NIFT JOURNAL OF FASHION

VOLUME 2
2023

NIFT Journal of Fashion

Volume 2, 2023

Sustainable Futuring: Policies, Strategies and Practices

National Institute of Fashion Technology
https://nift.ac.in/journaloffashion

NIFT Journal of Fashion
Volume 2, 2023
editor.njf@nift.ac.in
https://nift.ac.in/journaloffashion
ISSN 2583-5262 (Print)

Printed and Published by
Sanjeev Kumar
on behalf of National Institute of Fashion Technology
Hauz Khas, New Delhi – 110016

Printed at
Maharana & Co.
611/9, Adarsh Mohalla, Gali No. 13, Maujpur, Delhi - 110053

Editor
Ruby Kashyap Sood

Cover design: Dimple Bahl, Head - Corporate Communication Cell

Editorial Board

About the NIFT Journal of Fashion

The NIFT Journal of Fashion (NJF) is an annual research journal with a specific theme of wide-ranging significance reflecting critical thinking on multiple perspectives of fashion in the broader areas of emerging trends and best practices in design, technology, management as well as fashion education. The objectives of this journal are to encourage knowledge sharing through original articles on topics of current and emerging significance with a view to the future of fashion; and to highlight theories, practices and pedagogy of fashion education in the domains of design, technology and management.

NJF that commenced in 2022 is a double-blind peer-reviewed and open-access journal in English language. The journal invites high quality research articles from academicians, scholars and fashion professionals for wider dissemination.

The journal expresses gratitude to the peer reviewers for their efforts to provide insightful remarks and feedback on the research articles.

MESSAGE

The second volume of our much valued journal is focusing this time on a very crucial theme of sustainability in the domain of fashion. It's a very meaningful compilation of well-researched articles with insightful ideas, strategies, and practices. The first volume of NJF on innovation in the post-COVID-19 era paved the way for sharing path-breaking research with academia and industry. The second volume will further enrich the readers with the latest sustainable practices that are catching everyone's attention in order to drive positive change and be responsible towards our planet.

I express my heartfelt appreciation to the contributors, the editorial team, and the Publication Unit for their efforts that have resulted in a comprehensive publication. This volume brings together scholars and academicians from design, management, and technology fields to share their perspectives through case studies and intensive research on prominent themes like collaborative fashion consumption, green marketing, fashion social commerce, circular economy strategies, and sustainable design pedagogies. These contributions serve as a marker to NIFT's commitment to be the torchbearer with effective dialogue and approaches to attaining a more sustainable future.

It is envisaged that researchers, academicians, policymakers, and industry members gain useful insights from the research articles and apply their learning to achieve sustainable development in the business of fashion.

Your feedback on NJF is most welcome.

Sudha Dhingra
Dean (Academics), NIFT

From the Editor's Desk

We are happy to present the second volume of the peer-reviewed NIFT Journal of Fashion, which strives to add new dimensions and perspectives on the much-talked-about theme of sustainability in the fashion industry. The articles encompass pertinent areas of research ranging from sustainable design education, consumer behavior, green marketing, clothes swapping, and secondhand fashion.

In the context of sustainability across the fiber-to-clothing ecosystem, *Jha* presents a case study of Tula, a social enterprise that follows a farm-to-closet supply chain for farmer communities, thus improving livelihoods and ensuring fair and ethical practices. *Mahajan and Singh* analyze fashion swap events and propose a scalable model for collecting and selling the merchandise, followed by the disposal of the leftover inventory. *Manocha and Dharwal* examine consumer behavior in order to identify factors that impact the decision to purchase secondhand clothing among Indian youth residing in Delhi-NCR. *Raturi and Bhatnagar* explore the concept of green marketing from the perspective of eco-friendly, sustainable fashion products in India and its effect on consumers' purchase intentions. *Advani and Gulati* recommend strategies for the fashion industry in order to integrate circularity in the entire supply chain, thus effectively addressing environmental challenges for a more sustainable future. *Srivastava and Verma* investigate the relevance of fashion social commerce and its convergence with sustainability to benefit the environment and the economy. *Kanishka and Joshi* identify key factors like self-care, consciousness, traceability, and utility that contribute to sustainable consumption behavior towards denim. *Agarwaal and Sood* present four case studies to examine product attachment and the role of memories and emotions in extending the life cycle of products. *Narasimhan and Mahajan* discuss the integration of textile crafts in sustainable design education to create and curate fashion that aligns with consumer preferences to achieve sustainable development goals. *Sood and Sharma* present a case study to assess an industry-linked classroom project implemented using the education for sustainable development framework that significantly enhanced students' learning and experience in the realm of sustainable design.

We hope this volume will encourage dialogue, research, and innovation to foster sustainable development within the fashion industry.

Ruby Kashyap Sood
Editor-in-Chief

Deepak Joshi
Associate Editor

Contents

Ecological Circularity from Soil to Skin: The Case of Tula

Banhi Jha

Abstract

The interdependence of sustainable natural materials and environmentally benign production processes underscores the need for regenerative and circular food and fiber systems. It becomes imperative, therefore, to move away from linear systems of extraction that thrive on higher production speeds and quantities of resources, perpetuating the unsustainable use of resources. This calls for the attenuation of the distance between soil and skin. Founded by Rebecca Burgess, Fibershed is a non-profit organization that supports local communities and works towards creating livelihoods and a healthier environment through regenerative agriculture that traverses the entire fiber-to-clothing ecosystem. Veering away from the widespread coupling of fashion with transient trends, Fibershed provides more sustainable ways of approaching clothing choices. Predicated on similar principles Tula is a not-for-profit enterprise in Chennai originating in the organic food space and has now expanded into a dynamic movement to promote soil-to-skin systems and a streamlined farm-to-closet supply chain for small farmer communities that assures them a fair income and ethical work compliance. Prioritizing the use of local resources and transparent production systems, it sources seeds from agricultural universities and traditional seed conservers. It also identifies and encourages local farmers across three Indian states to grow two indigenous varieties of rain-fed, short-staple cotton—*Gossypium herbaceum* and *G. arboretum*. Instead of using endocrine-disrupting chemicals, the yarns are dyed with botanical components for their aesthetic and medicinal properties. Tula's commitment to sustainability emerges from its association with and recognition of local human and material resources to forge a vertically integrated soil-to-soil system, underscoring its commitment to improving farm livelihoods through higher financial remuneration, and striving to foster a sense of agency among those from backgrounds of economic disadvantage. Spanning the entire fiber-to-clothing ecosystem, this article enquires into the ways in which a slow and mindful pace enables the re-imagining of sustainable and sensorial apparel by

engendering deep engagement with production processes and reduced intermediation between producers and consumers in decentralized textile economies that build on the resources available within local communities.

Keywords: Tula, Fibershed, soil-to-skin, sustainability, natural dyes, khaddar/khadi

Introduction

Globally, there is an evident increase in small-scale movements and grassroots initiatives emerging from the realization of the inseparability of human life with the earth as a living system. Complex synergies among living creatures, plants, soil, air, and water have resulted in an increasing decibel of voices against the extractive use of the earth as a perceived repository of infinite natural resources. The period from 2010 to 2019 saw the 'average annual global greenhouse gas emissions at their highest levels in human history' and that 'without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C is beyond reach' (IIASA, 2022). This report further states that 'agriculture, forestry, and other land use can provide large-scale emissions reductions and also remove and store carbon dioxide at scale' (ibid.). Emerging narratives of the interdependence of sustainable natural materials and environmentally benign production processes highlight the need for regenerative food and fiber systems. In a linear system, each point is like a silo, moving in a unidirectional manner from fiber to landfill. It becomes imperative to move away from extractive systems that thrive on higher quantities and production speeds, leading to the unsustainable use of resources. This calls for an attenuation of the distance between soil and skin.

The Higg Material Sustainability Index[1] introduced by the Sustainable Apparel Coalition as the fashion industry's most reliable tool, has recently been called out for utilizing a cradle-to-gate approach to assess the life cycle impact of fiber but providing outdated or inaccurate data that does not comprehensively represent the entire fiber production sector (Shendruk, 2022). In contrast, a cradle-to-grave assessment gives a more holistic and focused view of the complete impact of a product's entire lifecycle in consideration of its environmental and socio-economic costs using a framework that gives a more reliable account of its impact at the end-of-life stage or when it is discarded.

Envisioning regional textile supply chains that enliven community ownership of soil-to-skin processes, Fibershed was developed by Rebecca Burgess, expressing a "vision of change that focuses on transforming fiber and dye systems from the soil up". (Burgess, 2019, p.7). Founded in California in 2010, it has now expanded to a movement using a soil-to-skin approach to build a sustainable biosphere for consumable products. Fibershed is

'a geographical landscape that defines and gives boundaries to a natural textile resource base. Awareness of this bioregional designation engenders appreciation, connectivity, and sensitivity for the life-giving resources within our homelands' (fibershed.com). It is a dynamic and evolving living system that provides resources and opportunities to implement environmentally benign agriculture, encourages local manufacturing, and connects end-users to textiles, drawing from resources and local labor sourced from a "region no larger than a 300-mile footprint" (St. Pierre, 2019, p.39). At a macro-level, Fibershed refers to non-profit organizations that aim to support local communities for better livelihoods and a healthier environment. At a micro-level, the purpose is to create fabric through a vertically integrated soil-to-skin system of locally grown regenerative crops, followed by fiber extraction, yarn conversion, dyeing with plant-based extracts, and spinning and weaving by hand, thereby traversing the entire fiber-to-clothing ecosystem. Veering away from the widespread coupling of fashion with changing trends, Fibershed provides solutions to more sustainable ways of approaching clothing choices. This article inquires into the ways in which a slower pace of fashion fosters sustainability by recognizing the value of local human and material resources as well as benign agricultural systems.

Methods

A search for similar organizations in India revealed two references in South India, of which Tula/Tüla, a non-profit organization in Chennai, was identified as the appropriate focus for this study based on situational convenience. Secondary data was accessed online through the Tula website as well as gray literature from reputed publications. This data was supplemented by an in-person visit to Tula. The prime interviewee was Ananthasayanan, aka Ananthoo—one of the key co-founders of Tula who facilitated further connections with nodal coordinators of activities related to farming, spinning, weaving, and dyeing. Their familiarity with vernacular languages in three regions—Marathi in Maharashtra, Tamil in Tamil Nadu, and Malayalam in Kerala, as well as general proficiency in English were instrumental in facilitating this study, supplemented with the observation of farmers, dyers, and weavers in their work environments. The apparel range in khadi developed and retailed by Tula has been assessed and cross-referenced with existing literature in terms of its aesthetics and attributes of sustainability.

Genesis of Tula

The need for an alternative approach to agriculture arose in 2007 during the course of discussions among a group of expatriates comprising close friends, on the agricultural predicament in India as a fallout of the Green Revolution (1967-1978) associated with

the introduction of high-yielding seed varieties, spiralling use of fertilizers, mechanized farming as well as overall degradation of the agro-ecosystem including the 'loss of soil fertility, erosion of soil, soil toxicity, diminishing water resources, pollution of underground water, salinity of underground water, increased incidence of human and livestock diseases, and global warming are outcome of the negative impacts of over adoption of agricultural technologies by farmers' (Saidur, 2015). Another concern was the agrarian crisis of farmer and agricultural laborer suicides, particularly in the cotton-growing regions of India, with one of the attributed reasons being the cultivation of Bt (*Bacillus thuringiensis*) cotton. Moreover, cotton accounts for 40 percent of global textile production and uses more pesticides and insecticides than any other single major crop. Inspired by the work of environmental activist and organic farming scientist G. Nammalavar (1938–2013), known for his work on spreading ecological farming and efforts to preserve indigenous seed varieties, the core group concluded that saving water and improving soil health and farmland ecosystems through organic farming can offer sustainable solutions to several ecological, climatic, and human health-related issues.

The deep-rooted concern to address the existing skew in the agricultural sector led to the genesis of Tula, a Sanskrit word that means both 'cotton' and 'balance'. Its logo depicts the astrological sign of a pair of scales, indicating a state of equilibrium. As a social enterprise, Tula is committed to reviving soil fertility, increasing organic farming, and saving indigenous seed varieties. Tula's first initiative was in the organic, sustainable food space through volunteer-run, non-profit organic outlets in Chennai called reStore, with the mission of restoring environmental health and farm livelihoods. Tula provides small-scale, marginal farmers with indigenous seeds to boost production and sales of locally grown organic produce using traditional Indian farming methods and regenerative cropping methods that promote soil health and biodiversity. The farmers largely follow two principles: to grow crops without chemical pesticides and insecticides and to contribute a portion of the harvested heirloom seeds to an indigenous seed bank. This reciprocity helps maintain the unique provenance of the crops. Each season, local farmers who are willing to cultivate crops and fruit using sustainable and regenerative farming practices are enlisted. This venture led to Organic Farmers Market (OFM), a community-based cooperative in Chennai where freshly delivered organic produce from local farmers is made available in local neighborhoods. Both reStore and OFM enabled the revival of the sustainable agriculture supply chain, where awareness, not commerce, is the cornerstone activity. Co-founder of reStore, OFM, and Tula India, Ananthasayanan is of the opinion that a direct relationship of trust with farmers and consumers makes

organic certification unnecessary. Moreover, the expense incurred by this certification may restrict the participation of small-scale farmers. However, a rigorous system is maintained by reStore and OFM to assure the organicity of foodgrains.

Soil-to-skin systems

Even though India had 3.35 lakh (one lakh is equal to one hundred thousand) hectares of land used for cotton cultivation in 2021 (Textile Excellence, 2022), there are still debates about how unsustainable cotton cultivation is in general and about the transgenic strain of Bt cotton with insect-repelling toxins made through genetic engineering, mostly against several bollworm species (Jha, 2018). Archaeological evidence proves that domesticated cotton grown in the Indus valley included two organic short-staple, old-world diploid species, *Gossypium herbaceum* and *G. arboretum,* both producing 'spinnable fibers from epidermal outgrowths of the seed coat' (Lee and Fang, 2015). Cotton has the quality of morphological plasticity, which enables it to adapt to local climates and geographies (Fibershed, n.d.). Short-staple cotton is characterized by its fiber length not exceeding one inch and coarseness. Abjuring genetically modified and hybrid crops, synthetic fertilizers, and policies that decouple farmer decisions from market demands, practices of 'interconnecting people, processes, and environment' (Hethorn and Ulasewicz, 2008), the philosophy of Tula encompasses the sourcing of seeds from agricultural universities apart from traditional seed conservers and identifying and encouraging local farmers in the states of Tamil Nadu, Karnataka, and Maharashtra to grow two indigenous strains of rain-fed, short-staple cotton—*herbaceum* and *arboretum*, colloquially referred to as *desi* (indigenous) cotton.

The Tula initiative started with approximately 30 farmers in Tamil Nadu, which has increased to almost 100 farmers across the three states, each with less than one acre of land, from whom reStore initially used to purchase millets. These farmers were then asked to grow the local varieties of rain-fed, short-staple cotton, including Karunganni or its improved varieties in Tamil Nadu, Jayadhar in Karnataka, and cotton strains such as AK-07, PA-255, and PA-812 in Vidarbha, Maharashtra. Tula identified local farmers who are familiar with ancient Indian farming methods, including particular strains of cotton in each region as well as those who may have saved some original, regenerative seeds. Seed resources in agricultural universities like Panjabrao Deshmukh Krishi Vidyapeeth in Akola, the Central Institute for Cotton Research in Nagpur, Shetkari Nyay Andolan Samiti in Yavatmal, Mahatma Phule Krishi Vidyapeeth in Rahuri, Maharashtra, and Tamil Nadu Agricultural University in Coimbatore, Tamil Nadu, support sustainable agriculture. This includes the use of indigenous methods of interspersing While regenerative farming

furthers the idea of organic farming by omitting chemicals, it actually replenishes the soil and surrounding nature (Farra, 2020). Financial viability being the only way of encouraging farmers to adopt the cultivation of native cotton, “Tula buys over 200 quintals annually and also pays a higher price for naturally-grown cotton than Bt cotton” (Burgess, 2019, p.146). Its objective of supporting ecological agriculture of indigenous cotton and foodgrains through mixed cropping practices has enabled sustainable livelihoods for those associated with its supply chain.

Plant-based natural dyeing

Once harvested, cotton fibers are not subjected to bleaching or other chemical dyeing processes, which are among the major sources of environmental contamination in the textile industry. Estrogenic and anti-androgenic compounds found in GM cotton, as well as chemical washing agents, dyes, and chemical surface finishes used in the textile supply chain, are endocrine disruptors proven to impact health—including that of young children—and cause several types of endocrine-related cancers and inter-generational DNA damage to humans and wildlife (Burgess, 2019, p.31). The increase in global demand for natural dyes can be attributed to their therapeutic usage and other food, textiles, agriculture, engineering, and medical applications (Habib, et al., 2021). While yarn-dyeing with different natural dye recipes varies across regions, the advantages of renewable sources, convenient extraction and purification, mild dyeing conditions, and the lack of effluents make it a sustainable alternative to chemical dyeing (Mohanty, Chandramouli and Naik, 1987). *Manjistha,* also known as Indian red madder (*Rubia cordifolia*), has a red rhizomatous base and roots that yield a red pigment widely used as plant dye. In India’s Ayurvedic tradition, it is recognized as an astringent, diuretic agent, blood purifier, remedy for anemia and jaundice, as well as curative for hyperpigmentation and leprosy. Velvelam bark (*Acacia leucophloea*) is another natural colorant for cotton dyeing that creates multiple tonal effects from pink to brown, facilitated by bio-mordant extracts. Due to its inherent low flammability, Velvelam acts as a firebreak. The Wedelia (*Wedeliatrilobata L.*) shrub, which produces green hues, has the potential to cure amenorrhea, flu, and inflammation, while Tecoma (*Tecoma stans*) produces yellow hues and also has antioxidant, analgesic, and antimicrobial attributes. Its extracted oils are essential ingredients in herbal formulations for liver ailments and healing wounds. Alkanet root bark (*Alkanna tinctoria*) contains the colorant Anchusin, which produces a range of purple and lavender hues to create a range of grey-violets when iron is added to the Alkanet dye bath. It has strong dye fastness with cotton, silk, and wool. It is also used in the treatment of external skin wounds and is swallowed for diarrhea and gastric ulcers. Tints and tones of blue are produced by the cyclotide-bearing

butterfly pea (*Clitoriaternatia*). It is a traditional Ayurvedic medicine that has a soothing impact on the nervous system and psychological state, which explains its traditional use as a memory enhancer, nootropic, antistress, antidepressant, and sedative agent. Its leaves are traditionally recommended for the treatment of bites by venomous animals and reptiles, as well as arthritis, skin diseases, and ear ailments. The fruit of Annatto (*Bixa orellana*) yields *Rubia tinctorum, a* red-orange pulp used for fabric dyeing. It has high antioxidant properties and minerals that rejuvenate the skin, improve digestion, control diabetes, and strengthen the bones. Dyeing with palash or tesu flowers (*Butea monosperma*) produces a range from deep orange to pink, which, when used with alum as mordant on pure cotton, retains color fastness for some washes and has good perspiration fastness. It also has Ayurvedic health benefits, including healing wounds and relieving swelling and pain.

Eschewing endocrine-disrupting chemicals and metallic mordants for fixing natural dyes on textile fibers**,** Tula uses only yarns and fabrics dyed with botanical components, including flowers, leaves, bark, and roots of specific plants, for their aesthetic, medicinal, and curative properties. This includes, among others, eco-friendly alternatives such as myrobalan, annatto, and other natural ingredients. The exploration of these traditional plants in terms of their dye-yielding qualities and fiber qualities is important in the fabrication of textiles with curative efficacy. Though organic colorants from plant sources are eco-friendly, benign for the skin, and do not cause dye deposition even during the washing process, their inherent disadvantage is their fragile bond with textile fibers, leading to weak color fastness properties, difficulty reproducing exact hues, and a lack of standardization in color recipes and methods. To address this, Tula associates with Wrukshatone, an eco-friendly dyeing enterprise in Erode specializing in the elimination of mordants, chemicals, and other auxiliary materials during the textile making process.

Spinning and weaving

Due to climatic vagaries such as droughts and floods, cotton cultivation may take place in one region while processing and weaving may be undertaken in another. Pre-spinning activities on the harvested cotton bolls are followed by spinning on the *Ambar charkha*—a modern version of the traditional hand-operated spinning wheel that reduces the time and labor of hand-spinning undertaken predominantly by women and also increases output. This underscores its relevance as an instrument of empowerment for women in circumstances of adversity. Spinning is undertaken in Gandhigram near Dindigul in Tamil Nadu, Gram Seva Mandal in Maharashtra, and Gadag in Karnataka. With the reduction in manual labor, efficiency has increased as the number of hanks[2]

made daily by each person has increased to 15-20 hanks per day. The yarns are then dyed with plant extracts grown on organic farms. Weaving on pit looms and hand-operated frame looms takes place in Gandhigram near Dindigul, Tamil Nadu; Janapada Seva Trust in Karnataka; Narayan Khadi Bhavan in West Bengal; as well as Ponduru and Srikakulam in Andhra Pradesh. Built on the tenets of the Gandhian ideology of self-sustenance, Khadi/khaddar[3] according to Mahatma Gandhi (1941), is a symbol of the unity of Indian humanity, its economic freedom, and equality with sustainability at its core. Approximately 2000 meters of khaddar are woven each month for Tula. Bridging the distance between weavers in villages and urban consumer preferences is predicated on the aesthetic qualities of khaddar combined with the imperative of soil health. The appeal of khaddar is not only in the fabric characteristics but also in the narrative that connects with consumers to raise awareness of sustainability, focusing on what Alastair Fuad-Luke refers to as "living well but consuming (much) less" (Fuad-Luke, 2009, p.86). To reduce post-harvest losses and preserve cotton seed quality, improved drying and storage methods are used to ensure seed security for subsequent planting. Tula's initiatives to mitigate the effects of unsustainable farming through ecological circularity have created a closed-loop production system.

Fashioning an organic wardrobe

Tula's fibershed wardrobe is a vernacular expression of the natural fiber-to-dye biosphere that articulates the visual ethos of the land through the interconnectedness of small communities of farmers, spinners, dyers, weavers, and tailors. In doing so, it attempts to heal the disjointed relationship between growers and makers on the one hand and users on the other. Tula's expansion into fashion reflects the concept of the 'Slow Food' movement introduced by Carlo Petrini in 1986, leading to the term 'Slow Fashion' coined by Kate Fletcher in 2007, and is marked by considered, transparent processes for alternate clothing options. Developing apparel at a slow and mindful pace, incorporating socially beneficial and ecologically practical processes, has been a natural progression. Tula has a small in-house team that designs a range of garments in plant extract-dyed khaddar sewn on manually operated machines and hand-finished under its eponymous label, retailing from its flagship store in Chennai. It also participates in exhibitions in Bengaluru, Delhi, Hyderabad, Mysuru, and Pune. At 'The Earth Collective' event 2022 in New Delhi, it was observed that repeat buyers primarily include expatriates and discerning consumers with a penchant for organic clothing with clean silhouettes, sparse details, and a pared-back look in natural-dyed hues ranging from cream and eggshell, avocado greens and olive, earthy browns and caramel, ash and smoke grey, and hues of muted blue and old rose pink. These include tailored apparel for men and women such

as shirts, kurtas (tunics), and bandis (gilets) of different lengths in XS to XXL sizes, as well as sarees, accessories, and fabric yardage. A range for infants and older children is also available. The patterns of stitched apparel are quintessentially based on the principles of zero waste or minimal waste. New ideas on waste reduction in recent years involve a number of design-for-sustainability concepts. Determining the elimination or reduction of fabric waste at the fabric cutting stage, fashion designer Timo Rissanen, a pioneer of zero-waste pattern design, suggests that it is the responsibility of designers to 'design it out of the system' (Rissanen and McQuillan, 2015). Rissanen characteristically designs garments by modifying conventional patterns to eliminate or reduce fabric waste to a minimum through a 'jigsaw-puzzle approach' which involves remodeling the shape and size of pattern pieces so that they adjoin each other. Patterns of traditional Indian garments, notably the blouse, kurta, churidar pajama, and salwar, are compositions of basic geometric shapes, namely the rectangle, square, circle, and trapezium, using the direct drafting method (Narang and Jha, 2013).

The Tula team comprises two in-house designers as well as volunteer designers who work pro bono. About ten women trained in sewing make the garments at their respective homes. Home-sewn clothing items have an allure that is reminiscent of a slower life prior to the fast pace of consumerism. Besides the emotional pull that this quality evokes among consumers, the garments embody a minimalist aesthetic. While design minimalism may not automatically imply heightened sustainability, the 'minimalist' approach to waste reduction embedded in the design and production processes throughout the supply chain makes the Tula garments a more sustainable choice. This aligns with the philosophy of sustainability exponents Kate Fletcher and Lynda Grose (2012), who predicted that the 'immaterial aspects of fashion will become more celebrated as raw materials become scarcer. The material components of fashion will be treated with greater reverence and respect for the same reason'. Avoiding the cycle of seasonality associated with fast fashion, Tula's collections epitomize slow fashion that expresses mindfulness and enables the re-imagining of apparel that deeply engages with production processes and slow lifecycles, thereby "connecting personal and environmental realities that can enable mutual thriving'" (Thompson, 2022, p.81). As each item touches several lives and improves the livelihoods of those involved at each stage, the act of purchasing a Tula garment not only connects the wearer to the fields but also gives the consumer 'a sense of contentment knowing that almost 8–10 livelihoods have been supported' (personal communication with Ananthasayanan). Whether employee or volunteer, all the associated persons are in consonance with the organizational ethics and embedded values. In keeping with its environmental commitment, Tula's soil-to-skin initiative has found resonance with design institutes

and led to student internships. Interns bring a fresh approach to design with their knowledge of fashion trends. Design graduates with similar interests and commitments to sustainable fashion have also joined Tula. Volunteers subscribing to the organizational ideology evince interest and actively participate in different aspects of its supply chain.

