafts. However, the advent of outsourcing of cost-effective and synthetic wool, has posed a significant threat to these traditional practices. This transition has not only led to a decline in the number of indigenous sheep but has also compromised the authenticity of organic wool production. The diminishing supply of organic wool further erodes the craft value associated with traditional textile production. In addition to preserving the natural resources of the region, this study seeks to revitalise the authentic craft traditions of Lahaul and Pangri by ensuring a sustainable supply of organic wool.

Consequently, the advent of synthetic dyes has posed environmental and health concerns, demanding a shift towards sustainable alternatives. This study delves into the need for the usage of organic and natural dyes in Lahaul and Pangri to mitigate the challenges. The research encompasses a multifaceted approach, including the identification and cultivation of regionally appropriate dye-yielding plants, extraction processes, and the integration of these natural dyes into the textile production chain. The research also evaluates the environmental impact of the natural dyeing process, including factors such as water consumption, waste generation, and energy consumption, comparing it to conventional synthetic dyeing practices.

Furthermore, this research examines the economic aspects of transition from synthetic to natural ways for wool and dyes. It assesses the potential for income generation and the revitalisation of the craft economy within the local communities, thereby encouraging socio-economic sustainability. By embracing organic ways for wool and dyes, the craft clusters in Lahaul and Pangri not only promote environmental sustainability but also preserve and enhance the cultural significance of textile and craft production in these clusters.

This research serves as a case study, offering insights into the broad-

er challenges faced by craft communities struggling with the impact of globalisation and synthetic materials. In conclusion, this study underscores the urgent need for sustainable practices in Lahaul and Pangri's textile production. This initiative, if successfully implemented, could serve as a model for other regions facing similar threats to their traditional craft clusters and will highlight the potential for replicating such sustainable practices in other regions, promoting a global shift towards a more environmentally conscious and culturally enriched textile and craft industry.

A Study On Sustainable Fashion Practices Of Textile Industry InThe Daman District Of Union Territory Of Dadra Nagar Haveli, Daman & Diu

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The concerns in the fashion industry have witnessed exponential growth focusing on sustainability, emphasizing the need to minimize its environmental and social impacts. This research investigates the concept of sustainability in fashion and its profound effects on the environment in the Daman district of the Union territory of Dadra Nagar Haveli, Daman & Diu. Khandual, A., & Pradhan, S. (2019) Sustainability in fashion encompasses practices that mitigate negative consequences on the environment and society, including the use of sustainable materials, advocating for fair labour practices, and waste reduction. It aspires to establish a carbon-neutral fashion sector founded on principles of equality, social justice, animal welfare, and ecological integrity.

Niinimäki, K., et al., (2020) The environmental impact of clothing is increasingly evident meanwhile sustainable fashion emerges as a compelling solution to counter the adverse effects of the fast fashion industry. Sustainable fashion considers the entire lifecycle of a garment, striving to diminish its ecological and societal footprint. Mukendi, A., et al., (2020) Unlike fast fashion, sustainable fashion champions ethical and responsible approaches such as recycling, upcycling, and ethical labour practices. This paradigm shift offers a feasible path for the fashion and textiles industry, achievable through environmentally friendly materials, reduced resource consumption, and equitable working conditions.

Research explores the current state of sustainability practices within the textile industry in Daman district of Union territory of Dadra Nagar Haveli, Daman & Diu. It investigates the environmental impact of fashion media and its association with sustainable fashion practices. Study examines the awareness and adoption of sustainable fashion practices among key stakeholders in the textile industry. It identifies the challenges and barriers faced by businesses and consumers in adopting sustainable

fashion practices and tries to provide recommendations and strategies for promoting sustainable fashion practices in Daman. The study will encompass a sample of 150 respondents related to the Textile Industry drawn from various demographics in the Daman district of the Union territory of Dadra Nagar Haveli, Daman & Diu. Convenience sampling will be employed to select participants, and data will be gathered through structured surveys, including Likert-scale questions. To analyse the relationships between variables, inferential statistics, such as correlation analysis and chi-square tests, will be conducted using JASP software. Findings from this study will offer insights into the current state of sustainable fashion practices.