Discussion and Conclusion

One of the imperatives of the UN's Sustainable Development Goals is to achieve soil health and sustainability through plant processes and soil processes by the year 2030 (Lal, et al., 2021). This aim is emblematic of a broader global emphasis on the identification, adoption, and contextualized integration of more sustainability-focused products and systems. In the context of this collective agenda, the case of Tula comes to represent more than a singular example. Rather, it becomes symbolic—beyond regional or national boundaries—of the possibilities for sustainable fashion futures. Starting as a not-for-profit initiative, Tula has now expanded into a dynamic movement that presents an alternative set of prospects for small farmer communities to grow cotton interspersed with diverse crops as part of a streamlined farm-to-closet supply chain that assures them a fair income and ethical work compliance. In reference to the "Slow + Design" symposium in Milan in 2006, Hazel Clark (2008) argues that understanding slow or more sustainable perspectives on fashion needs to include approaches to transcend its own focus and include higher levels of experience with a view to the future. In resonance with this line of thinking, Tula supports and nurtures a community-based apparel value chain connecting natural fibers sustainably with people and products. Since its inception, it has associated with organizations with distinct capabilities to create a symbiotic ecosystem of communities with a cumulatively heightened work-to-income potential. In so doing, the approach taken by Tula reinforces Kate Fletcher's (2018) position that 'fashion and sustainability are about ecological integrity, social equality, and a sense of human flourishing'. This is achieved by forging a capacity-conscious relationship with the land and restoring ecological function to regional landscapes, sensitizing people to the nature of local economies in the process. Indigenous knowledge and traditional skills are brought into alignment for the production of organic food grains by exemplifying the principle of circularity. This sense of consonance extends to the mindfully-made, climate-beneficial khaddar apparel subsequently produced. A value chain of this nature thereby becomes a living example of alternative approaches to fashion that emerge from a sustainable and ethical space. Linkages between regenerative agriculture and fabric characterize Tula's 'farm-to-closet' philosophy, emulating natural systems to produce both food and fiber and, in doing so, embracing 'interdependence with local microclimates, cycles, and nested systems' (Dunlap, cited by St Pierre, 2015, p.39).

It embodies the fibershed ethos where reconfiguring regional cultivation systems can replenish rather than deplete the soil, extending to sustainable clothing while empowering the local matrix of farmers, spinners, weavers, dyers, and tailors through higher financial remuneration. In this way, wider links with community groups are forged, geared towards sustainable livelihoods and the food-to-fashion supply chain. Transcending the linear past-to-present orientation of felt needs, Tula adopts a more forward-looking approach through its focus on circularity and anticipatory needs with their present-to-future orientation.

Tula's commitment to sustainability emerges from its association with and recognition of local human and material resources to forge a vertically integrated soil-to-skin system, expressing its commitment to improving farm livelihoods through higher financial remuneration, and providing economically disadvantaged people with agency. Yet, despite its capacity to foster sustainable livelihoods, Tula faces challenges that stymie its growth and proliferation beyond the local level. Where mass production and economies of scale have long dictated market forces, the principles embodied by Tula are not just anomalous but antithetical to prevailing commercial systems. The benefits of natural farming and local economic empowerment notwithstanding, the lack of public awareness of fibershed organizations poses constraints to their growth. In this context, it becomes necessary to examine, understand, and put in place the appropriate pulleys and levers to increase awareness of the attributes and value systems of the label Tula that differentiate it from others in the same price bracket. The task at hand is to provide more than just a hyperlocal niche for sustainable apparel and facilitate the mainstreaming of what is presently seen as 'alternative'. To this end, the transfer and communication of information regarding soil sciences and concomitant systems can both facilitate and be facilitated by an enhanced understanding of current realities. Such an undertaking implicates a wide web of stakeholders, including researchers, policymakers, producers, and the populace, all working in conjunction to anchor a new paradigm of production. Symbolizing the essence of this paradigm, Tula continues its endeavor to transform the cotton value chain and realize Gandhi's historical vision of khadi as a path to *swaraj*[4], while simultaneously distinguishing itself as a fiber of the future.

Notes

1. The Higg Materials Sustainability Index (Higg MSI) is a trusted tool used by the apparel industry to measure and evaluate the environmental impact of materials. The designers and product developers can use the Higg MSI to calculate and compare

the crade-to-gate impact of different materials, like textiles, plastics, metals, and leather.

2. One hank is 768 meters in length.
3. Largely home-spun, khadi also known as *khaddar*, is a hand-spun and hand-woven fabric with historical association of patriotism during India's freedom struggle.
4. Swaraj meaning self-rule is built on the tenet of self-reliance.

References

Burgess, R. and White, C., 2019. *Fibershed*. Vermont, USA: Chelsea Green Publishing

Clark, H., 2008. Slow + fashion--an oxymoron--or a promise for the future...?" *Fashion Theory: The Journal of Dress, Body & Culture*, [e-journal] 12(4), pp.427-446. 10.1080/17569370.2019.1659538.

Farra, A., 2020. *Regenerative Agriculture Can Change the Fashion Industry—And the World. But What Is It?* [Online] Available at: <https://www.vogue.com/article/regenerative-agriculture-sustainable-fashion-christy-dawn-fibershed> [Accessed 12 September 2022]

Fibershed. n.d. [Online] Available at: <https://fibershed.org/mission-vision/> [Accessed 20 September 2022]

Fletcher, K. and Grose, L., 2012. *Fashion and Sustainability*. London: Laurence King Publishing Ltd.

Fuad-Luke, A., 2009. *Design Activism Beautiful Strangeness for a Sustainable World*. London: Earthscan

Gandhi, M.K. 1941. Constructive Programme: Its meaning and place. 9-10 [online] Available at: https://www.mkgandhi.org/ebks/construct.pdf [Accessed 27 Aug. 2022].

Habib, N., Adeel, S., Ali, F., Amin, N. and Khan, S. H., 2021. *Environmental friendly sustainable application of plant-based mordants for cotton dyeing using Arjun bark-based natural colorant*. Environmental Science and Pollution Research. 28, pp.54041–54047

Hethorn, J. and Ulasewicz, C., 2008. *Sustainable Fashion: Why Now?* New York: Bloomsbury Publishing

Jha, B., 2018. *Kala Cotton: A Sustainable Alternative*. [pdf] IAFOR Official Conference Proceedings. Available at <https://papers.iafor.org/wp-content/uploads/papers/acsee2018/ACSEE2018_41972.pdf> [Accessed 25 August 2022]

IIASA. 4 April 2022. *New IPCC Report: Emissions can be halved by 2030*. [online] Available at:<https://iiasa.ac.at/news/apr-2022/new-ipcc-report-we-can-halve-emissions-by-2030> [Accessed 5 August 2022]

Lal. R., Bouma, J., Brevik, E., Dawson, L., Field. D.J., Glaser, B., Hatano, R., Hartemink, A.E., Kosaki, T., Lascelles, B., Monger, C., Muggler, C., Ndzana, G.M., Norra, S., Pan, X., Paradelo, R., Reyes-Sanchez, L.B., Sanchen, T. and Zhang, J.; 2021. *Soils and sustainable development goals*

of the United Nations: An International Union of Soil Sciences perspective. Geoderma Regional. [e-journal] 25. https://doi.org/10.1016/j.geodrs.2021.e00398.

Lee, J.A. and Fang, 2015. *Cotton as a World Crop: Origin, History, and Current Status*. In Fang, D.D. and Percy (eds) *Cotton*. 57(2).

Mohanty, B.C.; Chandramouli, K.V.; and Naik, H.D., 1987. *Natural Dyeing Processes of India*. Ahmedabad: Calico Museum of Textiles and Sarabhai Foundation Collections, Ahmedabad.

Narang, V. and Jha, B., 2013. *Rediscovery of Indian Pattern Making Techniques for Design Education.* [Online] pp.136-147. Available at: <https://www.researchgate.net/publication/285735763_Rediscovery_of_Indian_Pattern_Making_Techniques_for_Design_Education> [Accessed 25 August 2022]

Rissanen, T. and McQuillan, H., 2015. *Zero Waste Fashion Design*. London, New York: Bloomsbury Publishing

Saidur. R. 2015. *Green Revolution in India: Environmental Degradation and Impact on Livestock*. Asian Journal of Water, Environment and Pollution, 12(1), pp.75-80

Shendruk, A., 2022. *The controversial way fashion brands gauge sustainability is being suspended.* [Online] Available at: <https://qz.com/2180322/the-controversial-higg-sustainability-index-is-being-suspended/> [Accessed 10 September, 2022]

St. Pierre, L., 2019. Nature's Systems. In Fletcher, K. and Tham, M. (eds) *Routledge Handbook of Sustainability and Fashion*. Oxon: Routledge

Textile Excellence. 19 April, 2022. *In India, 20% More Area Under Cotton Cultivation In 2022-23 Season*. [online] Available at: <https://www.textileexcellence.com/news/in-india-20-more-area-under-cotton-cultivation-in-2022-23-season/> [Accessed 30 August 2022]

Thompson, H.A., 2022. Holistically embracing mindfulness: Enriching slow fashion for enhanced well-being. *International Journal of Sustainable Fashion & Textiles*. 1(1) pp.81–106

About the author

Banhi Jha has been a Senior Professor and Chairperson of the Fashion Design department (2005–2008), Dean Academics (2010–2013), and the first Head of Publication of NIFT in 2021, stationed at NIFT, Delhi, since 1992. A fashion design alumna from the Fashion Institute of Technology, New York, she holds a PhD in education. Her teaching experience spans from undergraduate studies to PhD supervision, specializing in sustainability practices in the industry and crafts sector, fashion education, and contemporary and historical aspects of fashion. A fashion illustrator for trend forecast periodicals, she has been a consultant on government projects on institutional clothing. A writer and editor of textbooks on fashion design for the national school board and national university, she has several articles, research papers, and book chapters presented and published in conference proceedings, trade magazines, and peer-reviewed journals to her credit. After superannuation in 2023, she now holds positions as a board member of universities and international academic committees on fashion.

banhijhanift@gmail.com

Collaborative Fashion Consumption Practices through Formal Swapping Events in the City of Bengaluru, India

Shinju Mahajan and Jitender Singh

Abstract

Environmentalists from all over the world are placing their interest in the textile sector, which is known to be the second-most polluting industry in the world. Many initiatives and studies have been conducted to reduce textile waste, with a focus on raising public awareness about the need to alter the general public's consumption habits. The guiding principle for environmental preservation is to consume meaningfully and conservatively. Young adults are embracing ideas like upcycling and thrift shops. 'Swapping Fashion' is another trending initiative that is being accepted by young Indian consumers. The millennials, who are well-informed about the negative repercussions of overproduction and overconsumption of fashion, have made swapping fashion products like clothing, bags, shoes, and accessories into a new fad. Thus, through this study, the researcher has tried to map this fad and comprehend how swap events and operations in the cosmopolitan city of Bengaluru, in the state of Karnataka, India, operate. The research also aims to map the difficulties being faced by the organisers, obtain insight into participant intentions and behaviour, and assess the overall experience of the focused group who believe in the concept of clothes swapping. The study further aims to determine the extent of scalability of fashion swapping events. A mixed-method methodology has been used to collect the data, which included focus group interviews with five swap event organisers to assess the challenges, funding, and scale of these events. 50 participants were contacted using the snowball sampling technique to obtain feedback on their experiences at the swap events. Additionally, 80 respondents were contacted through judgmental sampling, who had awareness of and were conscious consumers of sustainable fashion but had not participated in any swapping events earlier. Data analysis reveals that "swapping fashion" is a novel idea that is only accepted by a small group of like-minded individuals. Social media is used as the primary enabler to create awareness of the events. To scale up the concept, the study proposes a framework for the collection of the merchandise, sale of the merchandise, and disposal of the leftover inventory.

Keywords: Sustainability, collaborative fashion consumption, swapping of fashion, mindful consumption, swap events, scalability

Introduction

The fashion business is plagued with unfavourable externalities on the social and environmental fronts. The fashion commerce has many problems, including environmental deterioration, the use of dangerous chemicals, poor salaries, violations of workers' rights, and child labour (Fletcher, 2008). Additionally, the growing fast fashion industry further contributes to a lot of waste generation that adversely affects the planet. Fast fashion is a profitable and widely used business strategy where fashion merchants produce inexpensive, disposable goods at significantly lower costs than their designer counterparts and have numerous seasons rather than the conventional two collections each year (Birtwistle and Moore, 2007). As a result, the rate of fashion obsolescence has accelerated, which is bad for long-term sustainability.

As the cost of clothing has decreased, there has been an increase in the consumption of fashion, resulting in 'cheap chic' items that are worn only once or twice before being thrown away. Consumption is both an economic and a social activity. Consumption grants identity, a viewpoint on oneself, prestige, and peer respect. Consumer choices often serve as a reflection of one's self-perception and the desired image they aspire to communicate to others. This predicament is best exemplified by the apparel and fashion business (Crommentuijn-Marsh, 2010). Reports suggest that there are countries where consumers have not used 30 percent of the clothing that they have bought (Greenpeace, 2015). Overconsumption and mindless consumption, primarily because of fast fashion, are the primary contributors to making fashion unsustainable.

Efforts are being made by companies and experts to deliberate on processes and systems for making clothing production sustainable. There are also campaigns and promotions that are spreading awareness among the masses about reducing consumption patterns and that slow fashion is "fashionable". Apart from lowering consumption, concepts like upcycling and reusing fashion goods can help cut down on waste by reducing the requirement for new items (Antanavičiūtė, A. and Dobilaitė, 2015).

The concepts of "sharing economy" and "collaborative consumerism" have gathered increased recognition in different industries, although not being novel terms. The development of information and communication technology has made it easier to share goods and services. These procedures have been implemented on a scale that

was previously unthinkable (Botsman and Rogers, 2010; Belk, 2014). The system of Collaborative Fashion Consumption (CFC) offers a viable option for businesses in the fashion sector seeking new sustainable business models to advance efficiency and sufficiency. Iran and Schrader (2017) define CFC as a consumption pattern "in which consumers have access to already existing garments instead of purchasing new fashion products, either through alternative opportunities to acquire individual ownership (gifting, swapping, or second-hand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)." The sharing economy and collaborative consumption are frequently researched together (Belk, 2014). According to Felson and Speath (1978), collaborative consumption is defined as "the event in which one or more persons consume economic products or services while engaged in cooperative activities with one or more others". In a collaborative consumption process, the consumer works together to obtain and share the resource in exchange for a fee or other compensation. The alternative viewpoint considers giving and receiving as forms of non-monetary compensation, such as bartering, trading, and swapping. For consumer goods that have a regular inactive capability, it is beneficial to utilize collaborative consumption, which refers to the practice of accessing goods and services for a limited duration rather than permanently owning them (Botsman and Rogers, 2010; Hamari, Sjöklint, and Ukkonen, 2016).

In countries like Singapore and Australia, CFC is a well-known and well-accepted concept among the masses. Peer-to-peer (P2P) and business-to-consumer (B2C) are the two major categories into which the various forms of CFC (such as gifting, exchanging, or second-hand, sharing, lending, renting, or leasing) can be divided (Iran and Schrader, 2017). Swapping events, for instance, might be planned by an organisation (B2C) or by the customers themselves (P2P). Consumers accept and use CFC in a variety of B2C and P2P forms in different ways. When it comes to consumer approval, factors like ownership and trust are important (Catulli, 2012). Some shoppers prefer trading clothes since they gain ownership when they do so. Others favour renting because businesses can ensure the goods' quality and cleanliness.

Existing research provides some insights into the CFC's sustainability benefits. While some studies, such as Bardhi and Eckhardt (2012), are upbeat and assert that CFC has the potential to enhance sustainable consumption of fashion, others point out the danger of CFC's rebound effects (Frenken and Schor, 2017). The lack of agreement among academics and researchers emphasises the need for a close reading of the literature to look for connections between sustainability and the use of alternate methods of fashion consumption.

The growth of slow fashion brands, as well as pre-owned re-commerce platforms, is proof of the increasing number of conscious shoppers in India. According to Vogue India, in response to growing environmental concerns and the negative effects of fashion on the environment, the "swap, don't shop" concept, formerly the exclusive realm of vintage and thrift store devotees, is quickly becoming a popular way of life. In fact, by 2033, it's predicted that used apparel will account for one-third of people's closets (Raniwala, 2019).

The purchasing of pre-owned goods is an emerging phenomenon that can be observed in various cultural and interpersonal contexts, demonstrating the presence of diverse consumer behaviors. Zaman, et al. (2019) suggest that online consignment shops for clothing can assist in promoting environmentally conscious practices through utilization of less wasteful products. There is undoubtedly a relation between consumer attitudes towards consignment shops and their approach to purchasing used clothing. Buying second-hand items is not just a use of resources or avoiding the waste of money; it is a practice of humanity for sustaining society and serving the needy (Seo and Kim, 2019).

Inspiring a shift in consumers' attitudes and perceptions towards used clothing has the potential to encourage the adoption of a collaborative consumption style. Consumer product knowledge plays a crucial role in cultivating trust and nurturing the inclination to embrace sustainability practices (Sharma and Kushwaha, 2019). Consumers favour direct methods of acquiring used clothing (direct exchange, purchasing from consignment shops, and interchange through swapping). Furthermore, consumers prefer to get their used clothing from their friends and family over buying or getting it from strangers since they feel more comfortable putting their trust in people they know (Becker-Leifhold and Iran, 2018).

As per a study by McNeill and Venter (2019), purchasing used designer clothing was observed as a way to support a social persona, a fashion self-concept, and a style identity. The younger generation of consumers expressed the potential of garment rental model as a means to reduce the perceived risks associated with fashion experimentation. They highlighted concerns about societal norms and the impact of their fashion purchases. Community implications were considered as the key factor that predicts consumer engagement in collaborative consumption.

According to a study by Choudhary, et al. (2022), the general awareness about the environment and social care, beliefs about sustainable fashion and prior socially responsible consumer activity influence attitudes towards collaborative consumption in the apparel business. Collaborative consumption promotes the utilization of used

clothing and encourages its users to embrace pre-owned garments. Consumers are nonetheless sceptical about the new concept of consuming second-hand apparel. The previous usage of sustainable goods by individuals significantly influences their perception of collective consumption. Adopting collaborative consumption is often driven by green principles and the acceptance of used items is heavily impacted by consumer's environmental values. Therefore, it is crucial to consider these green values while planning any business model related to collaborative consumption. The study further indicates the respondents' preference for the premium segment, followed by the casual sector for collective consumption of apparel. The luxury category is particularly popular among women aged 18-25 and men aged 26-30. Retail outlets are the preferred venue for purchasing apparel through collective consumption, as indicated by the respondents. Both traditional and multi-brand stores have the potential to dedicate a department specifically for gently used clothing. In terms of collaborative fashion consumption, the respondents prefer traditional methods such as renting, swapping, sharing, bartering, and gifting (in order of preference). The findings of the study also highlight that renting clothing is a favored method of group consumption (ibid.).

Clothes swapping are pop-up events that provide an opportunity for fashion enthusiasts to acquire gently used clothing and accessories by exchanging items from their own wardrobe, in order to encourage sustainable consumption. While the idea of organizing swap events is gaining recognition in India, it is true that not all communities are fully prepared for such a concept. This research, therefore, focuses on the concept of CFC in India with a focus on the "swapping of fashion through formal events". As a newly adopted concept, swapping events in India are currently being held within focused groups primarily among millennials in select cities. Through this study, the researchers have attempted to map the rising trend of swap events and examine the operations associated with them in the cosmopolitan city of Bengaluru, located in the state of Karnataka, India. Bengaluru was one of the pioneering cities to embrace the concept of swap events, making it an ideal location to explore and analyze the dynamics of these events. By examining the practices and experiences in Bengaluru, the researchers aim to gain insights into the functioning and impact of swap events in an Indian context.

In addition to mapping the operations of swap events in Bengaluru, the research also aims to identify the challenges faced by organizers. It seeks to gain an understanding of the intentions and behaviors of participants as well as evaluate the overall experiences of the focused group, which actively supports the concept of fashion swaps. By examining these aspects, the research endeavors to shed light on the potential hurdles faced by organizers and the motivations driving participants.

Furthermore, the research aims to assess the scalability of the study. This involves examining the feasibility of replicating and expanding the concept of swap events to other cities or communities in India. By evaluating the extent to which the findings and insights from Bengaluru can be applied to a broader context, the research aims to determine the potential for scaling up swap events as a popular and sustainable fashion consumption practice across the country.

Methodology

Through the literature review, the researcher focuses on understanding how the ecosystem of swapping and exchanging is currently operating in other countries and the city of Bengaluru. The identified research questions are:

Which communities are accepting "swapping" as a concept, and what is the extent of their acceptance?

What are the experiences of the organizers in organizing these events, the challenges faced and the promotional strategy adopted?

How can the operating models be scaled up to spread awareness of such communities, attracting more people to join the campaign?

A mixed-methods approach has been used to collect the data, which includes focus group interviews with the five swap event organisers. Fifty participants, primarily women (thirty-eight females between 23 and 45 years old and twelve males between 29 and 48 years old), were contacted using the snowball sampling technique to obtain feedback on their experiences at swap events. These formed Group A, while the respondents in Group B comprised consumers who had not participated in any of the swapping events but were aware of terms like sustainability, slow fashion, and eco-friendly. The sample size consisted of eighty females and males (21 males and 26 females in the age group of 20–35 years and 19 males and 14 females in the age group of 36–60 years). All the respondents were well educated, with disposable annual incomes in the range of Rs 15–30 lakh per annum. Survey questions were distributed to these eighty subjects who formed Group B to gauge their acceptance of the concept of fashion swapping. A judgmental sampling technique was used in selecting the respondents from Bengaluru who were contacted telephonically or through emails.

Five organizers were contacted to understand the strategy they adopt for organising these events and the challenges they face. Further, the possibility of scalability of the concept was discussed to understand if the Indian population is ready to adopt

the concept of CFC. Bengaluru was chosen as the city for conducting the research since it was among the first cities in India to become receptive to the idea. There are communities in Bengaluru that organize tailored "exchange and shop" occasions to encourage conscious consumption.

Results and Discussion

This data was analyzed, and conclusions were drawn to understand why "swapping" as a concept is not widely prevalent in the Indian population. Operating systems were devised based on discussions for scaling these events to reach out to more like-minded people who accept this concept.

The concept of 'sustainable fashion'

From among the respondents in Groups A and B, "sustainability" as a concept means different things to different people. As the word derives its significance from "sustainable", any clothing or a product of fashion that is used for a longer period is sustainable. According to 80 percent of the subjects surveyed, fashion products made out of organic, eco-friendly, biodegradable, or "green" materials are sustainable. Everyone agreed with the concept of recycling, reusing, and reducing as sustainable. The concept of sustainable consumption was understood by 42 percent of people, according to whom products, if consumed or shopped mindfully, are sustainable. 87 percent of people agreed that "living happier with minimalism" was a concept for sustainable living.

In support of the same, the existing literature shows that the sustainable fashion lexicon contains a wide range of phrases that are sometimes used indiscriminately, confusing both researchers and customers. These terms include "environmental", "ecological", "green", "sustainable", "ethical" "recycled" and "organic" (Thomas, 2008). According to Sanne (2005), sustainable production refers to the ability to "live well with less" and the use of materials that may be fully reused, composted, or recycled in the creation of commodities. Studies on decreased consumption have also been conducted within movements like non-materialism, asceticism, voluntary simplicity, limited consumption, and downshifting (Cherrier, 2009; Black and Cherrier, 2010). Sustainably consuming clothing is a contentious, if not absurd, idea. Very little can be known about fashion customers' sustainable consumption habits or their conceptions of what constitutes sustainable fashion.

Acceptance of swapping fashion

The survey with the Group B respondents showed that "second-hand" goods were unacceptable to 76 percent of the surveyed population in the age group of 36 years and above who had never attended a swapping event. According to them, upcycling self-owned products is the way to increase the longevity of a product by re-shaping and re-constructing it, but using second-hand products is not acceptable. While 48 percent of the population in the age group of 20–35 years agreed to use second-hand goods that are heirlooms or branded and are in good condition.

This suggests that, though the respondents are aware of the significance of sustainability in fashion, swapping or using used goods is largely unacceptable to them. Interestingly, as a society, Indians consciously practise sustainability to a great extent by passing on their used garments or accessories to family members, house helps, etc. after the self-usage is exhausted for reasons like outgrowing the product or losing its visual appeal. However, consumers are not willing to participate in swapping events to buy or exchange clothing or personal products used by strangers. Even though these products are in good condition and are cleaned and dry-cleaned before being put up for swap, the idea of using second-hand products is unacceptable to 88 percent of the respondents.