Green Fashion And Its Impact On Health And Social Well-Being

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Green fashion, characterized by sustainable and eco-friendly practices throughout the fashion supply chain, has emerged as a response to the fashion industry's environmental and social challenges. This study explores the interconnected relationship between green fashion and its significant implications for human health and social well-being. Green fashion uses sustainable materials and production processes to minimize pollution, conserve water, and limit the use of harmful chemicals. This, in turn, contributes to cleaner air, water, and ecosystems, ultimately benefiting human health. Green fashion promotes the use of non-toxic, eco-friendly materials and dyes for reducing the risk of skin allergies and other health issues associated with wearing conventional clothing items that may contain harmful chemicals. A core component of green fashion is a commitment to ethical labour practices. Ensuring fair wages, safe working conditions, and the elimination of exploitative labour practices enhances the well-being of workers in the fashion industry, fostering social equity and dignity. Sustainable fashion often supports local communities and artisanal practices. This can create economic opportunities, reduce poverty, and strengthen the social fabric of communities, leading to improved overall well-being. Green fashion's emphasis on mindful consumption and a slower, more deliberate approach to fashion can contribute to reduced stress and anxiety. It encourages consumers to make intentional choices and detach from the culture of fast fashion. In conclusion, green fashion is not merely a trend but a transformative movement with profound implications for human health and social well-being. By addressing environmental concerns, promoting ethical labour practices, and empowering consumers to make conscious choices, green fashion contributes to a more sustainable, equitable, and healthier world. Its holistic approach to fashion is increasingly recognized as a model for creating a more harmonious relationship between humanity and the planet.

Natural Sustainable Fibre

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The pursuit of sustainability in various industries has led to a growing interest in exploring alternative natural fibres as eco-friendly alternatives to conventional natural and synthetic materials. Natural fibres, sourced from plants, animals, and minerals, have gained significant attention due to their biodegradability, renewability, and low carbon footprint. Traditional natural fibres like cotton often require substantial amounts of water, pesticides, and fertilizers during cultivation, making them less eco-friendly. This highlights the need to explore alternative natural fibres that are more sustainable. Synthetic fibres, derived from fossil fuels, have their own environmental concerns, including high carbon emissions during production. Hence, there's a growing push to find more sustainable alternatives. India boasts a diverse range of climates and environments, including tropical, subtropical, arid, semi-arid, temperate, and alpine regions. This rich biodiversity allows for the growth of a wide variety of plants adapted to different climate conditions. This diversity serves as a valuable resource for sourcing natural fibres sustainably.

In the present work the fibres are derived from the wild plant leaves which are collected from their natural habitats rather than cultivated in fields. The objective is to provide insights into the current state of research, challenges, and opportunities in the utilization of such fibres for achieving sustainability goals. Fibre extraction method was optimised and discussed. Also, the fibre properties were studied and discussed.

Conversion Of Pre-Consumer Boutique Waste Into Innovative Products

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During the course of production of garments in a boutique, a substantial amount of waste is generated depending upon the type of fabric design. Checks, stripes, printed and floral design fabric generates more waste as compared to plain fabric. In garment industry, waste generation is comparatively less due to large number of garments of different sizes cut from the same fabric spread. Approximately 15 percent of fabric is wasted on average while making standard clothing in garment industry. The main aim of this study is up cycling of pre-consumer boutique waste and gives a new life to the waste fabric in the form of innovative product, rather than putting waste into landfills or incineration. Both landfilling and incineration generate environment pollution. Garment waste produced is sent to landfills, where it decomposes and leads to production of methane gas. Methane is a dominant greenhouse gas that traps atmospheric heat more efficiently than other greenhouse gas such as carbon dioxide. The solid waste contributes significantly to the existing problem of global warming. The clothing waste generation is far more than its decomposition rate. It may take between one to five months to fully biodegrade, with the condition that the waste comprises only of organic cotton fabrics and 20 to 200 years for non-biodegradable synthetic fabrics. To tackle this problem we need to adopt sustainable fashion practices. Up cycling of boutique waste means to takes the left out material that would otherwise be thrown away and reinvents them into useful innovative products. Up cycling of boutique waste material lowers the cost of raw material that constitutes 50-75% cost of product and increase profit margin. Innovative products such as gown, blouse, lady/mens/kids shirts, shorts, handbags, foot wear, etc, produce from boutique waste. The upcycling of boutique waste can also reduce burden on our planet's natural resources.

From Waste To Wearable: An Initiative To Transform 'Thrums Into Doodads

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India produces over 7,793 tons of textile waste annually, or 8.5% of the world's total. Due to issues with quality and visibility, only a small portion of this waste—59%—finds its way back into the worldwide supply chains for high-end goods in the textile sector. The weaving process involves some inevitable part which is 'Waste' – a few inches of warp that cannot be woven are mislaid at the foremost part and the back of the loom. Depending on how frugal the method of warping of loom the number of thrums can be calculated in the first crack. It has been observed through research that thrums are used in many ways like "charity crafting", for making "hit & miss" mug rugs, to use them in a rya pile rug, use them to tie up tomato plants, florists use them as their line of work, for stuffing little toys for kids, for hand spinners, etc. Also found that the thrums are not only used by humans, but the robins and sparrows collect them for their nests. This research introduces an innovative approach to repurposing thrums, advocating for their use in creating bespoke embellishments for garments and accessories. The rich diversity of thrums allows us to produce opulent enhancements, with silk thrums lending themselves to the crafting of customized jewelry and exquisite trims for haute couture. In alignment with the principles of sustainability and circularity, this endeavor aspires to revolutionize fashion, striving towards a paradigm of zero wastage while embracing a wholly fashionable ethos.

Sustainable Stamps: Bridging Tradition And Technology

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The textile industry has long grappled with environmental challenges, particularly in the realm of printing. The field of printing has undergone significant transformations in the past few decades, driven by technological advancements and the growing imperative of sustainability. Traditional textile printing methods often involve resource-intensive processes and the use of harmful chemicals. The textile industry's commitment to sustainability has driven significant innovations in textile printing.

Block printing is one of the most popular traditional printing methods existing in today's market and has been responsible for producing astonishingly intricate designs due to intensive hardwork and skill. It is slowly losing market and unable to match pace with more sustainable printing methods because of labor intensive work and time consumption (especially during the block carving process). The time required to prepare a wooden block for hand block printing can vary widely, but it typically takes several days to complete the entire process, especially for intricate designs. Skilled artisans may be able to work more quickly but precision and attention to detail are crucial in creating high-quality blocks for hand block printing.

Research studies have shown that traditional methods such as block printing can find renewed relevance in the modern world by combining their artistic appeal with innovative practices. Laser cutters are being used to create wooden blocks for hand block printing, which offers substantial time savings (minutes to hours) as compared to days in traditional hand-carving methods.

Although, laser-cut blocks reduce time and energy in the process, even so the cost of electricity consumed by the laser cutting equipment and maintenance costs are high. Therefore, the use of solar energy could provide a more sustainable solution for this issue. Lastly, laser cutting is inherently efficient and can expedite the block-making process considerably, making it a more accessible and time-saving option for producing wooden blocks for hand block printing.