The study also suggests that all the men in the age group of 36 years and older disagree with the concept of buying swapped products, while 17 percent of the women in the same age group were open to the idea of an exchange of branded or luxury products. Likewise, 32 percent of men in the age group of 20 years and older were open to the idea of attending swap events with the idea of owning a fashion or luxury brand, and 68 percent of females in the same age group showed their consent for such events subject to the condition of the available products.

Among the respondents in Group A, 91 percent of the females who had attended swapping events in the past either as a swapper or a shopper agreed to various reasons for buying from these events. Figure 1 suggests what motivates people to buy at swap events. 95 percent of respondents like swapping as this helps them contribute to the cause of sustainability; 42 percent of the respondents do it for economic benefits. Only 25 percent feel they do it to refresh their wardrobes, and 8 percent agree that they do it because their friends or family do it. Of these, 97 percent of respondents have shown a positive inclination to attend these events in the future.

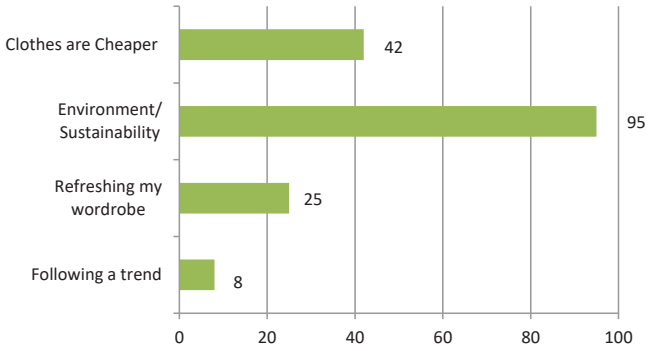

Figure 1: Factors motivating to participate in swap events

Promotional strategy

82 percent of the respondents got informed of the 'Swap of Fashion' event through social media, while 18 percent got it from word of mouth. When the organizers were asked about platforms to be used for the scalability of the event, social media, particularly Instagram followed by Twitter, emerged as significant platforms for promoting the events and spreading awareness among people so that like-minded communities may be reached and the number of participants—the swappers and the shoppers—can be significantly increased. According to the organisers, narratives go a long way towards selling the campaigns and getting people to follow their cause.

Organizing swap events

Swap events, unlike other exhibitions, are not very common, and participation is limited for reasons discussed earlier. These are typically held once every two to three months by some organizers as physical events or online. Each event has between 20 and 100 participants. The organizers plan the promotional strategy well in advance, and their stories are well-designed and narrated through Instagram pages. The mode of operation differs for each organizer. The event date and venue are declared on the social media page. Generally, these events are held in upmarket co-working spaces. There is a registration fee for such an event, and only people who register can submit their clothes for swapping. This registration fee covers the venue and management costs. Participants are given clear instructions outlining what is acceptable. The participants are responsible for dropping off the merchandise before a predefined date with the organisers. The organisers inspect the received goods based on the parameters, and qualified products are then shot aesthetically and posted on social media with the sole purpose of showcasing the merchandise on sale, thereby creating a following. All such

selected items are assigned points, giving value to each product. The participants are informed about the items that get accepted and the points they have earned. The items not accepted are kept in the donation area or returned to the participant. All approved items are displayed with points listed on them. A participant can then redeem their points and pick any item. If they are short of points, they can pay in cash for the balance. The event is also open to non-participants, who can buy in cash at a 20-30 percent premium. This is done to give preference to swappers. Record-keeping of the inventory and participants is maintained by the organizers. The work flow of a swap event in physical mode and online mode are depicted at Figure 2 and Figure 3 respectively.

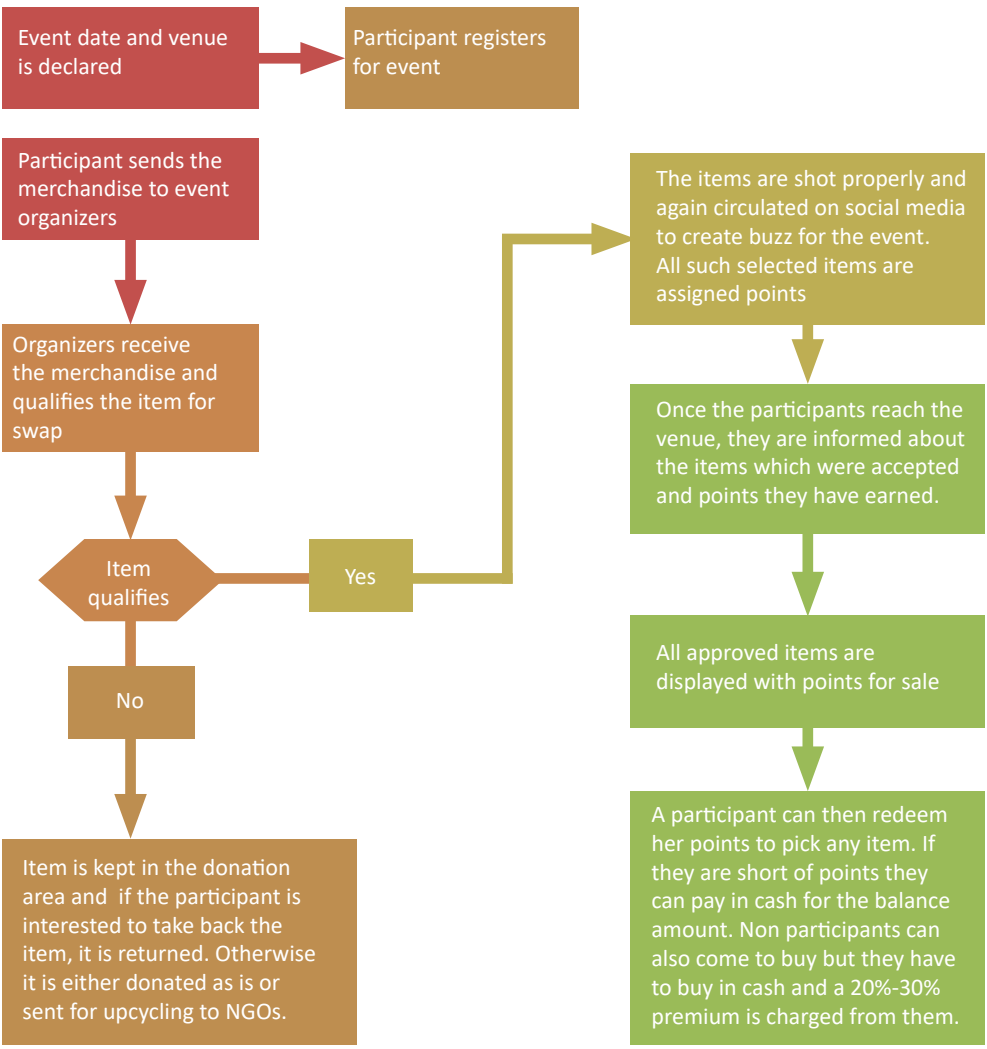

Figure 2: Work flow for organizing a physical event

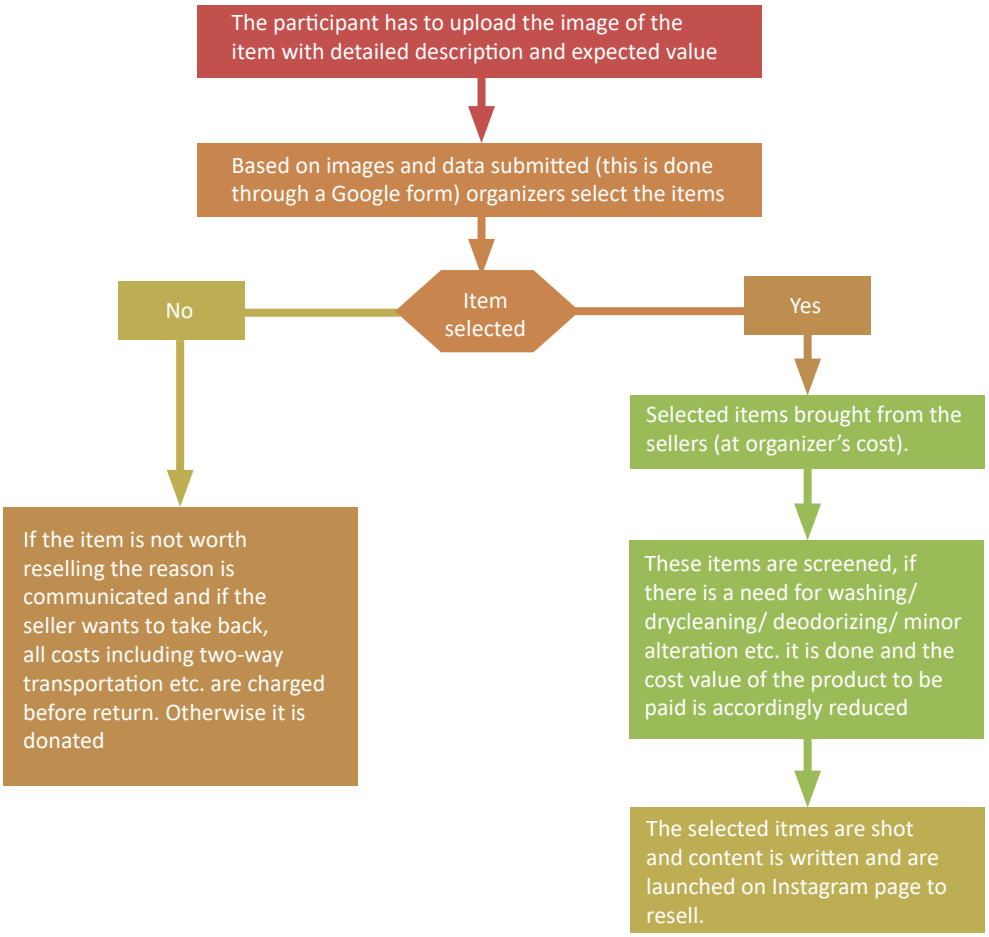

Figure 3: Work flow depicting steps for organizing an online event

Concerns in operating models

Observations show that around 90 percent of females are more willing to participate in swap events Among the participants, 44 percent of the Group A respondents had trouble with the pick-and-drop of items, while 28 percent found the selection process not very clearly defined. 22 percent did not have clarity on the valuation of the items. 8 percent and 9 percent of respondents think that dermatological issues with previous owners and privacy issues crossed their minds, respectively.

Most event organizers are individuals who do it out of concern for sustainability and are forced to set participation limits because they lack the resources to handle larger operations. Financial rewards are not the main motivators for either the organizers or the participants. The organizers have to deal with issues including collecting more

merchandise than they can sell, channeling the unspent points, and record-keeping. There is frequently a mismatch in the categories to encourage better conversions with less available inventory for swapping. Space and maintenance are needed for stocking products before an event or in between events. The organizers also deal with inquiries from people who aren't just interested in sustainability but are also concerned about skin issues, privacy, and the cost and value offered.

With these organizers, inventory management is the main concern. They frequently obtain items that are not eligible for swap and build up subpar inventory. Following that, they must arrange for the disposal of such stockpiles. Additionally, they spend a lot of effort gathering, examining, and assigning value to the qualified items. As a result, the entire process takes time. Participants might leave events dissatisfied because they were unable to discover things that suited their tastes or were the right size. Although they have the choice to spend their points in the following event, this presents a new challenge: keeping track of the players' unused points. Other difficulties include choosing the ideal location for optimum participation and raising awareness of the events.

Building a framework for scalability

The respondents have shown keen interest in participating in bigger events, and even the organizers feel there is scope to expand this initiative at a national level. But there are some challenges and issues that need to be addressed properly. The broader issues of privacy and suggestions to resolve these challenges are as follows:

- The selection process needs to be well defined for branded as well as non-branded items. It needs to take into account factors like the brand, the product's current age, usage volume, general condition, swapper history (an algorithm to determine trustworthiness), rejection points, and the swapper's obligation to pay the cost of rejection in advance. Product information, fit, and images should be conveyed very clearly so that the difference between real merchandise and expectations is minimized.
- The valuation process needs to be transparent based on the merchandise history, the brand, the MRP (fresh buying price), the current age of the product, usage frequency, general condition, and swapper history.
- Hygiene issues are of concern to all participants. The organizers should impose necessary finishing treatments for the inventory based on the type, composition, and wash care, with the swapper bearing the cost of those treatments. Voluntary disclosure of derma issues by swappers may be considered.

- Privacy issues are of great concern to the participants. These can be categorized into
    - Individual Privacy: Swappers may not like to know each other in either case. Also, swapping and using preowned clothing may be a concern for many.
    - Social Status Issue: Swappers may have concerns about the previous or new owner due to the social status of either party.

To resolve these issues, swapping should be made aspirational, and positive recognition and reward should be built into the system. There should be a strict policy of non-disclosures by swappers if they get to know the new owners in any way, with well-laid-down rules for non-conformance.

- Logistics—the flow of the goods and their management—need to be controlled like any other large-scale e-commerce operation. However, swappers should be responsible for recovering the cost of transport. On rejection of the merchandise, the reverse logistics cost should be kept higher to discourage participants or swappers from sending low-quality products. Further, the policy should promote the donation or upcycling of rejected items to encourage people to opt out of returns due to rejections. The visibility of action taken on rejection should be available for the swapper to see and trust the donation or upcycle initiative. Points earned should have an expiration date; this will additionally solve the problem of unsold inventory.

- The large-scale operation is only possible through an app or portal, and it needs to be enabled with AI/ML, blockchain, etc. as with any other marketplace or e-commerce venture. Influencers, celebrities, and other prominent public figures may be channeled into the initiative to increase the aspiration quotient as well as general awareness.

Conclusion

As mankind has witnessed its lifetime's worst pandemic, many people are beginning to voice growing concerns about the effects of mindless spending on the world and are becoming more conscious of their social obligations. Even though several academics have studied ideas like the "sharing economy" and "collaborative consumerism" (e.g., Belk, 2014; Schor and Fitzmaurice, 2015), there is still a lack of information and thorough research. Alternative practices in the field of fashion have taken the form of collaborative consumption platforms, including swapping websites, fashion libraries,

second-hand internet stores, and gatherings between friends. The CFC notion has received very little explicit attention from researchers.

One promising approach to addressing the contradictions between sustainability and fashion involves learning from a specific group of vocal and involved consumers. These people actively work to close any potential gaps that sustainable fashion may present. Through this study, the researcher hopes to provide a deeper understanding of what prevents "swapping of fashion" from being a commonplace method of consumption. Utilizing the findings of this study, organizers can gain a deeper understanding of the issues that worry their customers and develop methods to address them. Additionally, crucial considerations and pertinent information are given for organizers wishing to use the concept of CFC in their business model.

References

Antanavičiūtė, A. and Dobilaitė, V., 2015. Principles of slow fashion application in clothing collection creation. *Environmental Research, Engineering and Management*, 71(2), pp.54-59.

Bardhi, F. and Eckhardt, G.M., 2012, Access-based consumption: the case of car sharing. *Journal of Consumer Research*, 39(4), pp.881-898.

Belk, R.W., 2014, You are what you can access: sharing and collaborative consumption online. *Journal of Business Research*, 67(8), pp.1595-1600.

Birtwistle, G. and Moore, C.M, 2007. Fashion clothing – where does it all end up? *International Journal of Retail & Distribution Management,* 35(3), pp.210–216.

Botsman, R., and Rogers, R., 2010. *What's mine is yours: The rise of collabo- rative consumption*. New York, NY: HarperCollins.

Black, I.R. and Cherrier, H., 2010, Anti-consumption as part of living a sustainable lifestyle: daily practices, contextual motivations and subjective values. *Journal of Consumer Behaviour*, 9(6), pp.437-453.

Becker-Leifhold, C., Iran, S., 2018. Collaborative fashion consumption – drivers, barriers and future pathways. *Journal of Fashion Marketing and Management: An International Journal*, 22(2), pp.189-208.

Catulli, M., 2012. What uncertainty? Further insight into why consumers might be distrustful of product service systems, *Journal of Manufacturing Technology Management*, 23(6), pp.780-793.

Cherrier, H., 2009. Anti-consumption discourses and consumer-resistant identities. *Journal of Business Research,* 62, pp.181–190.

Choudhary, A., Amity, J.A., Gupta, T., and Shah, T.R., 2022. A greener world through Collaborative Consumption of Apparel: An Exploratory Study of consumers' perception and preferences. *Electronic Green Journal*, 1(47).

Crommentuijn-Marsh, P., Eckert, C., and Potter, S., 2010. Consumer Behaviour Towards Sustainability Within Fashion. In: *International Conference On Kansei Engineering And Emotion Research,* KEER 2010, Paris, March 2-4 2010.

Felson, M., and Spaeth, J.L., 1978. Community Structure and Collaborative Consumption: A Routine Activity Approach. *American Behavioral Scientist*,[e-journal] 21(4), pp.614–624. https://doi.org/10.1177/000276427802100411

Fletcher, K., 2008, *Sustainable Fashion and Textiles: Design Journeys*, Earthscan, London

Frenken, K. and Schor, J., 2017. Putting the sharing economy into perspective*,* In: *A Research Agenda for Sustainable Consumption Governance*. 23, pp.3-10.

Greenpeace, 2015. Mode als wegwerfware, *Repräsentative Greenpeace-Umfrage zu Kaufverhalten, Tragedauer und Entsorgung von Kleidung in Österreich, [online]* available at: <https://greenpeace.at/assets/uploads/publications/presse/1906_FactSheet_Umfrage_Kleiderkonsum.pdf > [Accessed 12, August 2022].

Hamari, J., Sjöklint, M., and Ukkonen, A., 2016. The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*, 67(9), pp.2047–2059.

Iran, S. and Schrader, U., 2017. Collaborative fashion consumption and its environmental effects. *Journal of Fashion Marketing and Management*, 21(4), pp.468-482.

McNeill, L., and Venter, B., 2019. Identity, self-concept and young women's engagement with collaborative, sustainable fashion consumption models. *International Journal of Consumer Studies*, 43(4), pp.368–378.

Raniwala, P., 2019. *How clothes swapping is becoming popular in India,* [Online] Available at: <https://www.vogue.in/fashion/content/swap-dont-shop-clothes-swapping-sustainable-fashion> [Accessed 10 August 2022].

Sanne, C., 2005. Willing consumers – or locked-in? Policies for a sustainable consumption The Logic of Sufficiency. *Ecological Economics, [e-journal]* 42, pp.273–287. https://doi.org/10.1016/S0921-8009(02)00086-1.

Schor, J.B. and Fitzmaurice, C.J., 2015, Collaborating and connecting: the emergence of the sharing economy, In: Reisch, L. and Thøgersen, J. ed. *Handbook of Research on Sustainable Consumption*. Edward Elgar Publishing, Cheltenham, pp.410-425.

Seo, M.J., and Kim, M., 2019. Understanding the purchasing behaviour of second-hand Fashion shoppers in a non-profit thrift store context. *International Journal of Fashion Design Technology and Education*, 12(3), pp.301–312.

Sharma, N.K., and Kushwaha, G.S., 2019. Eco-labels: A tool for green marketing or just a blind mirror for consumers. *Electronic Green Journal*, 1(42).

Thomas, S., 2008. From "Green Blur" to eco fashion: fashioning an eco-lexicon. *Fashion Theory: The Journal of Dress, Body & Culture*, 12(4), pp.525–540.

Zaman, M.M., Park, H., Kim, Y.K., and Park, S.H., 2019. Consumer orientations of second-hand clothing shoppers. *Journal of Global Fashion Marketing*, 10(2), pp.163– 176.

About the authors

Shinju Mahajan is a Professor in the department of Leather Design and the Head of Academic Affairs at NIFT. She has a PhD in design and specializes in leather and product development. She has work experience of over 27 years, and in her teaching experience of 25 years, she has expertise in product development in lifestyle and leather accessories. She has rich industry experience and has steered various industry projects related to product innovation and value addition. She has also handled projects related to curriculum development and evaluation of programs for government agencies, projects related to traditional crafts in India, and uniform design. As an academician, Dr. Mahajan has guided many undergraduate and postgraduate students in design and management. She has various publications to her name in the areas of product design, scientific footwear design, and Indian traditional crafts in national and international journals.

shinju.mahajan@nift.ac.in

Jitender Singh, a graduate of NIFT, New Delhi (GMT Department, 2004), boasts a B.Tech. in textiles, showcasing his prowess as an apparel professional with a noteworthy contribution in the fashion industry. Proficient in sales, retail, marketing management, and trend analysis, he further refined his skills through the advanced leadership program in global business management at IIM Calcutta in 2015. Presently, Jitender directs his attention to exploring the boundless potential at the intersection of human behavior, fashion, and digital technology through his entrepreneurial endeavor, Clickzy Creative Technologies. Acknowledged for his entrepreneurial acumen, he has received acclaim from esteemed institutions such as IIT, IIM, Rajasthan Government, and Department of Science and Technology. Notably, he reached the finals of the prestigious GO Global Awards by the International Trade Council and the USA Government. Demonstrating his dedication to fostering entrepreneurship, Jitender actively mentors startups in the fashion and D2C space through the Startup India program. His diverse background and entrepreneurial triumphs underscore his influential standing in the industry.

js@clickzy.in

Factors Influencing Indian Youth's Decision to Purchase Secondhand Clothing in Delhi-NCR

Rishab Manocha and Mridul Dharwal

Abstract

Secondhand clothing is a contemporary trend among India's youth, who are noted for their commitment to eco-friendly purchasing practices. Despite this, the majority of customers indulge in these practices, primarily because they are perceived as fashionable. In other instances, it acts as a justification for purchasing more clothing. This does not appear to be motivated by sustainability or environmental concerns. There hasn't been much research into why Indian youth purchase secondhand clothing. In recent years, this generation has been identified as more inclined than others to recycle their old garments. Many youngsters in India view shopping for secondhand clothing as a sustainable type of consumption for a variety of reasons, including environmental concerns. Consideration is also given to thrifting as a component of the clothing consumption of Indian youth. This study seeks to identify factors that affect the decision to purchase secondhand clothing among Indian youth residing in the Delhi-NCR. It also analyzes each of the factors, which are characterized by both excessive consumerism and, to some extent, environmental consciousness. Empirical conclusions are drawn using an online survey in the form of a questionnaire created with Google Forms with a sample size of 300 young men and women from the selected region. Some of the respondents had limited perspectives and awareness regarding sustainable methods in the apparel sector. Their consumption behavior was primarily influenced by current fashion trends and economic concerns. The applicability of the findings of this study to other parts of India, where secondhand clothing has not gained the same level of popularity as in the Delhi-NCR, may be examined. This is due to variations in awareness of secondhand clothing across the country.

Keywords: Secondhand clothing, Indian youth, sustainable consumption practices, consumer behavior, decision to purchase

Introduction

Numerous studies demonstrate that consumers' purchasing habits are shifting and that secondhand clothing is becoming increasingly popular. It has been a long-standing practice to purchase and sell secondhand clothing, which is an important part of the circular economy since it can result in fewer negative effects on the environment and help promote the reduction in resource consumption and waste creation that is required to stay within the planetary boundaries (Shirvanimoghaddam, et al., 2020). There is a long tradition of secondhand clothing consumption in some European countries. Historically, the secondhand marketplaces in the countries of Western Europe have been controlled by non-profit organizations such as the *Red Cross* and the *Salvation Army* that own enterprises that operate without the goal of making a profit (Valor, Ronda and Abril, 2022). There is a growing corpus of research on the different sorts of business influencers that are involved in circular markets, such as the market for secondhand clothing. For instance, there are studies that investigate the market for secondhand clothing from the perspective of businesses. These studies investigate topics such as business models, marketing tactics, and design for slow fashion, as well as institutional barriers and drivers for businesses' adoption of in-store take-back systems (Gossen and Kropfeld, 2022). In 2021, 40 percent of British customers bought from the secondhand market, while 28 percent donated to charity shops. Over the past two decades, the market for secondhand clothing in France has exploded. The COVID-19 lockdown period further resulted in 12 million Americans purchasing secondhand clothing in 2020, which led to 66 million previously owned goods finding new owners.

Due to technological advancements such as the proliferation of internet apps and new electronic gadgets, consumers now have access to a wider range of easy options for purchasing and selling goods. As a result of the rise of social media and mobile technology, the secondhand clothing market has undergone significant transformations. Widespread advertising campaigns and foreign investments on both classic marketplaces like eBay and cutting-edge sites like Olx and Quikr have made them ideal places to purchase and sell secondhand clothing. At *Fashion's Night Out*, Vogue was the first to organize a sale of discounted designer handbags donated by influential women. Lines of chic Delhi shoppers waited to donate to charity at this event at a shopping center.

The recycling of secondhand clothing in India is still in its infant stages at the moment, and the rate of recycling waste clothing is significantly lower than the overall use rate of textiles in the country. Until now, secondhand clothing has predominantly been recycled by various upcycling and recycling companies. Online secondhand businesses are

popular with "disadvantaged individuals who cannot afford new clothing from normal retail shops" (Attiq, et al., 2021). Individuals in the underprivileged sector are those who lack the financial means to purchase new apparel. The majority of people who purchase secondhand clothing are from lower socioeconomic backgrounds; however, Koay, Cheah and Lom, (2022), are also of the view that even well-to-do people participate in the secondhand purchases. A rational consumer is one who chooses the best course of action in order to maximize their utility and reap the greatest rewards. Despite the fact that secondhand clothing imports are banned in India, the country does allow the import of woollen fibers, including *"mutilated hosiery,"* the industry name for woollen clothing that has been shredded mechanically in the West before being exported.