Women Contributions Of Social Entrepreneurship To Textile Waste

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The textiles sector is the second largest supplier of employment after agriculture. The textiles industry has made a major contribution to the national economy in terms of net foreign exchange earnings and contribution to the GDP. The Indian Textile and Apparel industry has a matchless presence in the economic life of the country. The global economic slow-down has severely hit the Textile and Apparel sector of India by eliminating thousands of jobs. But to sustain businesses in the present changing scenario, the Indian Government along with Textile companies need to prepare long term strategies like diversification of markets, product mix and adoption of new technologies besides investments in Sustainable Green Textiles and Technical Textiles which are essential for survival and rapid growth. In order to produce the product for the world, our companies need to be internationally competitive or else, we will be out of business. Women entrepreneurs in India comprised a small proportion of the total entrepreneurs. The emergence of women entrepreneurs has been hampered by attitudinal constraints, and social traditions. Due to the lack of technical knowledge and little competition from men, Indian women have contributed for the most part to household industries. The spread of education and growing awareness among women have motivated women to enter the fields of engineering, electronics, energy and such other industries. As part of the Human Resource development, most of the countries are aiming on women development i.e. the Indian government has been providing subsidies for women entrepreneurs and special provisions for category of entrepreneurs belonging to schedule caste, schedule tribe and women. Various policies and schemes have been framed by the government for the upliftment and promotion of women towards the working life.

Meme-Ing Sustainability: A Study Of Memes Impact On Youth

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Influence is the dominant currency in the world of social media, and in a rapidly evolving and manifesting global order, sustainability of fashion is one certain way to attain the critical need to conserve our environment and planet. (Gargee, 2020). Simultaneously, we also notice that, in the current digital landscape, the influence of memes on the choices that youth make for fashion, especially sustainable fashion which would also include ethical and conscious fashion is growing unmistakably. Internet memes have become an omnipresent and influential form of communication. Memes are the very catchy, attractive, and immensely popular internet jokes which carry a great potency to go viral. (Dutta, Singh and Rawat, 2021). Fueled by the Internet, these often caustic humour that ride high on ridicule spread easily into the popular daily usage and practice to become an essential part of the netizen's language (Shifman, 2013). Due to the embedded humour, their witty punchline and their catchy nature, Memes are found to easily feed on and multiply like a virus on the minds of both the current and prospective consumers and infect and influence them with the idea propagated in the meme (Mantikei, 2020). Hence, this persuasive power of memes which cannot be overvalued, invests in them the potency to facilitate and/or influence societal change even in the domain of sustainable fashion choices. This paper explores the captivating and enigmatic connection between meme culture and the sustainable fashion choices, seeking to unravel the nuanced ways in which memes shape the attitudes and behaviour of young individuals in the realm of sustainable fashion choices. This paper is based on our study that investigates the captivating and enigmatic interplay between meme culture and sustainable fashion choices, probing how this short and fast digital communication format can influence the attitudes and behaviours of young individuals. The research methodology uses a mixed qualitative- quantitative approach for the analysis of the recurring themes across the selected memes and youthful perceptions. Our data collection includes the systematic collection of memes related to sus-

tainable fashion from Instagram and conducting sustained FGD to gain insight into the young individuals' attitude and behaviour. Thereafter, this research attempts to explore the transformative potential of memes as a powerful tool and agent of change in the world of sustainable fashion and simultaneously investigate how the digital culture is shaping, molding and nurturing the attitudes and behaviour of the young individuals towards sustainable, ethical and conscious fashion.

Fostering Resilience: A Sustainable Future For Indian Artisans

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India is home to more than 200 million artisans. In recent years, there has been a growing emphasis on sustainable educational practices to address social and economic challenges. This explores the integration of sustainable principles into the realm of artisanal craftsmanship in India. While Indian artisans have a rich heritage of traditional craftsmanship passed down through generations, they are confronted with contemporary issues like resource scarcity, limited market access, and the need to preserve their cultural legacy. The Indian art and craft industry, deeply rooted in ancient civilizations, embodies a profound intellectual and aesthetic tradition. Over time, this industry has witnessed significant changes in demand, philosophy, relevance, and character. This paper aims to address the primary challenges faced by rural artisans in India and propose strategies to ensure their long-term livelihood sustainability.

Artisans play a crucial role in the Indian economy, yet they often work informally and lack access to benefits and government support. Despite being guardians of Indian civilization, they encounter numerous obstacles, including inadequate skills, limited marketing strategies, outdated technology, lack of financial backing, and a diminishing market share. Rapid industrialization further threatens the industry's significance and market presence.