Secondhand clothing, once in the hands of households and individuals, has a significant domestic market in India, where it is recycled. Within this context, the materiality of fabric serves as a strategy for reshaping and redefining identities and self-expression. Following the global pandemic in 2020, when the world economy was facing its most severe downturn, the online demand for secondhand clothing in India surged threefold. Remarkably, Indian suppliers continue to experience strong demand for secondhand clothing, even as the global economy exhibits only modest signs of recovery.

New Delhi holds a longstanding reputation as the country's "fashion capital" and is widely recognized as a hub for secondhand clothing commerce. Despite a recent proliferation of stores offering branded clothing in the city, the popularity of the flea market remains unwavering. While Indian youth constitute the primary customer base for these stores due to budget constraints and a preference for effortless fashion, other secondhand clothing vendors assert that their clientele spans all walks of life, including senior officials and affluent families, who occasionally shop for secondhand clothing too. This makes it imperative to explore what influences the purchase of secondhand clothing, "as this is not a simple type of commerce, it's a way of life, a means of gaining what we need and discarding what we don't" (Nguyen, et al., 2022). As a result, more research is needed into how people shop for secondhand clothing and what influences their decision to purchase secondhand apparel. This is an exciting area of research, given the rise in popularity and commerce in this sector. Since secondhand clothing sales have skyrocketed over the last two decades, experts have taken an interest in the phenomenon and the resulting question, "Why do people purchase secondhand clothing?" (Issock, Roberts-Lombard and Mpinganjira, 2020). This study aims to identify and understand factors that impact Indian young adults' decisions to purchase secondhand clothing.

Selection of dependent variable

Decision to purchase (DTP)

A consumer goes through a more intricate process for each and every decision that he or she makes, and the only visible evidence of this process is the actual purchase that is made. Nevertheless, every option for making a purchase is one of a kind and requires a one-of-a-kind expenditure of both one's time and one's work (Hur and Cassidy, 2019). One of the most fundamental responsibilities of marketing management is to precisely describe the customers who may be interested in purchasing the goods. By gaining an understanding of the consumers' values, which are related to product features, as well as the consumers' perceived economical, emotional, and social implications of using secondhand clothing, a retail strategy and management can gain the ability to offer customized services that are then put into action. This is because marketers are primarily interested in the purchase decision-making process. The process that customers go through when they make purchases is known as 'consumer behavior', and it incorporates a number of aspects that play a role in determining their choice. The decision to purchase a product or service often comes at the end of a drawn-out and meticulous process that may involve searching for extensive amounts of information, comparing and contrasting different brands, and conducting an evaluation. The term 'consumer buying behavior' refers to the purchasing patterns of the end user, or 'final consumer'. The consumer's decision-making process, buying habits, purchasing behavior and the retailers they go to, all have their roots in a number of components, particulars, and characteristics. These origins may be traced back to the consumers themselves. A decision to purchase is somewhat a culmination of each and every one of these considerations. Consumers' purchasing decisions are influenced by a variety of factors, including personal, psychological, economic, and socio-cultural influences. This research investigates how product features, price sensitivity, status symbol, location, emotions and experience influence the purchasing decisions of Indian youth regarding secondhand clothing.

Selection of independent variables

In an attempt to identify the factors that impact the purchase of secondhand clothing, ten research constructs were taken into consideration for the study that were borrowed from existing literature but modified for the research to fit with the context of Indian youth (Table 1). Herein, as validated in previous studies, the selected five variables were measured using scale items recommended by five theoretical frameworks, as

listed in the literature review. Subsequently, product features (PF) were measured with five scale items recommended by Orth and Malkewitz (2008), and price sensitivity (PS) was measured with five scale items recommended by Beneke and Zimmerman (2014) and Thanasuta (2015). Furthermore, status symbol (SS) was measured with five items developed by Eastman, Goldsmith, and Flynn (1999). Similarly, location (L) was measured with five items developed by Clouse (2017), and lastly, emotions and experience (EE) were measured with five items developed by Holbrook, et al. (1986).

Table 1: Factors affecting Indian youth's decision to purchase secondhand clothing

Selected Factors
1. Product Features
2. Price Sensitivity
3. Status Symbol
4. Location
5. Emotions and Experience

Product Features (PF)

The literature on Gestalt Theory suggests that humans perceive an object not as a sum of its individual parts but rather as a complete "gestalt," or whole entity (Wertheimer, 1925). For example, when people see an item of clothing, they generate an overall impression of the holistic design as "all elements working together" (Orth and Malkewitz, 2008) rather than evaluating each design element, such as shape, color, or symbolism, separately. According to studies, buyers prefer products whose designs adhere to the Gestalt laws of proportion and unity (Veryzer, 1993).

Price Sensitivity (PS)

There's no denying that price plays a huge role in how people feel about things available in the market. According to Beneke and Zimmerman (2014), price is a real clue that customers use in making purchases. The Attribution Theory indicates that buyers may mistakenly attribute a cheap price to subpar quality because they misinterpret the reason for the low price (Lichtenstein, Ridgway, and Netemeyer, 1993). According to Vehmas, et al. (2018), consumers who are quite sensitive to prices are more likely to make a purchase. Santos, et al. (2016) observe that when faced with a choice between low-priced secondhand clothing and more expensive national brands in the same category, young customers opted for the former. Since they are both high-quality and inexpensive, secondhand clothes tend to thrill and entice young buyers.

Status Symbol (SS)

According to Eastman, Goldsmith, and Flynn (1999), status consumption is the process by which people attempt to improve their social standing through the consumption of consumer goods that impart or symbolize status for both the person and the thing consumed.

Location (L)

When consumers are looking for a specific item, they may have to spend a considerable amount of time in their search. It could take several weeks and multiple trips to car boot sales, thrift stores, and flea markets before shoppers discover the specific item they're looking for—if it can be located at all. While consumers are looking for a particular piece of clothing, they are compelled to go through the entire apparel section, which can be a time-consuming task. In the less affluent neighborhoods of the city, one can occasionally come across used clothing for sale. The effect on consumer behavior is highly context-dependent. It is possible that a specific location can convey information about the social standing of the people who live there and their spending patterns. The five characteristics as defined in the Place Image Theory are 'brand' or intended message conveyed by the location; the consumer's 'visual image', how they perceive the location visually; 'reputation' or image of the location; 'sense of place', an individual's personal experience and connection to the location; and 'identity', the extent to which individuals associate themselves with the place (Clouse, 2017).

Emotions and Experience (EE)

Emotions triggered by material purchases enrich people's lives. Consumers shop for goods to fill needs and fulfill desires; therefore, it stands to reason that they place a premium on having a good time while doing so. These feelings function as a kind of feedback mechanism, letting buyers know if their purchases were worthwhile. Furthermore, the feeling of good emotions like joy and excitement is itself an aim of much consumer behavior because these emotions are naturally fulfilling. According to the Theory of Consumption Emotions, feelings such as happiness, sadness, anger, and fear are the structural dimensions underlying emotional categories like pleasantness and unpleasantness, relaxation and action, and calmness and excitement (Holbrook, et al., 1986).

Background and Hypotheses Development

There are only a handful of studies in India that have attempted to categorize young customers according to the kinds of purchases they make. Yadav and Siraj (2016) observe

substantial manifestations of variety-seeking and meticulous shopping practices among Indian youth. According to the findings of the research carried out by Chaudhary and Dey (2016), it is hypothesized that Indian youth are materialistic, hedonistic, and brand conscious. It's possible that they use their buying decisions as a way to construct their identities, gain approval from their peers, and reduce the amount of uncertainty in their lives. Thangavel, Pathak and Chandra (2019) state that Indian youth, who are in a perpetual mode of disposable fashion, have a tendency to yearn for a variety of options. This mantra of 'economical fast fashion' may explain why the youth are resorting to using secondhand clothing, especially considering how widespread this practice is in the west. Having said all of this, according to Dey and Srivastava (2017), Indian youth demonstrate a higher level of sensitivity towards the environment and take social responsibility very seriously. Being a generation with strong social motives and peer influence, thrift shopping is preferred over generic alternatives. Hedonistic shoppers buy carefully and selectively, often renting expensive clothes, to appear trendy, while their utilitarian counterparts use it to appear to be "smart buyers." This preference for mindful shopping over customary alternatives can be attributed to the fact that this generation likes to shop after gauging diverse options.

Prior to formulating the research objectives, this study sets out to examine the topic of secondhand clothing and, more particularly, the factors that affect consumers' decisions to purchase. As a result, the approach used in this study is one of deduction (Bryman and Bell, 2011). In addition, the quantitative method was employed to address the research challenges that are common in the social science study field when a deductive approach is used. Using the deductive technique, a survey was devised to gather the essential data. To answer the research questions, the survey data was analyzed. Research on the "why" of customers purchasing secondhand clothing indicated that this was the primary focus of previous studies (Guiot and Roux, 2010, Williams and Paddock, 2003, Scitovsky, 1994).

An individual or organization that makes a purchase of garments for themselves or for the benefit of others is referred to as a "client" (Solomon, 2012). The selection, acquisition, use, and disposal of clothing or services are all examples that denote "consumer behavior" (ibid.). For example, when someone decides to purchase clothing, they go through a series of steps, including recognizing their problem, gathering information, evaluating their options, and finally making a purchase. Individual and environmental factors such as culture, the reference group, social class, family, and household have been found to have a significant impact on customers' purchasing

decisions in previous studies. These include demographics and customer perceptions as well as knowledge, inspiration, learning, personality traits, thoughts, and lifestyles (Sata, 2013). Customers also take into account additional factors when making clothing purchases, such as product attributes, product pricing, status symbol, location, and emotions and experiences. According to the type of clothing and the buyer's personality, these elements can differ. Consumers' priorities shift to pricing and functionality when purchasing delicate technological items like cell phones (Sata, 2013). Even so, it is not always easy for the buyer to find a similar piece of apparel. A jacket, for example, is on the wish list of a potential customer. Market locations offer a wide variety of jackets for him to choose from. Customers make clothing purchases based on a variety of factors, including the quality of the goods, the brand name, the price, societal norms, and the geographic area. While this may be the case, all of the criteria above are intertwined. There is a strong association between the product attributes, pricing, and experience in the garment industry (Huang, Schrank and Dubinsky, 2004), and these factors all have an impact on how the public perceives the brand (Jacoby, Olson, and Haddock, 1971).

The purpose of this research is to identify factors that affect Indian youth's decisions to purchase secondhand clothing. The current study's research questions necessitated the creation of a research model (Figure 1). When it comes to acquiring secondhand clothing, there are five factors that could impact a customer's decision to purchase: product features, price sensitivity, status symbol, location, and emotions and experience. These variables, in contrast, are all interconnected. Thus, the following hypotheses were developed:

H1: Product features have a significant effect on consumers' decisions to purchase secondhand clothing.

H2: Price sensitivity has a significant effect on consumers' decisions to purchase secondhand clothing.

H3: Status symbol has a significant effect on a consumer's decision to purchase secondhand clothing.

H4: The seller's location (marketplace) has a significant effect on the consumer's decision to purchase secondhand clothing.

H5: Human emotions and experiences have a significant effect on consumers' decisions to purchase secondhand clothing.

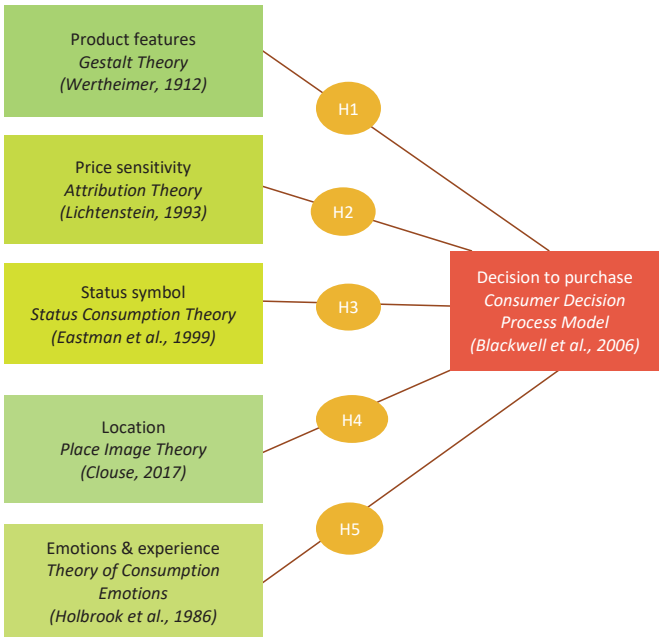

Figure 1: Research model followed for the study

Research Methodology

For this study, an investigation was conducted on factors including product features, price sensitivity, status symbol, location, and emotions and experience that influence a customer's decision to purchase secondhand clothing. Quantitative techniques and a cross-sectional study design were used to select the respondents. Three hundred young Indians residing in Delhi-NCR between the ages of 20 and 28 filled out the online survey to ensure it was representative of the intended audience. There was a median age of 25. A total of 180 females and 120 males were selected to ensure a balanced representation of both sexes in the data. Additionally, throughout the time period in which data was collected, all respondents were located in the Delhi-NCR.

Questionnaire design

A lot of the present study's focus has been on factors that affect people's decisions to purchase secondhand clothing. With this survey, respondents were provided with a brief introduction that explained what was being asked of them, the study's purpose, and any privacy concerns they might have, according to the five sections of the questionnaire (Table 2).

Table 2: Scale items of the questionnaire

Section	Variable	No. of scale items	Items	Theoretical framework
1.	Product Features (PF)	5	I think secondhand clothes are sometimes found in excellent quality.	"Gestalt Theory" (Wertheimer, 1925)
			I think secondhand clothes are sometimes found in the most outstanding and unique colour combinations.	
			I think secondhand clothes have sometimes a wonderful overall image that is hard to resist.	
			I think secondhand clothes are sometimes found in excellent shape and fit that are hard to find.	
			I think secondhand clothes have sometimes the most extraordinary fabric textures and surfaces.	
2.	Price Sensitivity (PS)	5	I think secondhand clothes are affordable, especially for those on a tight budget.	The Attribution Theory (Lichtenstein, Ridgway and Netemeyer, 1993)
			I think secondhand clothes are worth their money, since trends change so often.	
			I think I can buy triple the times of secondhand clothes in my budget, as compared to buying brand new clothes.	
			I think while buying secondhand clothes, I can bargain, whereas I cannot do the same while buying new clothes.	
			I think the cheap prices of secondhand clothes is what attracts me most to buying them.	
3.	Status Symbol (SS)	5	I think secondhand clothes in India are no more symbolic of poverty.	The Status Consumption Theory (Eastman, Goldsmith and Flynn1999)
			I think secondhand clothes sometimes need mending that concerns me.	

			I think secondhand clothes shopping does not embarrass me at all.	
			I think secondhand clothes shopping in my culture is seen as a symbol of lower classes.	
			I think branded secondhand clothes are just as good as brand new clothes.	
4.	Location (L)	5	I think while buying secondhand clothes, the location matters a lot to me, especially if it a place associated with poverty.	The Place Image Theory (Clouse, 2017)
			I think secondhand clothes are usually sold in poor areas.	
			I think secondhand clothes may look even better, if the seller is located in a respectable area.	
			I think secondhand clothes have sometimes issues related to hygiene, which concerns me.	
			I think secondhand clothes should be bought on site and not online.	
5.	Emotions and Experiences (EE)	5	I think while buying secondhand clothes, the ability to negotiate with the seller, gives me a sense of victory if I am able to bargain well.	Theory of Consumption Emotions (Holbrook, et al., 1986)
			I think secondhand clothes have sometimes issues related to hygiene, which concerns me.	
			I think secondhand clothes have sometimes a very beautiful memory attached to them, of the original wearer, that fascinates me.	
			I think secondhand clothes shopping makes me very happy and entertained.	
			My experience of buying secondhand clothes has predominantly been positive.	

In the first component of the questionnaire, respondents were questioned about their opinions of “Product Features” (PF), such as product colors, product quality, and overall image, while shopping for secondhand clothing.

“Price sensitivity” (PS), when shopping for secondhand clothing was the subject of the second component of the questionnaire, which included questions concerning product pricing and comparison to new products.

The next set of questions focuses on “Status Symbol” (SS) when purchasing secondhand clothing included questions on socio-cultural aspects, mending concerns, and feelings of embarrassment associated with buying secondhand clothing.

When shopping for secondhand clothing, “location” (L), is an important consideration for respondents, with questions about whether they prefer to shop offline or online, as well as questions about whether they want to try on secondhand clothing before making a purchase.

The final set of questions about respondents’ opinions of the “Emotions and Experiences” (EE) linked with purchasing secondhand clothing are included in this last section of the survey. These include inquiries into the respondents’ negotiating experiences, hygiene concerns, and memories.

The responses to the questions under each of the five sections assisted the researchers in assessing the extent to which the selected variables affected a customer’s decision to purchase secondhand clothing.

Scales tailored to each variable were used to ensure that respondents provided the most accurate information possible. The data for the five categories was gathered using a Likert scale, with 1 denoting strong disagreement and 5 denoting strong agreement. To ensure the accuracy of the data, respondents were also asked how they felt before and after making the secondhand clothing purchase and whether they felt good about themselves for doing their part to reduce landfill clothing waste and the associated carbon footprint as part of the sustainable fashion movement. The overwhelming majority of people who answered this question said “yes.” Some respondents also noted that the items they had bought at Sunday bazaars had maintained their fashion sense and durability. Some respondents stated they have never shopped at a second-hand store but that they could consider doing so in the future if they found unusual and fashionable items there. The remaining responses came from participants who otherwise lacked familiarity with the nature and functioning of such businesses. Few respondents were concerned about the hygiene of purchasing secondhand clothing. They also believed that secondhand clothing was of lower quality because it had been previously used. The poll also included questions pertaining to reasons as to why people bought secondhand clothes, of which a majority said it was because they felt

good about contributing to a beneficial environmental impact and adding value to a sustainable lifestyle.

The Cronbach Alpha Reliability test was conducted for all the variables and all the values were above 0.5 (Table 3).

Table 3: Cronbach Alpha Reliability Testing

Constructs	CA
Product Features (PF)	0.781
Price Sensitivity (PS)	0.796
Status Symbol (SS)	0.840
Location (L)	0.844
Emotions and Experiences (EE)	0.792

Note: The threshold value of each variable is 0.5, suggesting achievement of internal consistency of validity and reliability

Testing of hypothesis

The results of statistical test on the relative importance of the various variables are shown in Tables 4, 5 and 6. The b coefficients serve as a representation of all the variables. There were significant correlations between product features, price sensitivity, emotions and experience, location, and status symbol, according to the standard regression coefficient (b), which indicates the significance of the regression coefficient.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.615[a]	.379	.310	.82246
a. Predictors: (Constant), SS, PF, PS, EE, L				

Table 5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.558	5	3.712	5.487	<.001[b]
	Residual	30.440	45	.676		
	Total	48.998	50			
a. Dependent Variable: DTP						
b. Predictors: (Constant), SS, PF, PS, EE, L						

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.071	.928		-.077	.939
	PF	.236	.138	.370	3.118	<0.001
	PS	.171	.239	.133	.3100	<0.001
	SS	.519	.373	.423	1.394	.170
	L	.147	.305	.116	.362	<0.001
	EE	.282	.257	.217	2.773	<0.001
a. Dependent Variable: DTP						

Results and Discussion

The results of the current study link product attributes and purchase beahvior to the Indian youth's interest in acquiring secondhand clothing. To some extent, Indian youth's motivations correspond with at least one of the pricing or socio-cultural elements. Since the vast majority of responses are from either students or young professionals, this satisfies the economic motivation. However, the inexpensive prices appear to also exhibit a crucial feature that enables more widespread use of secondhand clothing and apparel. Regarding the shopping experience, it was informed that the variety and originality of the secondhand avenues available in the Delhi-NCR make shopping a thrilling and surprising pastime, whether done alone or with others. It was also established that the respondents enjoyed the thought of their garments having a story, which may be indicative of a nostalgic disposition. Findings traditionally associated with the leisure dimension have also revealed a need for one-of-a-kind clothing items and, by extension, novelty. Secondhand clothing is seen as trendy and as a way to demonstrate a concern for the environment and a desire to do the "right" thing by Indian youth, according to the research. To reflect the caring and sensitive mentality that is deemed "cool" in today's culture, it's cool to shop secondhand. However, it may be claimed that customers do not always live up to their sustainable consumption rhetoric.

According to Hypothesis 1, product features have a significant relationship with the decision to purchase. The statistical result, $r = 0.236$, $p < 0.001$, deduces that the variable, product features, substantially predicts the consumers' decision to purchase secondhand clothing. Therefore, H1 is accepted.

Hypothesis 2 states that price sensitivity has a significant relationship with consumers' decisions to purchase secondhand clothing. The result $r = 0.171$, $p < 0.001$, verifies that the variable price sensitivity is a srong predictor of the purchasing decision. Therefore, H2 is accepted.

As per Hypothesis 3, the status symbol has a significant effect on consumers' decisions to purchase secondhand clothing. The statistical result ($r = 0.519$, $p > 0.001$) depicts that the variable status symbol did not significantly predict the purchasing decision. Therefore, H3 is rejected.

Hypothesis 4 states that the seller's location has a significant effect on consumers' decisions to purchase secondhand clothing. The statistical result ($r = 0.147$, $p < 0.001$) proves that there is significant relationship between location and consumers' decision to purchase. Therefore, H4 is accepted.

According to Hypothesis 5, emotions and experiences have a significant relationship with the decision to purchase. The statistical analysis ($r = 0.282$, $p < 0.001$) confirms that young adults' decisions to purchase secondhand clothing are significantly shaped by their emotions and experiences. Therefore, H5 is accepted.

The research was conducted in the Delhi-NCR with a sample of youngsters in the age group of 22 to 28 years. Therefore, it is recommended that a more extensive study be conducted with more diverse age groups. Secondhand clothing was purchased mainly from Daryaganj and Sarojini markets in New Delhi, as well as online marketplaces like OLX and Quikr, which may be a limitation of the research. Due to price, quality, and demand fluctuations, recycled or upcycled clothing and antique apparel were not included in the current study.

The study indicated that the factors of product features, price sensitivity, status symbol, location, emotions and experience, and the decision to purchase secondhand clothing have minimal bearing on one another when making a purchase. The data reveals that purchasing secondhand clothing is not equivalent to purchasing new clothing and that consumers evaluate each component separately when purchasing secondhand clothing. As a result, product features, price sensitivity, emotions and experience, and the seller's location should all be considered equally by vendors. In addition, they should provide any and all relevant information pertaining to those factors. The price of a product or service may be the most important factor for some customers. If one is selling secondhand clothing, they will need to provide all relevant information, such as the

original purchase price, current retail price, and final sale price. Alternatively, cultural attitudes toward clothing may be important to some customers. In order to make an informed purchase decision, the seller of secondhand clothing should also include additional information, such as the condition of the clothing as well as any warranties or guarantees that may be available. In addition, the study found that price is the most important consideration for buyers of secondhand clothing. The price of secondhand clothing also has a considerable impact on the purchasing decision, but other criteria such as product features, status symbol, location, and emotions and experience have little effect on the pricing. Secondhand clothing sellers must therefore adhere to a sensible pricing strategy so that consumers may afford their products. Consequently, the high price also limits the seller's capacity to sell the clothing (Völckner and Sattler, 2005), which must be considered. The regression model's coefficients, on the other hand, indicate that consumers' decisions to purchase secondhand clothing are affected by the marketplace. When looking to purchase secondhand clothing, a buyer takes the seller's location into account. As a result, the seller should disclose all relevant information about the area, such as the location of the garment collection site and the delivery method.

Conclusion

The study addressed factors like product features, price sensitivity, status symbol, seller location, and emotions and experiences in relation to secondhand clothing consumption and customer purchase behavior.

Based on the study's findings, the most pivotal consideration for customers when it comes to secondhand clothing is pricing, even though the brand name doesn't hold the utmost significance in the decision-making process for secondhand clothing purchases. This research reveals that there is no direct connection between branding and pricing in the context of secondhand clothing buying decisions. Second-hand clothing retailers can use this information to devise relevant and effective marketing strategies. For example, a consumer-centered pricing strategy can be established by placing exclusive emphasis on the buyer's perspective.

In the past, people often indicated their social status through physical possessions or easily recognizable attributes and titles. During the 1990s, individuals placed significant value on tangible and observable entities, such as ostentatious belongings and activities that had the potential to enhance one's societal status. Nevertheless, the results of

this study demonstrate that Indian youth have re-established alternative means of achieving wealth and prosperity without solely relying on status symbols. An increasing number of young Indians are contemplating the notion of streamlining their lifestyles and discovering their own purpose. The younger generation in India possesses unique ideals and perspectives that differ from those of preceding cohorts, mostly due to their maturation at a time characterized by remarkable societal transformations and the recent COVID-19. The process of advertising to contemporary young adults necessitates a distinct methodology in contrast to the strategies employed when addressing older cohorts. Today's Indian youth have been raised in an era characterized by the ubiquitous presence of computers and mobile gadgets. Rather than prioritizing monetary prosperity, individuals in this context prioritize freedom of expression, exploration of novel experiences, and utilization of state-of-the-art technologies to augment their fast-paced way of life. Merely possessing a state of uncomplicated luxury is insufficient. A noticeable change has occurred in consumer behavior, wherein there has been a transition from brand loyalty to cause loyalty. Due to the rapid progress in technology, the younger generation of today possesses enhanced connectivity to the global sphere and an increased awareness of global issues, including climate change. Conversely, there exists a positive correlation between individuals' level of comprehension and their degree of concern. The aforementioned method exhibits self-sustainability in an optimal manner, as the Indian youth display a willingness to acquire pre-owned garments. Consequently, this behavior establishes a recurring pattern that generates favorable feedback and yields profitable benefits for social entrepreneurship. As a result, a novel cohort is emerging, characterized by their inclination to make purchasing decisions not solely driven by status representations, but in fact, they demonstrate a generation's commitment to sustainability and address the challenges of climate change, thus encouraging a shift towards conscious clothing consumption. Therefore, it is important for researchers to explore the motivations of secondhand clothing consumers and investigate ways to overcome negative perceptions towards pre-owned clothing in order to encourage more widespread adoption of sustainable fashion consumption.

References

Attiq, S., Chau, K.Y, Bashir, S., Habib, M.D, Azam, R.I, and Wong, W.K., 2021. Sustainability of household food waste reduction: a fresh insight on youth's emotional and cognitive behaviors. *Int. J. Environ. Res. Public Health,* [e-journal] 18(13). https://doi.org/10.3390/ijerph18137013

Beneke, J. and Zimmerman, N., 2014. Beyond private label panache: the effect of store image and perceived price on brand prestige. *Journal of Consumer Marketing,* [e-journal] 31(4), pp.301–311. https://doi.org/10.1108/jcm-12-2013-0801.

Bryman, A. and Bell, E., 2011. *Business Research Methods*. 3rded. New York: Oxford University Press Inc.

Chaudhary, S., and Dey, A. K., 2016. Influence of socialisation agents on the materialism of Indian teenagers. *International Journal of Indian Culture and Business Management*, [e-journal] 13(2), pp.182-204. https://doi.org/10.1504/IJICBM.2016.078040

Clouse, C. and Dixit, A., 2017. Defining place image. In A. Bayraktar and C. Uslay ed. 2017, *Strategic place branding methodologies and theory for tourist attraction*. Hershey, PA: IGI Global.

Dey, K.D., and Srivastava, A., 2017. Impulse buying intentions of young consumers from a hedonic shopping perspective. *Journal of Indian business research*, [e-journal] 9(4), pp.266-282. https://doi.org/10.1108/JIBR-02-2017-0018.

Eastman, J.K., Goldsmith, R.E., and Flynn, L.R., 1999. Status Consumption in Consumer Behavior: Scale Development and Validation, *Journal of Marketing Theory and Practice*, [e-journal] 7(3), pp.41-52. https://doi.org/10.1080/10696679.1999.11501839.

Gossen, M. and Kropfeld, M.I., 2022. "Choose nature. Buy less." Exploring sufficiency-oriented marketing and consumption practices in the outdoor industry. *Sustainable Production and Consumption*, [e-journal] 30, pp.720–736. https://doi.org/10.1016/j.spc.2022.01.005.

Guiot, D. and Roux, D., 2010. A Second-hand Shoppers' Motivation Scale: Antecedents, Consequences, and Implications for Retailers. *Journal of Retailing,* [e-journal] 86(4), pp. 355-371. https://doi.org/10.1016/j.jretai.2010.08.002.

Holbrook, M.B., Chestnut, R.W., Oliva, T.A., and Greenleaf, E.A., 1986. Play as a Consumption Experience: The Roles of Emotion, Performance, and Personality in the Enjoyment of Games. *Journal of Consumer Research*, [e-journal] 11(2), pp.728-739. https://doi.org/10.1086/209009.

Huang, W., Schrank, H., and Dubinsky, A.J., 2004. Effect of brand name on consumers' risk perceptions of online shopping. *Journal of Consumer Behaviour:An International Research Review*, [e-journal] 4(1), pp.40-50.https://doi.org/10.1002/cb.156.

Hur, E. and Cassidy, T., 2019. Perceptions and attitudes towards sustainable fashion design: challenges and opportunities for implementing sustainability in fashion. *International Journal of Fashion Design, Technology and Education,* [e-journal] 12(2). https://doi.org/10.1080/17543266.2019.1572789.

Issock, P.B. I., Roberts-Lombard M. and Mpinganjira, M., 2020. Understanding household waste separation in South Africa: an empirical study based on an extended theory of interpersonal behaviour. *Management Environment Quality*, [e-journal] 31(3), pp.530–547. https://doi.org/10.1108/MEQ-08-2019-0181

Jacoby, J., Olson, J.C., and Haddock, R.A., 1971. Price, brand name, and product composition characteristics as determinants of perceived quality. *Journal of Applied Psychology*, [e-journal] 55(6), pp.570–579. https://doi.org/10.1037/h0032045.

Koay, K.Y, Cheah, C.W, and Lom, H.S., 2022. An integrated model of consumers'

intention to buy second-hand clothing. *International Journal of Retail& Distribution Management,* [e-journal] 50(11), pp.1358-1377. https://doi.org/10.1108/IJRDM-10-2021-0470.

Lichtenstein, D.R., Ridgway, N.M. and Netemeyer, R.G., 1993. Price Perceptions and Consumer Shopping Behavior: A Field Study. *Journal of Marketing Research*, [e-journal] 30(2), pp.234-245. https://doi.org/10.2307/3172830.

Nguyen, T.P.L., Tran, N.M., Phan, T.T.H., Vu, T.N., Tran, M.L., and Nguyen, T.D., 2022. Intention and behavior towards bringing your own shopping bags when shopping instead of using plastic bags in Vietnam: an investigation using the theory of interpersonal behavior. *Management of Environmental Quality.* [e-journal] 33(6), pp.1439–1456. https://doi.org/10.1108/MEQ-09-2021-0230.

Orth, U.R. and Malkewitz, K., 2008. Holistic Package Design and Consumer Brand Impressions, *Journal of Marketing*, [e-journal] 72(3), pp.64-81. 10.1509/jmkg.72.3.64.

Santos, J.P.M.D, Martins, M., Ferreira, H.A., Ramalho, J. and Seixas, D., 2016.Neural imprints of national brands versus own-label brands. *Journal of Product & Brand Management*, [e-journal] 25(2), pp.184-195. https://doi.org/10.1108/JPBM-12-2014-0756.

Sata, M., 2013. Factors affecting consumer buying behavior of mobile phone devices. *Mediterranean Journal of Social Sciences*, [e-journal] 4(12), pp.103-112. 10.5901/mjss.2013.v4n12p103.

Scitovsky, T., 1994. Towards a theory of second-handmarkets. *Kyklos*, [e-journal] 47(1), pp.33–52. https://doi.org/10.1111/j.1467-6435.1994.tb02247.x.

Shirvanimoghaddam, K., Motamed, B., Ramakrishna, S. and Naebe, M., 2020. Death by waste: Fashion and textile circular economy case. *Science of the Total Environment,* [e-journal] 718. https://doi.org/10.1016/j.scitotenv.2020.137317.

Solomon, M.R., 2012. Consumer behavior: Buying, having, and being, 10th ed. Upper-Saddle: Pearson College Div.

Thanasuta, K., 2015. Thai consumers' purchase decisions and private label brands. *International Journal of Emerging Markets*, [e-journal] 10(1), pp.102–121. https://doi.org/10.1108/IJOEM-02-2011-0016.

Thangavel, P., Pathak, P. and Chandra, B., 2019. Consumer Decision-making Style of Gen Z: A Generational Cohort Analysis. Global Business Review. Advance online publication. https://doi.org/10.1177/0972150919880128

Valor, C., Ronda, L. and Abril, C., 2022. Understanding the expansion of circular markets: Building relational legitimacy to overcome the stigma of second-hand clothing. *Sustainable Production and Consumption,* [e-journal] 30, pp.77–88. https://doi.org/10.1016/j.spc.2021.11.027.

Vehmas, K., Raudaskoski, A., Heikkilä, P., Harlin, A., and Mensonen, A., 2018. Consumer attitudes and communication in circular fashion. *Journal of Fashion Marketing and Management: An International Journal,* [e-journal] 22(3), pp.286–300. 10.1108/JFMM-08-2017-0079.

Veryzer, R.W., 1993. Aesthetic Response and the Influence of Design Principles on Product Preferences, *Advances in Consumer Research*, 20(1), pp.224-228. Available at: <https://www.acrwebsite.org/volumes/7438/volumes/v20/na-20> [Accessed 23 June 2022]

Völckner, F. and Sattler, H., 2005. Separating negative and positive effects of price with choice-based conjoint analyses. *Marketing: Journal of research and Management*, 1(1), pp.1-13

Wertheimer, M., 1925. Drei Abhandlungen zur Gestalttheorie. [online] Google Books. Verlag der Philosophischen Akademie. Available at: <https://books.google.co.in/books/about/Drei_Abhandlungen_zur_Gestalttheorie.html?id=7buiwgEACAAJ&redir_esc=y> [Accessed 29 July 2022]

Williams, C.C., and Paddock, C., 2003.The meanings of informal and second-hand retail channels: Some evidence from Leicester. *The International Review of Retail, Distribution and Consumer Research*, [e-journal] 13(3), pp.317-336. 10.1080/0959396032000101372.

Yadav, S. and Siraj, S., 2016. Youth shoppers—Study of psychographics, motives and shopping behaviour. *International Journal of Indian Culture and Business Management*, [e-journal] 12(3), 342. https://doi.org/10.1504/IJICBM.2016.075540.

About the authors

Rishab Manocha is an Associate Professor in the School of Fashion at Pearl Academy, Jaipur, India. With over 25 years' experience in fashion education, Rishab has worked with some of the most coveted institutions in the U.K. and India. An alumnus of the prestigious Central Saint Martin's College of Art and Design, London, he has worked in the British education industry for 10 years. In 1998, Rishab launched his hand-painted ceramics label, 'Vanitas Collections'. He has also worked at the British Council Social Services, providing art education to adults with learning disabilities.

rishab.manocha@pearlacademy.com

Mridul Dharwal is working as a Professor of Economics in the School of Business Studies, Sharda University, Greater Noida. He visited UNO headquarters in Geneva in 2011 to understand the functions and role of UNO for the development of countries like India. He has traveled to many countries for academic assignments and to develop an understanding of the various economies, for instance, Italy, the United Kingdom, France, Switzerland, Singapore, Thailand, Dubai, and Canada. He has successfully coordinated several international study programs. Mridul is also a Director of the Sharda University Yunus Social Business Centre, founded in 2021 as part of a partnership with the Yunus Centre in Dhaka. The Sharda University Yunus Social Business Centre promotes social business as a means of stimulating new ways to tackle social and environmental issues through innovative use of local resources.

mriduldharwal22@gmail.com

Influence of the Green Marketing Mix on Customers' Purchase Intentions for Sustainable Eco-Friendly Fashion Products

Sushil Raturi and Sachin Bhatnagar

Abstract

Customers across the globe are becoming conscious of what they buy, use, and consume in their daily lives in terms of their impact on the environment. The buying behavior of customers in today's times is not only driven by the look and feel of the product but is also driven by the impact of the "process of making the product" on the environment, the impact of "product usage" on the environment, and the impact of "post-usage and discarding of the product" on the environment. This has led manufacturers and retailers to conceptualize, create, communicate, and deliver products and services in such a manner that no stage of this marketing process causes any ill effect on the environment. This research study focuses on the concept of the green marketing mix, its elements, and their influence on customers purchase intentions of eco-friendly sustainable fashion products in India. The researchers came across a large number of research studies done in the past on the concept of green marketing and its relationship to the purchase behavior of customers of eco-friendly products. The study further explores the concept of green marketing from the perspective of fashion products in India. The article discusses the influence of the four traditional marketing mix elements (product, price, place, and promotion), customer satisfaction, and word of mouth on the customers' purchase intention of eco-friendly sustainable fashion products based on interviews with 279 Indian respondents in 2022. Based on data analysis using correlation and regression analysis, it was concluded that word of mouth, advertising, premium price, and satisfaction have been found to have significantly influenced the purchase intention of the respondents to the study, but factors like product quality and place of sale do not seem to have a significant influence on the purchase intention of the respondents.

Keywords: Green marketing mix, customer satisfaction, word of mouth, eco friendly, sustainable, purchase intention

Introduction

Sustainable eco-friendly fashion products are clothing, accessories, and other fashion items that are designed and produced using materials, methods, and practices that minimize their negative impact on the environment and society while promoting ethical and responsible consumption.

Some characteristics of sustainable, eco-friendly fashion products may include the use of environmentally friendly materials, ethical production practices, minimal environmental impact, durability and longevity, and appropriate end-of-life disposal. Sustainable fashion products are made from organic, recycled, or upcycled materials that reduce waste and minimize the use of non-renewable resources such as petroleum. These products are produced using ethical and socially responsible manufacturing practices, such as fair labor standards, worker safety, and waste reduction. Sustainable products are designed with minimal environmental impact in mind, using processes that reduce water and energy use, pollution, and waste. The products are designed to be durable and long-lasting, reducing the need for frequent replacements and thus minimizing waste. Lastly, sustainable fashion products are designed to be easily recycled, composted, or biodegraded at the end of their useful lives, reducing the amount of waste that ends up in landfills. Overall, sustainable, eco-friendly fashion products promote a more sustainable and ethical fashion industry by reducing waste, promoting responsible consumption, and minimizing environmental and social harm.

According to a study by Paiva (2021), businesses and consumers all over the world are becoming increasingly concerned about the environment, which has led to the development of green products. According to Szabo and Webster (2021), advertising companies have started promoting green products as eco-friendly and sustainable in a big way. Shabbir, et al. (2020) raise in their study that the marketing forces for sustainable products are so strong that even government policies are changing in favor of green marketing. Mursandi, Sudirman and Militina (2020) observe that green marketing includes the creation of products and services that fulfill customers' needs, wants, and desires. Grimmer and Woolley (2014), in a research study, deduce that the sale of green products influences the pro-environmental action of society. Due to this environmentally friendly approach by businesses and customers, there has been tremendous growth in green marketing. As put up by Bokil and Sinha (2021), green marketing activities include the production of goods and other elements of the marketing mix that fulfill the environmental needs of customers. Chen and Chang (2012) believe that due to green

marketing strategies, the purchase intention of customers improves. Jaiswal and Kant (2018) assert that the concept of green marketing has become an important area of study for academic researchers. Sukhu and Scharff (2018) state that with the help of green marketing, one can reduce distressing environmental consequences through eco-friendly design and production.

Consumers are becoming more aware of sustainable consumption, so it is important for companies to adopt green marketing (Liu, Li and Su, 2019). Kanchanapibul, et al. (2014) observe that a customer who intends to buy a green product faces challenges like product assessment, searching for the product, or finding a reasonable price. According to Song, et al. (2019), with the help of green marketing, products are recognized as green products with the purpose of enhancing consumer purchase behavior. Suki (2016) mentions that the techniques of green marketing, i.e., eco-friendly advertising, help customers understand the characteristics of green products and thus influence them to buy ecologically friendly products.

The probability of buying a green product increases once customers are convinced of the cost-benefit relationship (Deari, Isejani and Ferati, 2020). Cerri, Testa and Rizzi (2018) mention that customers may think not to purchase a product because it is harmful to the environment.

Review of Literature

The literature review attempts to introduce the concept of green marketing and elements of the marketing mix and also brings out past studies explaining the influence of these elements on the purchase of eco-friendly products.

The concept of green marketing has been defined by the American Marketing Association from three perspectives. As per the retail perspective, it is considered the marketing of products that are environmentally safe; from the social marketing point of view, green marketing is perceived to be the creation and marketing of products that are created in such a manner that there is no or minimal impact on the environment; and finally, from the environmental point of view, it is defined as the strategies of companies to develop, communicate, package, and reclaim goods and services to address ecological concerns.

The green marketing term first came during the 1980s. A consumer who shows environment-friendly attitudes and prefers green products due to his consciousness about the environment is termed a green consumer (Boztepe, 2012). Consumers are

beginning to value social responsibility and environmental concerns (Sawant, 2015). The consumers believe that the consumption attitudes of each and every consumer matter to the environment (Dagher and Itani, 2014). Due to this awareness and consciousness, consumers are increasingly adopting eco-friendly attitudes and preferring businesses with green practices. According to Ansar (2013), these attitudes of consumers are clearly visible through their shopping habits and their preferences, such as CFC-free products and recycling of products (Parthasarathy and Govender, 2016). According to Ferrell and Hartline (2014), the natural and social factors that are the basis of knowledge and product choices affect youngsters aged 18–25 to a great extent. Sharma (2015) explains that sociodemographic factors, such as a consumer's age and level of education, have a significant impact on their decision to purchase green products. The literature proposes that female youth with high education and income are more inclined towards greenness (Wang, 2014). In addition, green marketing is about making and selling products and services that are satisfactory to customers' needs and wants in terms of quality, outcome, pricing, convenience, and yet are environmentally friendly. Matin and Alauddin (2016) explain that green marketing is associated with designing, promoting, pricing and distributing environment-friendly products. According to Datta and Ishaswini (2011) eco-friendly products consumption and consumers attitude towards eco friendly product leads to the development of marketing mix that protects environment.

Overall, the literature suggests that elements of the green marketing mix, such as environmental labeling, product design, green packaging, and green advertising, play a significant role in influencing customers' purchase intentions of sustainable, eco-friendly fashion products. Moreover, customer characteristics such as environmental concern and trust in eco-friendly brands moderate this relationship. Finally, a green marketing mix can also foster customer loyalty and satisfaction towards sustainable fashion products.

Elements of green marketing mix

Green products are created and produced in an environment-friendly way with few negative effects, can be recycled, and are resource-saving (Alharthey, 2019). Arseculeratne and Yazdanifard (2014), point out that a product can be considered green if the manufacturing process is environmentally sustainable (eco-friendly) and the product's use causes little harm to the environment. Bhardwaj, et al. (2020) mention that green products have some indicators, like that the raw materials should be eco-

friendly, the goods do not produce waste, and they are safe for consumption. Also, for such a product, the packaging is biodegradable and eco-friendly.

According to Sharaf and Perumal (2018), the green price is the cost associated with providing goods and services to customers. Bhalerao and Deshmukh (2015) describe the green place as a channel of distribution. According to Al-Majali and Tarabieh (2020), the green place helps improve transport by reducing emissions and energy usage. But when a company transports its products outside its location, some sensitive environmental issues come up. Green promotion has been defined by Bhalerao and Deshmukh (2015) as promotional measures undertaken by companies to create product or service awareness.

According to Kotler and Keller (2006), there are three important aspects of word of mouth: credibility, personal, and timely. Customers trust their peer groups and friends more than sellers.

Solomon (2004) states that satisfaction is linked to product quality, which leads to product performance and ultimately a positive attitude towards the brand. According to Kotler and Keller (2006), the better the quality of the product, the more satisfied customers are, and satisfied customers have a greater willingness to conduct repeat purchases (Zeithaml, Berry and Parasuraman (1996).

Elements of marketing mix and purchase decision

Various studies have been conducted indicating marketing mix elements and their impact on customer purchase intentions. Nekmahmud and Fekete-Farkas (2020) observe that all the elements of the marketing mix have a positive correlation with customers purchase behavior for eco-friendly products. Humairoh and Elfani (2020) explain that advertisements, when companies promote eco-friendly products, have a positive correlation with customers attitudes, emotions, and behaviors. Singhal and Malik (2018), through their study, observe that customers do not mind paying a higher price for green products as it would associate them with being environmentally compliant. Hossain and Khan (2018) state that green promotional effects have a substantial effect on consumers purchasing decisions.

Research Gap

A large number of studies have been done on green marketing mix elements and their impact on customer attitude and purchase intentions. But these studies have largely been done for FMCG, consumer durables for the European and US markets, and consumers. As the concept of green marketing grows across different product categories, it is very

important for brands to develop green marketing strategies. In order to develop such strategies, brands will rely on an available pool of knowledge. However, the researchers did not come across any such specific study that brings out the influence of elements of the marketing mix on customers' purchase intentions for eco-friendly fashion products from the point of view of Indian customers. In order to address the research gap, there was a need to conduct a research study in the field of green marketing and study how each of the elements of the marketing mix, word of mouth, and satisfaction influence customers' purchase intentions. With this need for research, the objective of the study was defined as:

- To study the influence of product quality on customers' purchase intentions towards sustainable, eco-friendly fashion products.
- To study the influence of premium prices on customers' purchase intentions towards sustainable, eco-friendly fashion products.
- To study the influence of the place of sale on customers' purchase intentions towards sustainable, eco-friendly fashion products.
- To study the influence of promotion on customers' purchase intentions towards sustainable, eco-friendly fashion products.
- To study the influence of customer satisfaction on customers' purchase intentions towards sustainable, eco-friendly fashion products.
- To study the influence of word of mouth on customers' purchase intentions towards sustainable, eco-friendly fashion products.

In order to attain the objectives, the following hypotheses were formulated for the study:

H1: There is a significant influence of product quality on customers' purchase intentions for sustainable, eco-friendly fashion products.

H2: There is a significant influence of premium prices on customers' purchase intentions for sustainable, eco-friendly fashion products.

H3: There is a significant influence of the place of sale on the customer's purchase intentions for sustainable, eco-friendly fashion products.

H4: There is a significant influence of advertising on customers' purchase intentions for sustainable, eco-friendly fashion products.

H5: There is a significant influence of word of mouth on customers' purchase intentions for sustainable, eco-friendly fashion products.

H6: There is a significant influence of customer satisfaction on the basis of past purchases on the customer's purchase intention of sustainable, eco-friendly fashion products.

Though there are various other factors as well, like environmental labeling, product design, green packaging, etc., that might have an impact on purchase intention, these variables are not part of this study.

Methodology

The study was conceptualized in June 2022. The secondary data was collected from a review of related literature in books, research articles, and online sources. The research design was exploratory research, and a non-probability sampling method was used for the survey. Within the non-probability sampling method, the judgmental sampling method was used**.** The sample size of 301 respondents comprised customers who understand, appreciate, and buy sustainable, eco-friendly fashion products. Their responses were checked for accuracy, consistency, and missing information. A total of 22 responses were rejected, and finally, 279 responses were processed for analysis. The sampling frame comprised men and women in the age group of 18–65 years and are in the third and fourth levels of the Maslow hierarchy of needs, i.e., social and self-esteem needs. Primary data was collected from respondents located in Delhi, Mumbai, Chennai, Bengaluru, and Hyderabad (Table 1).

Table 1: Sample size and location of respondents for the survey

S.No.	City	Number of respondents
1	Delhi /NCR	83
2	Mumbai / Pune	71
3	Bengaluru	53
4	Chennai	39
5	Hyderabad	33
	Total	**279**

Primary data was collected during June–July 2022 using a structured questionnaire. A total of 141 respondents were interviewed using an online personal interview, 25 were interviewed through Zoom, and 113 responses were collected using Google Survey Forms. The researcher developed a structured questionnaire with close-ended dichotomous questions, multiple-choice questions, and 5-point Likert scale questions to measure the opinions, perceptions, and behaviors of the respondents.

Utilizing the 19-item scale that Hashem and Al-Rifai (2011) developed to measure the components of green marketing, the research evaluated the green marketing mix. The scale was further used by Mahmoud, et al. (2017) in their study titled "The Influence of Green Marketing Mix on Purchase Intention: The Mediation Role of Environmental Knowledge". For all six independent variables and the latent variable, this scale was adopted for measurement.

Respondent profiles included details of geographic location, psychographic, demographic, and behavioral characteristics. Prior to conducting the survey, a pilot test was conducted on a convenience sample of 20 respondents whose profiles matched those in the sampling frame of the research study, with the intention of testing the questionnaire to examine the validity of each question, clarity in terms of language, and terms used in the questionnaire. Based on problems and errors identified in the questionnaire, changes were made, and a final questionnaire was prepared for the survey.

Results and Analysis

The consumer responses collected through the questionnaire method of data collection were analyzed using the following stages:

Test of Reliability: The dependent and independent variables were tested for reliability. The reliability scale was calculated using Cronbach's alpha coefficient (Table 2). It has been mentioned by Nunnally and Bernstein (1994) that if the coefficient alpha values exceed 0.7, then the scale is considered to be a good estimate of internal consistency and reliability. All the variables used in the study obtained an acceptable level of alpha above 0.70, indicating that the scales used in this study were reliable.

The objective of the research was to determine the factors that influence the purchase intention of sustainable, eco-friendly fashion products. Hence, after the reliability test, each independent variable was tested with the dependent variable to examine the relationship in terms of direction and magnitude between the independent variable and the dependent variable. The correlation between independent variables and the dependent variable, i.e., purchase intention, was found through a Pearson correlation (Table 3). The independent variables were product quality, premium price, place of sale, advertising, word of mouth, and satisfaction. Purchase intention was chosen as the dependent variable as the aim was to demonstrate how marketing mix elements, word of mouth, and satisfaction influence consumers' purchase intentions for sustainable, eco-friendly fashion products.

Table 2: Reliability Test

Variables	No. of Items	Cronbach's alpha
Quality of eco-friendly, sustainable fashion products	04	0.751
Premium Price Premium price for eco-friendly, sustainable fashion products	02	0.811
Place of sale for eco-friendly, sustainable fashion products	03	0.772
Advertising of eco-friendly, sustainable fashion products	03	0.791
Word of mouth for eco-friendly, sustainable fashion products	02	0.701
Satisfaction of customers on the basis of past purchase of eco-friendly, sustainable fashion products	02	0.753

As seen in Table 3, word of mouth (0.821), advertising (0.801), premium price (0.791), and satisfaction (0.767) are the independent variables with the highest Pearson coefficients (r) with the dependent variable (purchase intention). The other two variables, i.e., product quality and place of sale, are positively correlated with purchase intention, but the correlation is found to be weak as per the correlation coefficient in Table 3.