HCL Foundation plays a pivotal role in supporting rural artisans, which is essential for the reevaluation, reinvestment, and realignment of the artisan industry. This not only safeguards the interests of Indian artisans but also protects India's civilization, heritage, culture, and history. Investing in the art and craft sector offers numerous benefits, including improving the social, economic, and environmental conditions of rural communities and empowering rural households. One significant initiative in contributing to the growth of artisan skills is "Shilp Charcha." It consists of a series of webinars thoughtfully designed to address crucial issues, with a strong focus on empowering artisans and craft enterprises. These webinars aim to enhance their capabilities, enabling them to effectively

compete in a market that prioritizes compliance. Additionally, the “Digital Sarthi” program is dedicated to nurturing the capacity building and skill development of young artisans, granting them access to modern tools and digital proficiencies. The integration of technology not only plays a vital role in safeguarding our cultural heritage but also ensures its accessibility and relevance in today’s world.

In conclusion, achieving a lasting impact is essential to address the challenges confronting Indian artisans and to bolster traditional crafts. This is of utmost importance in the preservation of culture and heritage, as well as in promoting sustainable livelihoods.

Strategic Interventions For Art Sustainability In Modern Economy: Stabilizes The Socio-Economic Equilibrium

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Ara which is also known as Ara is a city in Bhojpur district of Bihar. This city has been known as the educational hub of the eastern India with many good schools and "VeerKumar Singh University". Not only this, it also is a centre of a traditional textiles known as "Ara Chunri" which had enjoyed a popularity graph in the past but is now at the verge of extinction. This project was undertaken to document the art of "Ara Chunri" by survey and revive (by co-design) it so as it can involve more people from the society and revive the popular art of the region!

For documentation, interview schedule method was adopted, Interview schedule was prepared in English and translated in Hindi also. The interview schedule contained questions related to the demographics of the artisans, history of the "chunri", its method of printing and materials used. Total number of 25 artisans were interviewed during multiple visit to the place. The data collected was organised and analysed.

In looks, this textile looked like bandhani saree of Gujarat. This was done by hand block printing on malmal cloth. The designs included the dots on body part and flowers in the border. The blocks were made with wood and carved by the local artists. Only natural colours were used so it was limited to three colors: Red, Yellow and Green.

Over a period of time it lost its glory, and monotony in design and poor quality of the fabric was the main cause. It was found that they have lost the hope of its revival and the younger generation was not much keen to continue. Many artisans have left this traditional work and found out other jobs.

The artisans were gathered and sensitized to revive the art and were made to understand that it is their art which represents them. They were ready to adopt the new designs and women were encouraged to be part in the printing work. Slowly, women folk also showing their interest and were somehow determined to join. Further intervention will certainly help in reviving this craft.

This project based on social entrepreneurship which also helps in women empowerment.

What Drives The Youth To Purchase Products They Are Aware Are Unsustainable?

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This research paper tries to delve into the perceptions and preferences of sustainable versus unsustainable fashion products among Indian youth, a demographic known for its potential to drive transformative consumer trends. Despite the increasing global emphasis on sustainability, Indian youth often buy unsustainable fashion products. This study concentrates on understanding the motivations and factors that influence such decisions within this specific demographic. Employing a combination of qualitative and quantitative research methods, this study explores the intricate dynamics shaping the preferences of Indian youth. It investigates elements like price sensitivity, peer influence, brand loyalty, and the role of social media in driving purchasing behavior. By focusing on this influential consumer group, the research aims to uncover insights that can guide the sustainable fashion brands and fashion designers in crafting effective strategies to effectively target the Indian youth and sell sustainable fashion. The outcomes of this research not only contribute to the ongoing discourse on sustainable fashion consumption but also provide practical recommendations for stakeholders seeking to engage with and shape the choices of Indian youth. Ultimately, this study endeavors to bridge the gap between sustainability awareness and action, facilitating a shift towards more environmentally and socially responsible consumer behavior among India's burgeoning youth population.