Table 3: Correlations Matrix

	Purchase intention for eco-friendly, sustainable fashion products	Product quality of eco-friendly, sustainable fashion products	Premium price for eco-friendly, sustainable fashion products	Place of sale for eco-friendly, sustainable fashion products	Word of mouth for eco-friendly, sustainable fashion products	Advertising of eco-friendly, sustainable fashion products	Satisfaction of customers on the basis of past purchase of eco-friendly, sustainable fashion products
Purchase intention for eco-friendly, sustainable fashion products	1.00	0.113	0.791	0.114	0.821	0.801	0.767
Product quality of eco-friendly, sustainable fashion products	0.113	1.00	0.211	0.201	0.209	0.191	0.217
Premium price for eco-friendly, sustainable fashion products	0.791	0.211	1.00	0.311	0.321	0.491	0.417
Place of sale for eco-friendly, sustainable fashion products	0.211	0.201	0.311	1.00	0.191	0.517	0.213

Word of mouth for eco-friendly, sustainable fashion products	0.821	0.209	0.321	0.191	1.00	0.511	0.437
Advertising of eco-friendly, sustainable fashion products	0.801	0.191	0.491	0.517	0.511	1.00	.411
Satisfaction of customers on the basis of past purchase of eco-friendly, sustainable fashion products	0.767	0.217	0.417	0.213	0.437	.411	1.00

Next, the researchers ran a regression analysis to determine the factors that have an influence on the purchase intention and also to determine the most influential factor that influences the purchase intention. The R Square in Table 4 is equal to 0.741, which means that the model composed of six variables explains 74.1 percent of the variance of the purchase intention for sustainable, eco-friendly fashion products.

Table 4: Multiple regression: Model summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimates
1	0.861	0.741	0.690	0.770

Having derived the overall impact of all the independent variables on the dependent variable, the individual variable contribution to the dependent variable was measured, for which regression analysis was done. The results are depicted in Tables 5 to 10, where the R Square value needs to be examined and interpreted. By observing the R Square value in the coefficient table, which indicates to what extent each variable contributes or not to the variance in the purchase intention, a comparison of the factors can be made to determine which contributed the most to the variance of the purchase intention. The R Square values indicate how well the regression equation fits the data.

Table 5: Regression analysis of quality and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.113	.012	.009	0.931	.069

Table 6: Regression analysis of premium price and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.791	0.625	0.59	0.711	.023

Table 7: Regression analysis of place of sale and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.21	.044	.038	0.947	.061

Table 8: Regression analysis of word of mouth and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.821	0.674	0.580	0.761	.024

Table 9: Regression analysis of advertising and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.801	0.64	0.58	0.672	.021

Table 10: Regression analysis of satisfaction of customers on the basis of past purchase and purchase intention for eco-friendly, sustainable fashion products

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P value
1	0.767	0.588	0.48	0.667	.022

In Table 5, the R Square (measure of the coefficient of determination) is 0.012, which indicates how well the regression equation fits the data. It means that only 1.2 percent of the total variation in customer purchase intention can be explained by the linear relationship between the product quality (independent variable) and the purchase intention for eco-friendly, sustainable fashion products (dependent variable). The other 98.2 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between the quality of eco-friendly sustainable fashion products and purchase intention is insignificant, and the R Square value also indicates an insignificant contribution to the product quality of eco-friendly sustainable fashion. Thus,

the hypothesis is rejected, and it can be inferred that there is no significant influence of product quality on customer purchase intention for eco-friendly, sustainable fashion products.

In Table 6, the R Square (measure of the coefficient of determination) is 0.625, which indicates how well the regression equation fits the data. It means that 62.5 percent of the total variation in customer purchase intention can be explained by the linear relationship between premium price (independent variable) and purchase intention for eco-friendly, sustainable fashion products (dependent variable). The other 37.5 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between premium prices for eco-friendly sustainable fashion products and purchase intention is significant, and the R Square value also indicates a significant contribution of premium prices for eco-friendly sustainable fashion products. Thus, the hypothesis is accepted, and it is inferred that there is a significant influence of premium prices on customers' purchase intentions for eco-friendly, sustainable fashion products.

In Table 7, the R Square (measure of the coefficient of determination) is 0.044, which indicates how well the regression equation fits the data. It means that only 4.4 percent of the total variation in customer purchase intention can be explained by the linear relationship between place of sale (independent variable) and purchase intention of eco-friendly, sustainable fashion products (dependent variable). The other 95.6 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between place of sale for eco-friendly sustainable fashion products and purchase intention is insignificant, and the R Square value also indicates the insignificant contribution of place of sale for eco-friendly sustainable fashion products. Thus, the hypothesis is rejected, and it is inferred that there is no significant influence of place of sale on customers' purchase intentions for eco-friendly, sustainable fashion products.

In Table 8, the R Square (measure of the coefficient of determination) is 0.674, which indicates how well the regression equation fits the data. It means that 67.4 percent of the total variation in customer purchase intention can be explained by the linear relationship between word of mouth (independent variable) and the purchase intention of eco-friendly, sustainable fashion products (dependent variable). The other

32.6 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between word of mouth for eco-friendly sustainable fashion products and purchase intention is significant, and the R Square value also indicates a significant contribution of word of mouth for eco-friendly sustainable fashion products. Thus, the hypothesis is accepted, and it is inferred that there is a significant influence of word of mouth on customers' purchase intentions for eco-friendly, sustainable fashion products.

In Table 9, the R Square (measure of the coefficient of determination) is 0.64, which indicates how well the regression equation fits the data. It means that 64 percent of the total variation in customer purchase intention can be explained by the linear relationship between advertising (independent variable) and the purchase intention for eco-friendly, sustainable fashion products (dependent variable). The other 36 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between advertising for eco-friendly sustainable fashion products and purchase intention is significant, and the R Square value also indicates the significant contribution of advertising for eco-friendly sustainable fashion products. Thus, the hypothesis is accepted, and it is inferred that there is a significant influence of advertising on customers' purchase intentions for sustainable, eco-friendly fashion products.

In Table 10, the R Square (measure of the coefficient of determination) is 0.588, which indicates how well the regression equation fits the data. It means that 58.8 percent of the total variation in customer purchase intention can be explained by the linear relationship between satisfaction with eco-friendly sustainable fashion products (independent variable) and purchase intention (dependent variable). The other 41.2 percent of the total variation in customer purchase intention for eco-friendly, sustainable fashion products remains unexplained.

Since the correlation between satisfaction and purchase intention is significant, and the R Square value also indicates a significant contribution of satisfaction with eco-friendly, sustainable fashion products. Thus, the hypothesis is accepted, and it can be inferred that there is a significant influence of satisfaction with eco-friendly, sustainable fashion products on customers' purchase intentions.

The analysis of the data results clearly indicates that of the factors identified in the study for which influence on purchase intention has been measured, word of mouth, advertising, premium price, and satisfaction have been found to have significantly influenced the purchase intention of the respondents, but factors like product quality and place of sale do not seem to have significant influence on the purchase intention of the respondents.

Conclusion

The current study clearly shows that consumers' intention to purchase an eco-friendly sustainable fashion product is influenced by their satisfaction with their past purchases of eco-friendly fashion products, advertising, premium pricing of these products, and communication by way of word of mouth for these products. This gives a message to business managers that they should continue and further enhance eco-friendly advertising campaigns to create purchase intention. As Kotler and Keller (2006) mention, consumers trust more the people who are close to them, such as family and friends, than a seller in a shop because there is an "intimate dialogue". Furthermore, "80 percent of all of our buying decisions are influenced by someone's direct recommendations" (Solomon et al., 2010). Thus, brands should also give importance to word-of-mouth communication, which will happen when customers are satisfied with their past purchases, uses, and consumption of the product.

The finding that place and product quality do not seem to have influenced customers' purchase intentions may suggest a way forward for the marketing team of brands. Managers should make efforts in place as the correlation between place and purchase intention is positive, though it is a weak correlation. Managers should work on the right place in the store where such products are placed, and they should be placed at strategic points in the store so that they are easily noticeable in the store. In the same way, for product quality, a positive correlation exists, but again, it is a weak correlation. Customers do not perceive a product to have superior quality if it is an eco-friendly product. Their basic purpose is to care for the environment. But the product managers can start positioning their products as of superior quality, so the emphasis should be on making these products of better quality, as the study shows that customers are willing to pay premium pricing. The study can assist marketing managers in particular in planning marketing strategies with the purpose of satisfying the target customers, making profit, and preserving the environment.

References

Al-Majali, M.M., and Tarabieh, S.M.Z.A., 2020. Effect of internal green marketing mix elements on customers' satisfaction in Jordan: Mu'tah University students. *Jordan Journal of Business Administration*, 16(2), pp.411–434.

Alharthey, B.K., 2019. Impact of green marketing practices on consumer purchase intention and buying decision with demographic characteristics as moderator. *International Journal of Advanced and Applied Sciences*. [e-journal] 6(3), pp.62-71. 10.21833/ijaas.2019.03.010.

Ansar, N., 2013. Impact of Green Marketing on Consumer Purchase Intention. *Mediterranean Journal of Social Sciences*, 4(11), pp.650-655.

Arseculeratne, D. and Yazdanifard, R., 2014. How Green Marketing Can Create a Sustainable Competitive Advantage for a Business. *International Business Research*. [e-journal] 7(1), pp.130-137. 10.5539/ibr.v7n1p130.

Bhalerao, V.R. and Deshmukh, A., 2015. Green Marketing: Greening the 4 Ps of Marketing. *International Journal of Knowledge and Research in Management & E-Commerce*, 5(2), pp.5-8

Bhardwaj, A.K., Garg, A., Ram, S., Gajpal, Y. and Zheng, C., 2020. Research Trends in Green Product for Environment: A Bibliometric Perspective. *International Journal of Environmental Research and Public Health*. [e-journal] 17(22), pp.1-21. 10.3390/ijerph17228469.

Bokil, Y. and Sinha, D.K., 2021. Green Marketing and Mindful Consumption for Sustainable Development. *Central Asian Journal of Innovation on Tourism Management and Finance.* 2(9), pp.4–7.

Boztepe A., 2012. Green marketing and its impact on consumer buying behavior. *European Journal of Economic and Political Studies*. 5(1), pp.5-21.

Cerri, J., Testa, F. and Rizzi, F., 2018. The more I care, the less I will listen to you: How information, environmental concern and ethical production influence consumers' attitudes and the purchasing of sustainable products. Journal of Cleaner Production. 175, pp.343–353.

Chen, Y. and Chang, C., 2012. Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust. *Management Decision*, 50(3), pp.502-520

Dagher, G.K. and Itani, O., 2014. Factors Influencing Green Purchasing Behavior: Empirical evidence from the Lebanese consumers. *Journal of Consumer Behavior*, 13(3), pp.188-195.

Datta S.K. and Ishaswini, 2011. Pro- environmental Concern Influencing Green Buying: A Study on Indian Consumers. *International Journal of Business and Management,* 6(6).

Deari, H., Isejni, S. and Ferati, R., 2020. Green Marketing and Consumer Behavior towards Green Brands. *International Journal of Progressive Sciences and Technologies,* [e-journal] 23, pp.4–11. 10.52155/ijpsat.v23.2.2280

Ferrell, O.C. and Hartline, M.D., 2014. *Marketing Strategy: Text and Cases*. 6th ed. South Western: Cengage Learning.

Grimmer, M. and Woolley, M., 2014. Green marketing messages and consumers' purchase intentions: Promoting personal versus mental benefits*. Journal of Marketing Communication,* 20(4), pp.231–250.

Hashem T. and Al-Rifai N.A., 2011. The influence of applying green marketing mix by chemical industries companies in three Arab States in West Asia on consumer's mental image. *International Journal of Business and Social Science*, 2(3), pp.92- 101.

Hossain, A. and Khan, M.Y.H., 2018. Green marketing mix effect on consumers buying decisions in Bangladesh. *Marketing and Management of Innovations*, 4, pp.298-306

Humairoh, H. and Elfani, N.M., 2020. Is Green Marketing a Basis for Purchase Decisions. In: 1st International Conference on Science, Health, Economics, Education and Technology. 27, 465–469

Jaiswal, D. and Kant, R., 2018. Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers*. Journal of Retailing and Consumer Services,* 41, pp.60–69.

Kanchanapibul, M., Lacka, E., Wang, X., Chan, H.K., 2014. An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production*, 66, pp.528–536.

Kotler, P. and Keller, K.L., 2006. *Marketing Management*, Pearson Prentice Hall: New Jersey

Liu, Y., Li, F. and Su, Y., 2019 Critical Factors Influencing the Evolution of Companies' Environmental Behavior: An Agent-Based Computational Economic Approach. *SAGE Journals*, [e-journal] 9(1). https://doi.org/10.1177/2158244019832687

Mahmoud, T.O., Ibrhim, S.B., Ali, A.H. and Bleady, A., 2017. The influence of green marketing mix on purchase intention: The mediation role of environmental knowledge. *International Journal of Scientific & Engineering Research*, [e-journal] 8(9), pp.1040-1048.

Matin, A. and Alauddin, M., 2016. Prospects and Challenges of Green Marketing in Bangladesh. *European Journal of Business and Management.*

Mursandi, D.A., Sudirman, H.A., and Militina, T., 2020. The impact of green marketing and corporate social responsibility on brand image, purchase intention, and purchase decision (study on the body shop in samarinda*). International Journal of Economics Business and Accounting Research (IJEBAR),* [e-journal] 4(4), 13.

Nekmahmud, M., and Fekete-Farkas, M., 2020. Why not green marketing? Determinates of consumers' intention to green purchase decision in a new developing nation. *Sustainability (Switzerland)*, [e-journal] 12(19), pp.1–31. https://doi.org/10.3390/su12197880.

Nunnally, J.C. and Bernstein, I.H., 1994. *The Assessment of Reliability*. Psychometric Theory 3, New York.

Paiva, T., 2021. *Green Marketing*. In Mehdi K-P., D.B.A., 2021. *Encyclopedia of Organizational Knowledge, Administration, and Technology*; IGI Global: Hershey, PA, USA, pp.2042–2055.

Parthasarathy G.J. and Govender T.L., 2016. The influence of green marketing on consumer purchase behavior*. Journal of Environmental Economics*, 7(2), pp.77-85.

Sawant, R., 2015. A Study on Awareness and Demand Pattern Amongst Consumers W.R.T Green products, *Journal of Marketing and Technology*, 5(1), pp.136-148

Shabbir, M.S., Sulaiman, M.A.B.A., Al-Kumaim, N.H., Mahmood, A., Abbas, M., and Sulaiman A., 2020. Green Marketing Approaches and Their Impact on Consumer Behavior towards the Environment—A Study from the UAE. *Sustainability,* 12(21), 8977.

Sharaf, M.A. and Perumal, S., 2018. How does green products' Price and availability impact Malaysians' Green purchasing behaviour? *The Joural of Social Science Research,* [e-journal] 3(4), pp.28-34

Sharma, P., 2015. Green Marketing – Exploratory Research on Consumers in Udaipur City. [pdf] *Journal of Applied Research*, 5(1), pp.254-257. Available at: <https://www.worldwidejournals.com/indian-journal-of-applied-research-(IJAR)/recent_issues_pdf/2015/January/January_2015_1420092130__70.pdf> [Accessed 15 june 2022]

Singhal, A. and Malik, G., 2018. The attitude and purchasing of female consumers towards green marketing related to cosmetic industry. *Journal of Science and Technology Policy Management,* [e-journal] 12(3), pp.514-531 https://doi.org/10.1108/jstpm-11-2017-0063

Solomon, M.R., 2004. *Consumer Behaviour, Buying, Having and Being*. 6th ed., England: Pearson Prentice Hall.

Solomon, M., Bamossy, G., Askegaard, S., and Hogg, M.K., 2010. *Consumer Behavior: Buying: A european perspective.* 4th ed., New Jersey: Pearson P T R

Song, L., Lim, Y., Chang, P., Guo, Y., Zhnag, M., Wang, X., Yu, X., Lehto, M. R., Cai, H., 2019. Ecolabel's role in informing sustainable consumption: A naturalistic decision making study using eye tracking glasses. *Journal of Cleaner Production*, [e-journal] 218, pp.685–695.

Sukhu, A. and Scharff, R., 2018. Will 'doing right' lead to 'doing well'? An examination of green behavior. *Journal of Consumer Marketing*, 35(2), pp.169–182.

Suki, N.M., 2016. Green product purchase intention: Impact of green brands, attitude, and knowledge. *British Food Journal*, 118(12), pp.2893–2910.

Szabo, S. and Webster, J., 2021. Perceived Greenwashing: The effects of green marketing on environmental and product perceptions. *Journal of Business Ethics* 171(4), pp.719–739.

Wang, S., 2014. Consumer characteristics and social influence factors on green purchasing intentions, *Journal of Marketing Intelligence and Planning*, 32(7), pp.738-753.

Zeithaml, V.A., Berry, L.L., and Parasuraman, A.V., 1996. The Behavioral Consequences of Service Quality. *Journal of Marketing*, 60(2), pp.31-46.

About the authors

Sushil Raturi, Professor at the Department of Fashion Management Studies (FMS), NIFT Mumbai, has been associated with NIFT since 1998. Before joining NIFT, he worked with the International Business Consultant (IBC) in New Delhi for four years. With a doctorate in management, Dr. Raturi has authored books on fashion brand strategies and experiential marketing, in addition to 12 publications in international journals. His areas of teaching and research are branding, retailing, experiential marketing, and branded entertainment. He is also Retail Chair Professor of Tata Trent at NIFT Mumbai. Besides teaching and research, he has also handled key positions at the campus level, like campus academic coordinator, and incharge of international and domestic linkages, industry and alumni linkages, project and consultancy, foundation program (technology), and fashion management studies. Dr. Raturi has also handled a key head office position at NIFT as 'Head Industry & Alumni Affairs'. He is also a visiting faculty member at IOWA State University.

sushil.raturi@nift.ac.in

Sachin Bhatnagar is an Assistant Professor in the department of Fashion Management Studies at NIFT Mumbai. He is an alumnus of NIFT Gandhinagar, with over 14 years of experience in both academics and industry. Before entering academia, he worked in the soft goods and hard goods manufacturing and export industries, catering to the biggest buyers across the globe. He joined NIFT Patna in 2013 as an assistant professor and held the portfolio of Cluster Initiative Coordinator, Link CC-FMS, and Campus Implementation In-Charge. Sachin joined NIFT Mumbai in 2018. He specializes in fashion merchandising and international marketing. His current teaching responsibilities include fashion merchandising, international marketing, export business, retail management, marketing, and entrepreneurship. His research interests include social entrepreneurship and global fashion business.

sachin.bhatnagar@nift.ac.in

Circular Economy Strategies for the Indian Apparel Industry

Jaya Advani and Rashmi Gulati

Abstract

Fast fashion, the trendy and affordable clothing produced by global fashion corporations, has dramatically altered the perception of clothing from a sustainable commodity into a disposable daily acquisition. Consequently, the fashion industry stands as one of the most ecologically unfriendly sectors for consumers. Over the past few years, there has been a growing emphasis on embracing the circular economy model as a means of achieving a more sustainable and waste-free fashion industry. This study delves into the progress made in the apparel manufacturing sector, examining the transformation of consumer needs into consumer desires throughout the stages of mass production, assembly line techniques, and the advent of fast fashion. By exploring these advancements, valuable insights were gained into the industry's journey towards a more environmentally conscious future. Consumers play an important role in the global apparel manufacturing process. The study touches upon the consumer perspective of circularity in industries and outlines the strategies that can be implemented to enable consumers to participate in the industrial supply chain. Based on interviews with sustainable development stakeholders, internal industry stakeholders, and brand sustainability managers and designers, this article attempts to map the circular economy strategies spanning two key stages: the industry and the consumers. The interaction with experts served to deepen the understanding of the significance of adopting an alternative manufacturing model to the prevailing linear economy. Crucially, this study argues that for the fashion industry to advance towards circularity, it is imperative for companies to implement suitable strategies throughout their entire supply chains, rather than limiting their application solely to the waste management stage. By integrating circularity principles at every stage, the industry can effectively address environmental challenges and foster a more sustainable future.

Keywords: Apparel industry, circular economy, consumers, sustainability, strategy development, system design

Introduction

It has now become clear that the present 'take-make-dispose' system of the apparel industry is working against sustainable development. As a result of the ill effects of fast fashion, the circular economy paradigm is gaining momentum. A circular economy is described as an industrial system that, by intention and design, is restorative or regenerative and uses and reuses natural capital as effectively as possible in apparel manufacturing. The system finds value throughout the life cycle of goods.

One of the major reasons for the rising environmental crisis is the rise in carbon footprints. There are various parameters that contribute to the addition of carbon footprints to the existing ecosystem. Fast fashion has made a sizable contribution to climate change. As more and more developments came into place within the various processes in the apparel industry, policymakers noticed the depletion of resources that caused major consequences within the ecosystem and human lifestyles. The subsequent discussions that followed saw the term 'Fast Fashion' come into existence. The term, according to the Macmillan Dictionary, was coined in the year 1990, when it represented the speedily moving designs over the 'Catwalks' to the 'Mass Markets'. The word 'fast' here refers to the idea of negativity, whereas the opposite term 'slow' in the newer sense would refer to 'doing things carefully and over a longer period of time to improve the quality'.

Post-consumer apparel waste has been a topic of discussion for the past five years. As per the studies conducted by Reverse Resources in 2021, the post-industrial waste mapped in 20 countries was estimated to be 80 billion to 150 billion pieces a year before the Corona crisis. In addition to the post-industrial waste, garment manufacturing waste has also substantially increased. The research article strives to present innovative approaches to enhance sustainability management within the fashion and textile industry through experiments and strategic planning. The main objective is to analyze more effective practices for addressing the challenges inherent in current sustainability models.

Research Design

Pluralism and serendipity describe modes of thought in the architecture of clusters when it comes to thinking about, with, and by design analysis. Design analysis may pave the way for the creation of a singularity, enabling philosophy to bridge the gap between theory and reality and emerge through the wormhole as something entirely novel. Design analysis provides a framework for integrating theory and experience in order to

improve the work. It creates a demilitarized zone between designers wary of discourse and critical information dismissive of designer-client negotiations. By shifting the focus away from the styling of individual components and delving into the interlocking structures that underpin manifest support restrictions, design analysis consistently plays a role in redefining the design process. This shift takes it from standalone objects to embedded systems, and it empowers material designers to rightfully seek a more extensive commitment (Laurel, 2003).

The objective of this research is to propose enhancements in the clothing manufacturing process by incorporating different strategies throughout the supply chain. The study is structured into three stages, including manufacturing processes, human factors, and overall design aspects. These elements are holistically assessed to formulate new design solutions.

Circularity as a “reevaluating system” has proven to be a strong modern framework for creating fresh concepts and sparking imaginative solutions. Adhering to these concepts and their application in terms of research and study in the ever-unsustainable fast fashion industries was initiated through the 5W1H (Who, What, Where, When, Why, How) approach. The 5W1H approach was employed to identify essential questions and their answers, leading to the formulation of the problem statement regarding unsustainable practices in the fast fashion industry. This approach aims to address these issues by implementing a circular economy through positive system disruptions.

To gain a deeper understanding of the nature of interdisciplinary research at the intersection of apparel industry manufacturing procedures and circular economy approaches, a systematic literature review was carried out. The research was then linked to the broader umbrella of the circular economy and/or business models present in the industry. To do so, a collection of titles and abstracts was carried out, accompanied by a review of the full text of related publications.

Following secondary data collection, the primary data was collected in three phases (Table 1). The first phase (structured approach) involved an online survey with 135 consumers across India. This helped outline the understanding of consumers towards the adaptation of the circular economy and its practices within retail spaces. The second phase (unstructured approach) consisted of a group of 15 consumers aged between 21 and 40 who were personally interviewed to understand the consumer reaction to the cluster ideas of using the circular economy on a large scale. The selection of 15 participants was done through the purposive sampling technique as a subset of the 135 survey candidates. The third phase (unstructured approach) of the primary study

was conducted through the identified stakeholders of the apparel industry, working for brands such as Subtleknots, Tiso Ghari by Badal, Lee Cooper, and Colordot. The stakeholders of the sustainability movement and industry experts like Mr. Sabyasachi Jana, Assistant Manager, Design, Lee Cooper, India; advocates of sustainability and circular economy; and founders of sustainable brands, Mr. Badal Kumar, Founder and Director, Tiso Ghari by Badal; and Ms. Starina Cabrel, Founder and Director, Subtleknots, were interviewed, and using the Delphi method, their responses were analyzed.

Table 1: Primary data collection

	No. of participants	**Focused groups**	**Topic**
Online Survey	N = 135	Indian Consumers Age Group 21 to 40 years	Consumer perspectives on environmental challenges due to fast fashion. Awareness of the circular economy model, interactions and promotion of circular fashion
1:1 Consumer Interviews	N = 15	Indian Consumers Age Group 21 to 40 years	Consumers' motivation in recycling and communication, modes of shopping, sustainability awareness, circular economy adaptability
1:1 Industry Stakeholder Interviews	N = 4	Internal Industry Stakeholders	Stakeholder motivations and perspectives in the internal aspects of implementing circular economy and its adaptability across departments

Review of Literature

With newer initiatives in place to reduce the hidden environmental cost of clothing, the background research began with references to literature on sustainability and circular economy practices in the apparel industry.

Focusing on the various approaches to sustainability followed by the apparel industry, from technological fixations to textile developments and consumer perceptions, there are several case studies based on the manufacturing industry's outlook toward sustainability (Muthu, 2015). When examining sustainability in apparel manufacturing scenarios, the emphasis on behavioral aspects rather than impact measures and metrics is notable. A study by Torres, Rey-Garcia and Albareda (2017) proposes an action-

oriented tool to address the sustainability challenges faced by fast-fashion supply chains in order to take tangible actions towards sustainability. The researchers examine the sustainability reporting of the two largest fast-fashion companies in the world. This analysis was conducted in three phases to gain insights into the challenges faced by the organizations, align reporting with the United Nations' Sustainable Development Goals (SDGs), and analyze the reported sustainability actions.

Exploring the interconnection between intelligence systems and sustainability, many textile and apparel businesses are embracing and incorporating advanced technologies to gain competitiveness, a strategic advantage, and to support sustainable practices. During the rise of Industry 4.0, the textile and apparel sectors have encountered intense competition and shared challenges. These include the need to meet tighter order deadlines, navigate increasing material and labor expenses, and cope with shrinking profit margins. The emergence of fast fashion has further disrupted the industry with its demands for rapid production and frequent shifts in product orders. Though the fashion industry has made efforts to align their logistics warehouses, store inventories, and supply chains with customer demands and manufacturing plans, in practice, customer preferences often deviate from established production schedules. (Ahmad et al., 2020)

Measuring progress in the transition from linear to circular product chains is a complex task. Various measuring instruments and indicators are available to monitor the effects of circularity, the environment, and the economy. However, the challenge lies in consolidating these indicators into a manageable set that accurately reflects the effects of a circular economy transition. Measuring progress is particularly challenging due to the differences across product chains, their transition goals, innovation requirements, efforts needed, resistance from actors, and socio-institutional factors. The Ministry of Infrastructure and the Environment has commissioned research to investigate how to measure progress towards a circular economy within individual product chains. The study focuses on identifying what needs to be measured rather than the specific measurement methods. A conceptual framework has been developed to assess circular economy transitions in product chains, with a particular emphasis on the role of innovation (Potting, et al., 2017).

Identifying the Opportunity - The Circular Economy Model

We've all been at a fork in the road before. The steam engine, invented by Thomas Savery in 1684, revolutionized the world. This innovation ushered in the industrial revolution, which transformed the ability to manufacture products. Raw materials and resources proved to be unlimited, and labor was abundant. Goods were mass-manufactured for the first time in history. In the 21st century, the knowledge to build

tools and techniques to support economies is, in many ways, impacting and negatively disrupting ecosystems. Following the secondary study and using the 5W1H technique, this disruption in the ecosystem of apparel manufacturing can be narrowed down to an opportunity that will help guide the manufacturing towards positive outcomes in terms of fashion rather than the negative impacts it creates today.

Disruption by both producers and consumers (who)

A major drop in garment prices over the years has allowed consumers to make more and more purchases. In turn, the huge production has given rise to pre- and post-consumer waste being generated, which has impacted the ecosystem negatively and is continuing to do so. Hence, the industry and consumers are two major factors in the process of linear fashion production.

Industry's operations in excess (what)

The rapid rate of technological development has continued since the industrial revolution. Among all the manufacturing industries, the apparel industry has a huge impact due to its linear production systems (take-make-use). Till date, the linear systems followed across the globe have accounted for 10 percent of the global carbon emissions, according to data from Business Insider, 2019.

Societal shift towards readymade fashion (when)

The 1840s saw the beginning of the industrial revolution in the US and Europe. The mid-20th century saw its spread in India. Assembly line production rose to prominence during the second half of the 20th century. The invention of graded paper patterns, sewing machines, power looms, cars, movies, and war, all put together, transformed the culture of ready-made clothing manufacturing. Consumerism and globalization are some of the aspects that also gave a push to the linear manufacturing system within the industry that gave rise to fast fashion.

Impact on stakeholders and environment (where)

Today's industries harvest energy from the earth to produce products that consumers need and then discard those goods until they are no longer needed. Within the industry scenarios, the linear systems that are followed involve not only the internal industry stakeholders but also the external ones. Apart from the stakeholders of the industries, the consumer's perception of the easy availability of apparel in today's time is a barrier.

It gives a boost to the industries to manufacture more and ignore the consequences of their actions on the ecosystems around them.

Impact of fast fashion (why)

The rapid turnover of clothing within consumer spaces is occurring due to the yearly deterioration in quality and the swift pace of changing trends that are difficult to keep up with. Fast fashion, responsible for mass-producing low-cost clothes, has led to the launch of countless new collections each year, constantly making consumers feel out of date and enticing them to buy more.

From linear to circular model (how)

The shift in the linear model of apparel industry production is important, and the shift in consumer perception, along with increased awareness, is a necessary step toward a circular economy. The circular economy system works on five principles:

- Newer business models that increase clothing use
- Eco-friendly and sustainable inputs
- Repurposing old clothes into new ones
- Making systems that generate less pre-consumer waste
- Consumer involvement within the system

People together can reinvent everything by eliminating waste and pollution, keeping products and materials in use, and regenerating natural systems.

Results and Discussion

There is a widespread misunderstanding that after the clothes have passed from the fashion industry through retail outlets to the customers, they are no longer the industry's liability. However, recognizing and involving the stakeholder groups engaged in the management of pre-consumer and post-consumer waste is crucial. It will reduce wasteful behavior in both purchasing activities and throughout the entire process, as these trends are recurrent.

The increased demand in the apparel industry sector is mostly due to fast-changing, low-cost design, which unfortunately results in a rise in pre- and post-consumer textile and apparel waste. There is a lack of consensus about who is to blame for the apparel industry's overproduction. However, behavioral scientists argue that the underlying factors of overconsumption must be addressed by environmental proponents to

handle overproduction and its environmental consequences efficiently. This situation emphasizes the critical roles of two key stakeholders in the effective adoption of the circular economy concept within the framework of the apparel manufacturing economy: consumers and the textile and apparel industry.

Consumer survey

Examining consumer behavior, a comprehensive survey titled "A Sustainable Approach: Circular Economy" administered to 135 participants and a secondary study suggested that environmental and ethical issues do not always influence consumer buying behavior. According to the consumer survey, 77% of the respondents consider price and overall apparel quality as the two most important considerations when making a clothing purchasing decision. As a result, from the consumer decision-making point of view, the sustainability aspect will not be enough to fix the crisis of over-purchase and unethical usage of apparel.

The survey further aimed to gain insights into their apparel shopping habits, factors influencing their purchase frequencies, and their consideration of sustainability. The survey also explored participants' awareness of sustainability and their willingness to prioritize it in their buying decisions. The findings revealed that in the 18–25 age group, 49 percent of respondents shopped for clothes once every three months, and 32 percent purchased clothing every month. It was also observed that 44 percent of those aged 26–34 shopped once every three months (Table 2). The examination of the gathered data pointed to a notable surge in consumer inclination towards readily available fast fashion. When consumers were questioned about their apparel shopping frequency, the data additionally conveyed that, on average, 42% of respondents anticipate their clothing to remain in active use for a maximum of three years.

Table 2: Consumer shopping frequency

Fast fashion shopping frequency					
Group type		**1 Months**	**3 Months**	**6 Months**	**1 Year**
Age group	18 – 25 years	32%	49%	17%	02%
	26 – 34 years	15%	44%	30%	11%
	35 – 45 years	14%	43%	43%	0
	46 – 60 years	12%	40%	36%	12%
	60 Plus	0	0	33%	67%

In order to provide further clarity to the analysis, personal interviews with consumers exhibited a favorable response towards the idea of transforming clothing waste into new garments. When questioned about their willingness to modify their purchasing behavior in order to make sustainable choices, consumers demonstrated an appreciation for circular apparel, considering it modern and attractive. 92 percent of the respondents expressed a willingness to embrace circular practices, such as extending the lifespan of high-quality, functional garments and reducing the frequency of new purchases by utilizing products in versatile ways on various occasions. To make more people embrace sustainable fashion, it was noticed that 94 percent of consumers are ready to switch to different brands if those brands offer clothes that match their style and promise to be eco-friendly, causing less waste. So, it's important to make these eco-friendly clothes more popular and create a strong brand identity to convey the message.

The personal interviews with consumers pointed out the importance of building the end user's awareness regarding the making of the product and its environmental impact in order to make a well-informed and responsible choice. Innovative value-added services related to circular clothing may provide added benefits to customers. It is therefore critical to consider customer desires and use them as a starting point for business growth. The optimum results can be obtained by designing future services in collaboration with users. The service component must be incorporated into the product concept and business model from the start.

The industry viewpoint

The interviews with industry experts indicated that there is a noticeable surge in the global fashion industry towards sustainability, with major fashion companies committing to net-zero goals. According to Mr. Badal Kumar, Founder and Director, Tiso Ghari, India, certain norms can be made for both the industry and the consumers, which state that there is a need to rethink production and improve consumer shopping habits. Consumers purchase; hence, the industries produce. This cycle has to be positively disrupted. Certain countries do follow norms of limited production and are successfully implementing the circular economy paradigm. The industries need a shift in perspective and stricter norms.

In the pre-pandemic and, particularly, the post-pandemic landscape, both developed and developing nations' economies are grappling with significant challenges. These challenges encompass disruptions in the supply chain, changes in incentive structures, fluctuations in pricing, and shifts in market dynamics, all of which exert a profound influence on companies and the apparel industry. Implementation of a circular economy can lead to opportunities within the industry work-frame, along with opportunities for

investment, optimizing material costs, improvement in supply chain resiliency, and reduction of the carbon footprint.

The industry experts highlighted the importance of the consumer's role in contributing towards a more eco-conscious and responsible fashion industry. Mr. Ravi Advani, founder and CEO of Colordot in Bengaluru, highlighted the pivotal role of consumer perception in fostering engagement and contribution towards environmental improvement. Currently, there is a low level of consumer awareness and ability to actively contribute to sustainability initiatives.

Analysis

To restore the circular economy within the industry work-frame as a system, businesses need innovation to maintain and further build value from resources and generate a long-term economy. For the establishment of an innovation ecosystem in the industrial environment, both internal and external stakeholders must be involved. The key aspects of the industry framework were analyzed to formulate strategies for implementing the circular economy.

According to the survey conducted among key players within the industry, the internal stakeholders refer to those individuals who actively participate in the entire garment production process, starting from handling raw materials to managing clothing retail operations. These internal partners are vital contributors to the companies' innovation efforts.

The industrial process of apparel manufacturing employs an assembly line production technique in which each step is crucial for the implementation of circularity innovations. To further understand the industry system, the system was mapped along with the important internal stakeholders. The system mapping allowed the research to assess the differences in the two smaller sectors, namely the design process segment and the manufacturing process segment. The system analysis explains how the smaller businesses operate while also addressing the possibilities that the three sub-sectors, including internal stakeholders, the product division, and the manufacturing division, offer in the context of circular economy implementation.

The two key internal stakeholder stages were identified within the larger industries to develop a complete understanding of how a constructive disruption may be brought about in the industry supply chain.

The product stage

Stakeholders: design head, design team, merchandisers, buyers

Based on interviews with industry experts and researchers' experience in the apparel industry, the following framework is detailed: The first step in apparel manufacturing is the retail strategy. At this point, the team agrees on the number of stock-keeping units (SKU) to be generated in a given season, as well as the depth of each SKU. Following the decision-making process by the team, the buyer prepares the retail plan for the season, which is shared across the team. According to the forecasted trends, the designer begins with the first stage of the design process, where the 'look of the season' and the 'line sheet' are finalized. The conclusion of the production process from the designer's standpoint is supplemented by the completion of the process from the buyers' and merchandisers' perspectives. Once approved, the sampling is moved to raw material procurement and bulk order placement by buyers and merchandisers.

The manufacturing stage

Stakeholders: manufacturing team, washing team, and finishing team; export merchandisers

After receiving manufacturing orders and designs, the merchandisers input these orders into the system, which is also accessible to the production team. A minimum lead time of 45 days is needed for raw materials to arrive at the manufacturing site. The production staff subsequently processes the orders and issues purchase orders, specifying the number of SKUs and their respective component depths. Following the laying and cutting of cloth packets, assembly line manufacturing procedures take place. When the garments are finished, they are shipped to be processed further (e.g., washing, etc.). The finishing team then assembles the stock for retail stores, including final quality check procedures and rejections. The entire operation, as well as the bulk, is then audited by the brands before being shipped to the warehouses. The warehouse distribution has a minimum lead time of 60 days.

Circular economy: A necessary revolution

Based on the interviews with the brand managers and design directors, many industries are now adopting sustainable practices at various points in their distribution networks. A few small-scale retailers in India have incorporated circular economy policies into their supply chain operations. The rapid implementation of these policies has sparked a discussion about the essence of sustainability and its long-term consequences. However, the evidence shows that certain businesses are gaining a real competitive

edge by implementing sustainability initiatives. On the other hand, others contend that sustainability can be a tactic that provides a strategic edge, resulting in above-average success (i.e., "making better by doing good"). Companies that follow creative circular-economy-based business strategies or activities that improve employee recruiting, productivity, and retention, for example, do so to distinguish themselves and, as a result, fill an unexploited or underexploited niche by creating a distinct and difficult-to-imitate approach.

Strategy: Increasing consumer awareness

A significant transformation anticipated in the apparel industry's circular economy is the changing consumer perception, with 84 percent of consumers open to actively engaging in a brand's sustainable supply chain using various strategies. Today, companies work and benefit from supplying their end users with a rich customer experience in terms of their goods and services. As a result, the opportunity is in customer engagement, where users can be made mindful of their purchasing choices while still receiving a better user experience.

Consumer awareness through a 'phygital' technology space

Process: Each brand present in the retail space would have an additional tag with scannable barcodes along with its original brand tag for customers (Figure 1). The user interface will be enhanced further because the barcodes will be 3D engraved, allowing users to get a hand-feel of the barcode in order to generate recognition. The first step in consumer interaction with the brand would be to educate them on the sustainability initiatives that the brands have implemented in retail spaces. The phase of customer engagement with the brand will begin with the customers being told about the new scannable tags, in addition to the garment tags, and the incentives involved.

Figure 1: The scannable hand tag
Prototype by Jaya Advani

The consumer incentives: The strategy of code scanning will allow the consumers to access information regarding their purchases and help in their decision-making aspects. Each consumer, upon scanning the tag, would be provided with an incentive based on the sustainability of the garment in their carts (Figure 2).

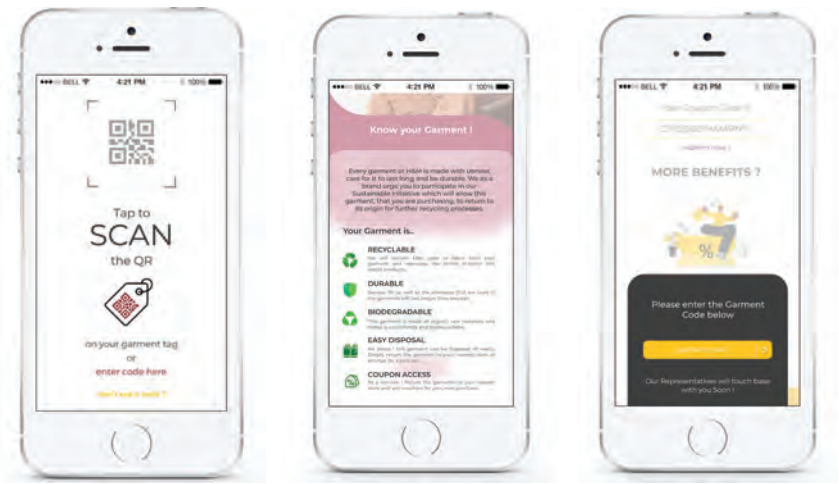

Figure 2: System strategy for scannable tags
Prototype by Jaya Advani

Strategy: Industry blockchain – decode the garment DNA

The single emphasis of apparel industry strategy development is transparency among the industry's many stakeholders, both internal and external. Agreed, sustainable growth should include information presented to customers in user-friendly methods; yet, there is a chance to fine-tune businesses to avoid fraudulent claims by manufacturers.

The use of 'natural' resources for the production of apparel is an obvious example of greenwashing by industries. The need to track down the garments' origins is pressing. Blockchain technology could transform the face of the fashion business in a genuine, practical way while supporting sustainability. Block-supply-chain technology can be innovated for an information sharing system within the industry that can be accessed by industry stakeholders.

Block-supply-chain technology

Process: The strategy will be implemented in a way that ensures traceability within the internal and external stakeholders of the industries. The access points for the

information will be in the form of internal industry stakeholders who will be able to track the singular areas of the sub-industries and also the external stakeholder activities relating to the manufacturing and other processes of that particular industry.

The Industry Incentives: Each stage of garment manufacturing within the industry processes will be recorded; the data cannot be altered. This would allow the companies to calculate the sustainability scores of the garments and keep track of pre- and post-manufacturing wastes (Figure 3).

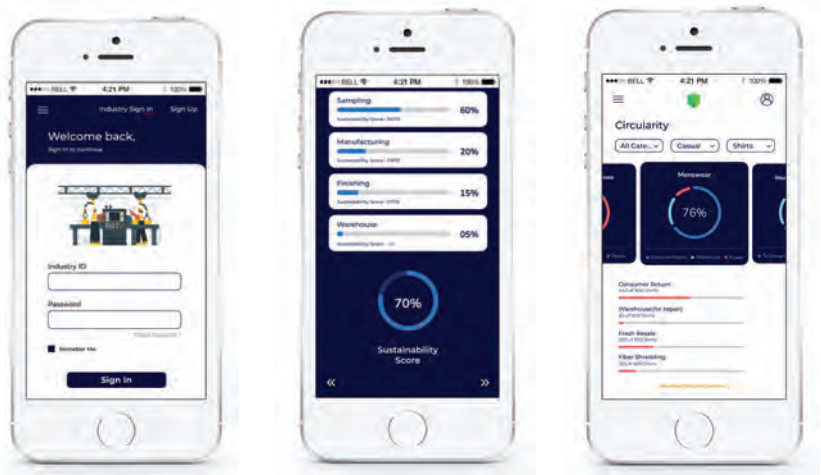

Figure 3: System strategy for traceability
Prototype by Jaya Advani

Strategy: Garment tagging

Another critical step for retail segments to facilitate a smooth transition into the circular economy is the successful tracking of clothing after the customer purchases it. The concept of incorporating a circular economy into the retail environment begins with people using clothing for longer than their typical lifetime. For this to happen, the brand must actively engage in the garment life cycle by focusing on two key aspects: producing high-quality, durable clothing and providing support to consumers through mid- or post-use apparel interventions.

Significant advancements in apparel industry circular economy strategies can be attained by implementing a combination of digital and physical strategies that engage both consumers and the industry. Consumers today, as per the primary study, look forward

to such interactions and are willing to consciously make purchase decisions with brand guidance. They are also ready to actively engage in product life cycle treatments to make the products last longer and also want to make durable purchases. The brand guidance for product maintenance and durability is thus an important step.

Smart tagging and circular economy

Process: Certain businesses have long practiced smart tagging of garments utilizing radio-frequency identification technology. The possibility here is to leverage comparable technologies to allow customers to communicate with companies about their products. Once the consumer has purchased the product, the brand will not only store the information for marketing but also for reverse logistics in cases of repair or garment return. The process of getting the garment back into the cycle would allow the circulation of apparel and reduce waste at the post-consumer level. The users will be able to return the garments, get them repaired, or access garment care for certain products through the online strategy initiatives of the brands.

The User Incentives: The users would get a chance to be a part of the supply chain, and this would increase the circularity of merchandise in the supply chain through the 'Click and Mortar' methods (Figure 4).

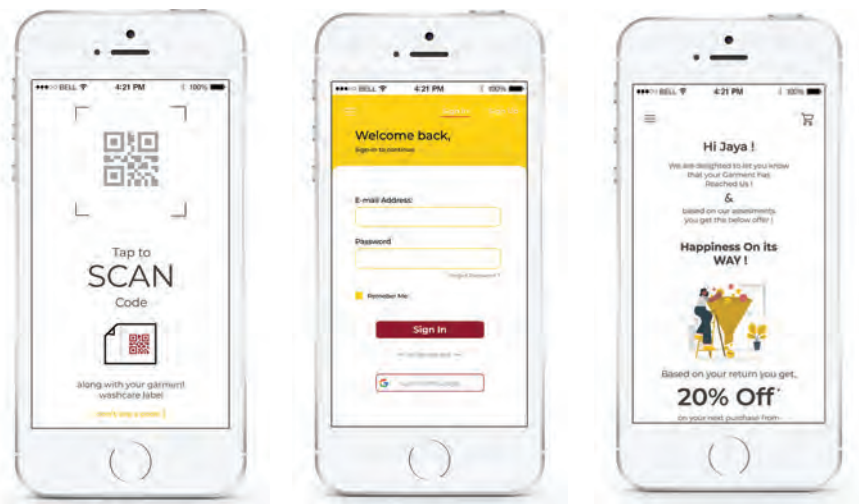

Figure 4: System strategy for smart tagging
Prototype by Jaya Advani

Conclusion

As resource utilization and reliance continue to increase, our development threatens to undermine our efforts to make the system completely circular. Policymakers and businesses have begun to see the circular model not only as a safeguard against resource shortages but also as a driver of innovation and prosperity. Our economies remain firmly enshrined in a system that supports the linear model of production and consumption, from production economics to contracts, regulations, and mindsets. However, as a result of strong, disruptive tendencies in the economy over the next few years, this lock-in is becoming weaker.

In recent decades, the technical potential of circularity for a broad range of products and service needs has been established. The next five to ten years will be a phase of experimentation in which the socioeconomic viability of circularity will be extensively demonstrated. If consumer behavior undergoes significant adjustments, customers and producers could realize the savings potential of the 'transition scenario'.

Two aspects of the circular economy appear to be fairly undisputed: reducing the economic effect of resource shortages and leading to innovation. For these reasons, governments and businesses have begun to see the circular model not just as a safeguard against resource scarcity but also as a driver of innovation and growth. Thus, there is a possibility of opening a lucrative new frontier for forward-thinking businesses and institutions.

References

Ahmad, S., Miskon, S., Alabdan, R. and Tlili, I., 2020. Towards Sustainable Textile and Apparel Industry: Exploring the Role of Business Intelligence Systems in the Era of Industry 4.0. *Sustainability*, [e-journal] 12(7), pp.2632. 10.3390/su12072632.

Torres, G.S., Rey-Garcia, M. and Albareda, L., 2017. Effective Disclosure in the Fast-Fashion Industry: from Sustainability Reporting to Action. *Sustainability*, [e-journal] 9(12), p.2256. 10.3390/su9122256.

Laurel, B., 2003. *Design research: Methods and Perspectives*. Cambridge: The MIT Press.

Muthu, S.S., ed., 2015. Handbook of Sustainable Apparel Production. Boca Raton: CRC Press.

Potting, J., Hekkert, M., Worrell, E., and Hanemaaijer, A., 2017. *Circular Economy - Measuring Innovation in the Product Chain*. PBL Netherlands Assessment Agency.

About the authors

Jaya Advani is a professional in the domain of user experience design, visual communication, and design research. She has experience in both the garment industry as a menswear designer and product developer and in academia as an assistant professor. Her expertise includes design strategy, brand development, and design thinking. She holds a Bachelor's Degree in Fashion Design from the School of Fashion Technology, Pune, and completed her Master of Design—Design Space with a focus on design strategy, branding, and user experience from NIFT, Mumbai, in 2021. Throughout her design journey, she has been passionate about user-centric product development and user interface design. She is dedicated to developing sustainable UX strategies and enhancing brand identities, with a strong belief that every user-centric environment should be inclusive rather than exclusive. Jaya measures her success in projects by the positive impact she creates for individuals and companies through design.

jayaradvani@gmail.com

Rashmi Gulati is an Associate Professor in the Department of Design Space and was the Campus Coordinator for the MDes program from 2015 to 2021. She holds a PhD in management, and her doctoral study has resulted in the development of a robust sustainable model framework for the arts and crafts of Mumbai. Over the years, she has gained experience in craft studies, craft sustainability, design research, design thinking, and creative thinking. She also specializes in subjects like digital graphics, personal branding, self and society, industry practices, integrated design projects, and professional ethics. Dr. Rashmi has almost two decades of experience as an academician and has since simultaneously handled multiple profiles within the organization. She has publications in the area of craft studies in national and international journals. She has mentored and guided Ms. Jaya Advani for the research study on the dissertation topic "Designing a Sustainable Circular Economy for the Apparel Industry: Rethinking the Current 'Take-Make-Waste' System".

rashmi.gulati@nift.ac.in

The Role of Fashion Social Commerce in Advancing Sustainable Practices in India

Akshita Srivastava and Suman Verma

Abstract

The study delves into the realm of fashion social commerce in India, scrutinizing its correlation with sustainable development. Fashion, known for its allure, faces grave sustainability challenges, prompting the emergence of practices like second-hand shopping and on-demand production. Amidst this, social commerce, conducted via social media, has evolved as a transformative force within the fashion industry. However, scant research explores its impact on sustainable development, especially in the Indian context. The research aims to unravel this relationship, examining the role of fashion social commerce in fostering youth entrepreneurship, empowering women, creating sustainable employment, and promoting environmentally conscious practices. Adopting a mixed-methods approach, the study combined qualitative and quantitative methodologies. A survey was conducted with 38 entrepreneurs selling on social media platforms, followed by in-depth interviews with 17 businesses, to ascertain the relationship between social commerce and sustainability. The findings showcased a significant presence of young entrepreneurs leveraging social media to establish their businesses, marking a shift in entrepreneurship trends. Women's representation and empowerment within these ventures stood out, highlighting how social commerce enables greater participation and leadership roles for women. Moreover, these businesses predominantly consisted of micro-enterprises, contributing to job creation, especially in rural areas, aligning with the UN's Sustainable Development Goals. Comparing environmental practices with fast fashion e-commerce reveals stark differences. Social commerce emphasizes fewer product releases, employs make-to-order strategies, and focuses on waste management and sustainability, contrasting the high-speed turnover model of fast fashion.