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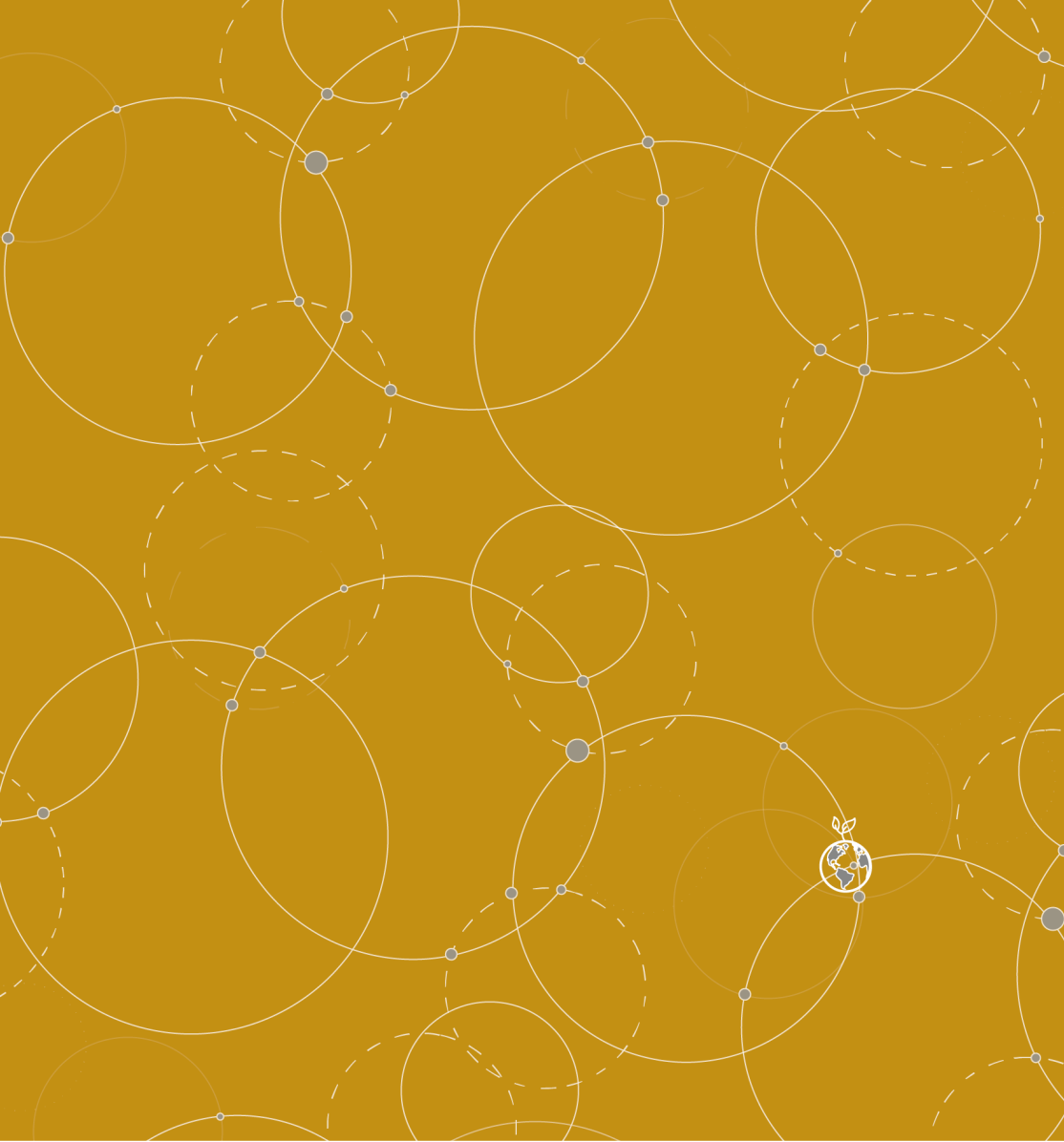
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