The research underscores that fashion social commerce isn't solely about buying and selling; it's a platform for values, trust, and sustainable choices. It amplifies opportunities for young entrepreneurs, women, and rural employment while advocating for environmentally conscious practices. This article serves as a lens into the potential of

social commerce to reshape the fashion industry toward a more equitable, sustainable, and environmentally friendly future.

Keywords: Sustainable development, sustainable development goals, fashion social commerce, youth entrepreneurship, women empowerment

Introduction

Fashion and the environment share a complex relationship, as the apparel and textile industry has a huge ecological impact. Fashion, renowned for its allure and creativity, stands as the second-most polluting industry globally (Bliss, 2019). Its inherently unsustainable nature, extensively highlighted in recent discussions, has spurred an urgent call for transformative action within its realms (Ro, 2020; Stallard, 2022). Responding to this urgency, numerous initiatives have emerged, aiming to mitigate fashion's environmental impact and foster sustainability. Practices like second-hand shopping, on-demand production, and repair-redesign-upcycle approaches have gained traction, signifying a shift toward more responsible consumption patterns (fibre2fashion, 2020).

Amidst this landscape, fashion's integration with e-commerce has witnessed a remarkable evolution: social commerce. This novel paradigm entails commerce carried out through social media platforms, primarily by small businesses leveraging social networks for both inception and transactional purposes (Lu Fan and Zhou, 2016). While the assumption prevails that social media plays a pivotal role in promoting sustainability (Unilever, 2023), scant research delves into the domain of sustainable development within fashion social commerce, particularly within the Indian marketplace. This research seeks to untangle these complexities by delving into specific questions that underscore the correlation between fashion social commerce in India and sustainable development. As the industry grapples with its environmental and social impact, questions arise about the social responsibility intertwined with its operations (Ro, 2020), making this research an important one with a future-oriented perspective.

The study aims at exploring sustainability within fashion social commerce, focusing on specific dimensions aligned with the United Nations' 17 Sustainable Development Goals (SDGs) (unwomen.org, n.d.). The study aims to investigate four key aspects. Firstly, the research delves into the role of social commerce platforms in the Indian marketplace to foster and encourage entrepreneurial opportunities among the youth demographic in the business of fashion. Secondly, the study investigates the representation and empowerment of women in entrepreneurship and leadership roles within the domain of fashion social commerce in India, gauging the extent to which this model

supports and encourages women (Ghosh and Nath, 2016). The research examines the representation of women in influential leadership positions within these commerce platforms, contributing to the discourse on women's leadership empowerment (Sarkar and Singh, 2020). Thirdly, the study seeks to understand the opportunities created for sustainable and meaningful employment, especially in rural areas, facilitated by fashion social commerce operating in India (Prasad, 2018). Lastly, it investigates the impact of social commerce on environmental awareness and sustainable practices in India, specifically comparing its practices with prevailing unsustainable fashion models like fast fashion e-commerce.

Methodology

This study adopts a mixed-methods approach, integrating both qualitative and quantitative methodologies. The research design allowed for a comprehensive exploration of the correlation between fashion social commerce practices in the Indian marketplace and sustainable development. Secondary research encompassed an in-depth analysis of global and Indian trends in fashion social commerce. Various sources, including reports, books, news articles, and business publications, were utilized to gather insights into the evolving landscape of social commerce. The primary data collection involved a structured survey that was administered to 38 respondents representing India-based fashion social commerce businesses. This was followed by personal interviews with 17 businesses to get an insight into sustainable development in relation to fashion social commerce. Non-probability convenience sampling was employed to select a sample of social media-driven fashion brands. The quantitative data from the survey and the qualitative insights from the interviews were meticulously analyzed. Descriptive statistical analysis was used for the interpretation of the survey results. The findings derived from the data analysis were discussed in relation to the research questions, providing a comprehensive insight into the correlation between fashion social commerce and sustainability within the Indian context.

Ethical considerations included informed consent from participants, confidentiality, and adherence to ethical guidelines throughout the research process. The study acknowledges limitations, including the constraint of studying the entire population and potential biases inherent in convenience sampling methods. The scope of this research is also limited to exploring a select few aspects of sustainability with respect to fashion social commerce.

Literature Review

E-commerce and sustainability

In the sustainable development agenda and other development goals agreed upon internationally (unwomen.org, n.d.), the UN General Assembly stated its intentions to use Information and Communications Technology (ICT) to advance trade by 2030 (Sun, et al., 2021). It can be used to aid entrepreneurship, creativity, and innovation, the creation of decent jobs, and to empower women as business owners and entrepreneurs. Using ICT-based financial services like mobile and web payments, the expansion of MSMEs in developing countries can be aided, and joining supply chains and markets can be made easier. Women-owned small and micro businesses benefit from B2B, B2C, and C2C transactions that use e-commerce platforms to access domestic and international markets. Because they frequently have limited access to capital, women entrepreneurs can benefit from e-capacity commerce's ability to increase efficiency and profitability with little investment (ibid.).

Social commerce is a subset of e-commerce (Turban, 2017), which in turn is a subset of ICT (Sun, et al., 2021). The literature review points to the relevance of ICT and e-commerce and how they can be used to aid the advancement of the sustainable development agenda.

Social commerce and sustainability

The top two categories dominant in the sector of social commerce are fashion and household needs. Currently, in India, social commerce is driven by retailers who mostly sell apparel online and have been early beneficiaries of this revolution (Arora, 2021). The fact that they have been able to make the same social strata their customers with the help of social commerce, hence being able to instill trust and serve them at zero customer acquisition cost and with a more efficient supply chain, highlights how social commerce has assisted in providing decent work opportunities and entrepreneurship opportunities at minimal costs (ibid.). In turn, they are not only growing their household income but also amplifying their social status within the community. Not only that, it also has the potential to assist thousands of small brands (MSMEs) that offer good quality products but have limited distribution reach in traditional retail channels as well as low margins to expand and grow their businesses. Also, the nature of social commerce allows businesses to showcase to customers a lot more than just products, like their sustainability claims, and offer sustainable products or services (Lehtinen, n.d.), hence creating awareness and promoting the use of sustainable products among the masses.

Results

An online survey was conducted with 38 fashion social commerce businesses and they were asked questions related to each of the four research objectives. The results indicated that around 60 percent of the social-commerce businesses surveyed are owned by people in the age group of 15–24 and 11 percent in the age bracket of 25–34 years, as shown in Figure 1. Officially, people between the ages of 18 and 24 are defined as 'youth' by the UN. Thus, more than 50 percent of the entrepreneurs selling through social media are young adults.

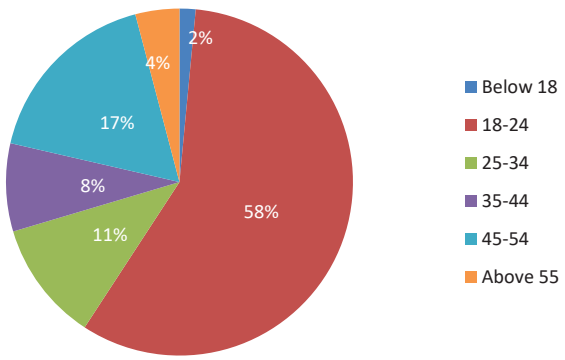

Figure 1: Count of age of fashion social commerce business owners surveyed

The respondents were asked if social media was helpful in setting up their fashion business on a scale of 0-5, from least helpful to most helpful. 65.79 percent of the business owners rated between 4 and 5, as depicted in Figure 2. Hence, a large number of businesses admitted that social media helped them significantly in setting up their businesses. Not only that, 34 out of 38 business owners rated between 3 and 5, which suggests that social media played a major role in establishing their own businesses.

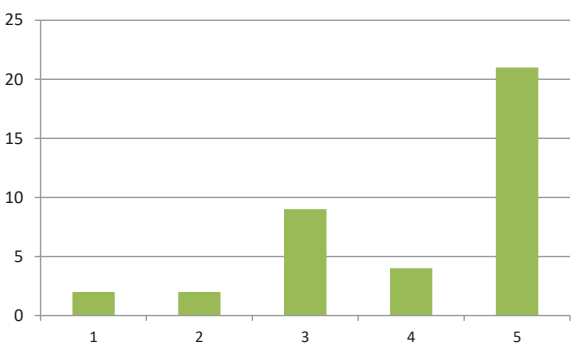

Figure 2: Usefulness of social media to set up fashion business

Of the businesses surveyed, 33 percent reported having hired 100 percent female staff, 17 percent had 75–99 percent female staff, and 25 percent had 50–74 percent female employees, as shown in Figure 3. This indicates that social commerce businesses employ a large number of women, with one-third of them having all women staff. Moreover, around 75 percent have more than 50 percent of the female workforce.

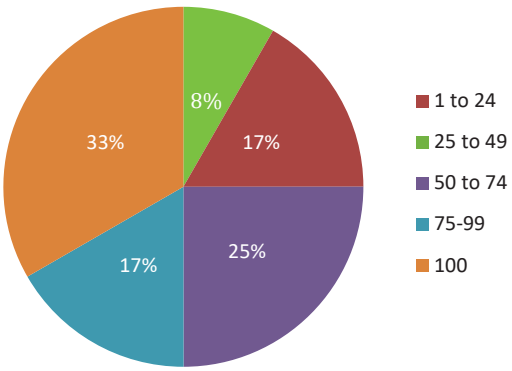

Figure 3: Count of percentage of women in team of the fashion social commerce businesses surveyed

The business owners were asked if they had hired rural labor as part of their workforce. 32 percent of the respondents reported employment in rural labor, as shown in Figure 4. The United Nations, when discussing employment generation as a subset of sustainable development, emphasizes rural and women's employment, and the findings indicate a fair contribution of fashion social commerce towards rural and women's employment.

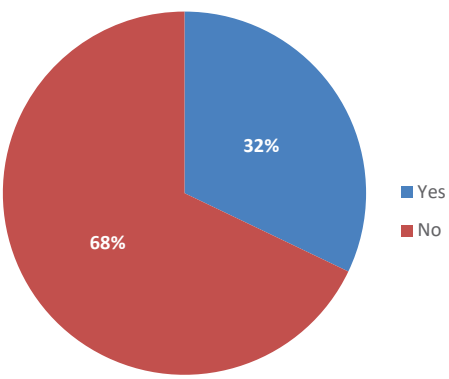

Figure 4: Count of rural labor in the fashion social commerce businesses surveyed

Analyzing the sustainable employment opportunities, it was found that around 86 percent of the social commerce businesses surveyed were micro enterprises, while the rest were small-scale enterprises, as depicted in Figure 5. Thus, 100 percent of the fashion business owners selling on social media belong to the MSME sector. The United Nations has acknowledged the role of MSMEs in creating long-term employment opportunities. MSMEs contribute to achieving the SDGs, especially reductions in poverty levels, by way of creating jobs, economic growth, respectable jobs, and entrepreneurship among women, youth, and other vulnerable groups.

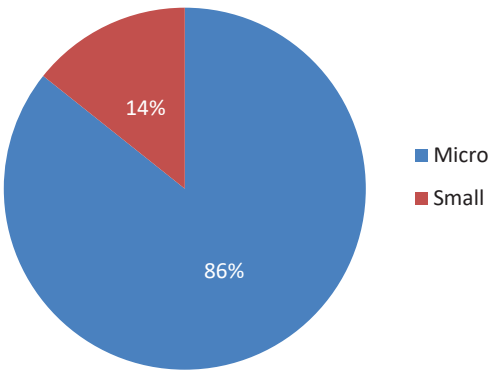

Figure 5: Count of small, medium, micro enterprises among the fashion social commerce businesses surveyed

Figure 6 denotes the number of people employed by fashion social commerce businesses. It was observed that 21 out of 38 business owners hired 2–5 people.

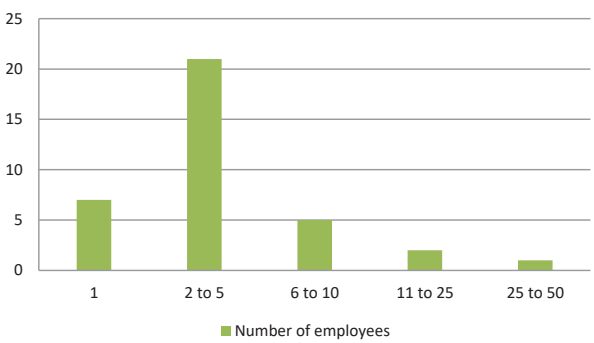

Figure 6: Number of employees hired by the fashion social commerce businesses surveyed

Major fast fashion brands release between 12 to 24 collections, with around 10 products per collection. Hence, in a year they release 120 up to 240 designs (Okafor, 2021). In contrast, 50 percent of the social commerce businesses surveyed for this research released only 1-5 designs in a month that is around 12 to 60 designs in a year (Figure 7).

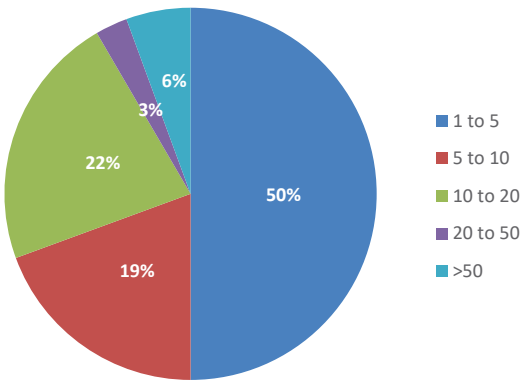

Figure 7: Count of products released by fashion social commerce businesses surveyed

The respondents were asked about the number of products they sold in a week. As per Figure 8, around 44 percent of the businesses claimed to sell only 1–10 products in a week, which is only 48–480 products sold in a year. Only 19 percent claimed to sell more than 100 products per week. Additionally, 50 percent of the businesses surveyed follow make-to-order (Figure 9), which is a sustainable inventory style and less polluting to the environment.

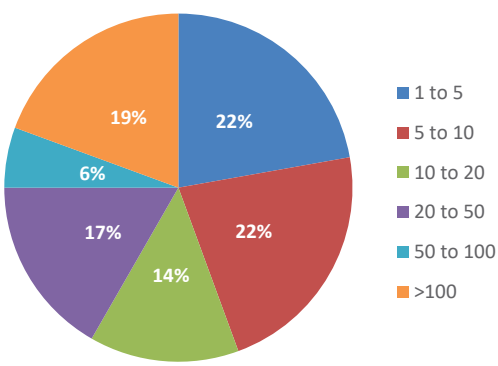

Figure 8: Count of products sold per week by fashion social commerce businesses surveyed

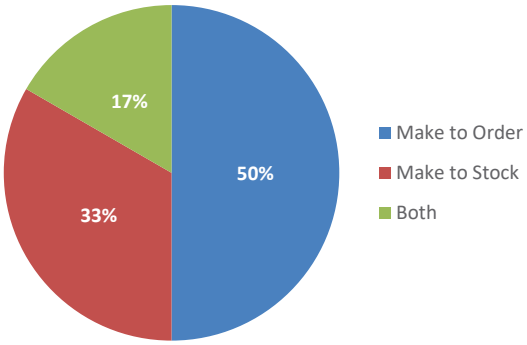

Figure 9: Type of inventory style of fashion social commerce businesses surveyed

The company owners were asked if they had an in-house manufacturing setup and, if yes, how they handled trash. As per Figure 10, 34 percent did not have their own in-house production facility, and out of the remaining 66 percent, 43 percent of the fashion entrepreneurs had a waste disposal system in their unit, which is another sustainable stance.

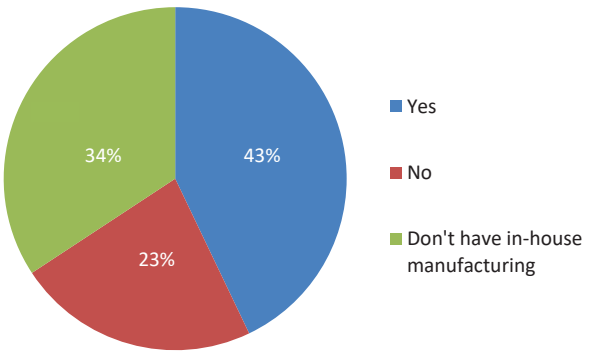

Figure 10: Waste disposal system of fashion social commerce businesses surveyed

Other than the survey, 17 fashion social commerce businesses were interviewed. These 17 were selected from the 38 who filled the form on the basis of their claims of practicing sustainability. This was done to develop a deeper understanding of the prevalent sustainability practices in fashion social commerce in the Indian marketplace and the motivation behind them. A major theme that came out of these interviews was the open nature of social media brands, giving more exposure to social commerce businesses, hence motivating them to take sustainable actions in

order to build a positive brand image. Another theme highlighted was that social media makes it easy for people to set up businesses due to low set-up and marketing costs. These have been discussed in detail in the analysis section.

Analysis

Entrepreneurship opportunities for the youth

Fashion social commerce in the Indian marketplace stands as a catalyst for fostering entrepreneurial opportunities among the youth demographic, aligning with the United Nations' recognition of youth entrepreneurship as vital for SDGs and global employment (sdgs.un.org, n.d.). As per the survey, approximately 60 percent of surveyed social-commerce businesses were owned by individuals aged 15–24, showcasing the prevalence of young entrepreneurs in this sector. Moreover, an overwhelming 65.79 percent of these youth entrepreneurs attributed their success to social media, rating it significantly helpful in establishing their businesses. It is evident that today's young, tech-savvy entrepreneurs are making use of social media platforms for promoting their brands, marketing, and selling their products. Social commerce leads to one-to-one interaction with customers, quick feedback, and the opportunity to provide personalized experiences, which aligns with the tastes of the younger generation.

Furthermore, social commerce has emerged as a boon for thousands of small brands (MSMEs), which otherwise have limited distribution reach and low margins in traditional retail channels. Social media platforms offer them avenues to expand and thrive in the market, augment their brand presence and sales, and reach out to a larger customer base. In essence, fashion social commerce in India not only provides entrepreneurship opportunities for youth but also empowers small businesses, amplifying economic growth and social mobility within communities.

Women empowerment

Fashion social commerce in India is catalyzing the representation and empowerment of women in entrepreneurship and leadership roles, addressing prevalent barriers faced by women in starting businesses and accessing formal innovative startups. Traditionally inclined toward subsistence-level necessity businesses due to familial obligations and limited resources, women often confront challenges concerning inheritance laws and property ownership (worldbank.org, n.d.). However, social commerce emerges as a transformative solution, enabling easier business initiation for women with lower capital requirements and fewer resources (Theis and Rusconi, 2019). This trend has

significantly augmented financial independence, particularly among women, leading to increased representation in positions of authority and influence within the fashion social commerce domain (ibid.).

The findings from personal interviews with fashion entrepreneurs resonate with these trends, spotlighting the prominence of women-owned fashion thrift stores on social media platforms. These ventures require less investment, inventory, and commitment, fostering greater financial autonomy for women. Moreover, the culture of mutual support among these brands, particularly in promoting women-owned businesses, fosters an environment conducive to collective growth. Many female interviewees mentioned that their basic understanding of fashion and the availability of social commerce platforms were the key factors that led them to set up their independent businesses.

Interestingly, survey data revealed the substantial presence of women in fashion social commerce ventures. About 33 percent reported 100 percent female staff, while 17 percent and 25 percent had 75–99 percent and 50–74 percent female staff, respectively. It may be noted that the fashion industry has a huge female workforce, but very few of them hold positions of power. Hence, not only the percentage of women in the team but also the percentage of women in positions of power must be noted. Furthermore, in another study, 64 percent of the authorized signatories among the 206 fashion social commerce businesses registered with the organization XYZ are female. This organization, XYZ, is a social commerce platform for fashion social commerce businesses on Instagram (Srivastava, 2022). These statistics emphasize not only the high representation of women within these businesses but also their presence in influential roles, showcasing a shift toward gender inclusivity and women's empowerment in leadership positions within the fashion social commerce landscape.

Sustainable employment opportunities

Fashion social commerce in India has substantially transformed the employment landscape, particularly within microenterprises, which form the majority (68 percent) of the sector. Notably, around 32 percent of these businesses employ rural labor, with a significant presence of female staff (75 percent). On average, these entities offer employment to 2–4 individuals, showcasing their impact on job creation.

The rise of social commerce aligns with the UN's agenda for SDGs, emphasizing the role of micro-enterprises in enhancing employment opportunities, especially in rural areas (sdgs.un.org, n.d.). Sustainable Development Goal 8 prioritizes inclusive economic

growth, full employment, and decent work for all, resonating with the significant employment contributions made by these social commerce entities (ibid.). Leveraging information and communications technology has also played a pivotal role in expanding these businesses in developing nations, facilitating transactions across markets. Furthermore, these platforms have notably supported the setting up of MSMEs, aiding their access to various markets and industries (Sun, et al., 2021).

Interviews with small and micro enterprises unveiled how social commerce eased their establishment, fostering more inclusive economic growth and providing numerous decent work opportunities. One example is a sustainable streetwear brand that emphasizes fair wages and ethical practices, reflecting the commitment of social commerce brands toward sustainability.

While social commerce isn't the sole contributor to job creation, its burgeoning growth in India has undeniably catalyzed new employment prospects. The sector's expansion indicates a robust connection with sustainability and inclusive employment practices, thereby significantly impacting the employment landscape.

Environmental impact

Fashion social commerce in India presents a contrasting approach to environmental practices when juxtaposed with fast fashion e-commerce. While major fast fashion brands churn out between 120 up to 240 designs annually (Okafor, 2021), 50 percent of surveyed social commerce businesses release merely 12 to 60 designs per year, indicating a stark difference in production frequency. Additionally, half of these businesses follow a make-to-order model (a more sustainable inventory practice), and 41 percent claim to have a waste disposal system.

The nature of social commerce inherently promotes a broader spectrum of information sharing beyond products, emphasizing sustainability claims and advocating for the use of sustainable goods (Lehtinen, n.d.). The overarching theme that social commerce enables businesses to showcase more than just products; it entails a display of values, expectations, and trust, creating a transactional atmosphere beyond mere financial exchange (Bukhari, 2011). This profound influence of social commerce on environmental practices becomes evident through the interviews as well, as brands acknowledge that it provides an environment conducive to eco-freindly choices throughout their value chain. The interviews shed light on an elevated consciousness towards ecological sustainability among brand owners. The entrepreneurs expressed pride in making ethical and sustainable products, attributing it to the smaller production scale that allows for

more ethical decision-making. This is an evident contrast to fast fashion e-commerce's relentless push for high-speed turnover.

Waste management practices among these brands vary; some minimize waste generation significantly while others repurpose or reuse the waste to craft new products. Furthermore, certain brands, though currently lacking a waste management system, have plans for upcycling the generated waste.

During the interviews, many brands expressed regarding the additional initiatives taken to embrace sustainability, such as using water-based ink for prints, employing bamboo plastic for packaging to ensure biodegradability, incorporating handloom fabrics, and striving toward becoming entirely sustainable in the future. Though these practices are becoming a general trend in the fashion industry, the nature of social commerce promoting a broader spectrum of information sharing, motivated them to take these steps. These environmentally conscious measures, although potentially seen in other forms of commerce, are accentuated in social commerce due to the platform's emphasis on transparency and brand narrative, fostering an awareness and culture of sustainability practices among these businesses.

Conclusion

The convergence of fashion and commerce within social media platforms has surfaced as a dynamic force shaping the sustainability landscape in India's fashion industry. This study, examining the correlation between fashion social commerce, and sustainable development, unraveled multifaceted dimensions aligned with the UN's Sustainable Development Goals.

Through this study, it is evident that fashion social commerce serves as a fertile ground for fostering youth entrepreneurship, with a substantial presence of young entrepreneurs leveraging social media for business inception. Notably, it acts as an equalizer, offering opportunities to small brands and women entrepreneurs, breaking traditional barriers, and fostering economic growth. The significant representation of women in influential roles within these businesses underscores their role in women's empowerment.

Moreover, the study revealed the transformative impact of fashion social commerce on employment, especially in rural areas. Micro-enterprises dominate this sector, reflecting a tangible contribution toward Sustainable Development Goal 8's objective of inclusive economic growth and decent work. Interviews with MSMEs bring to light their commitment to ethical practices, highlighting fair wages, sustainable working conditions, and eco-conscious decisions.

A compelling contrast emerged when juxtaposing environmental practices between fashion social commerce and fast fashion e-commerce. Social commerce exhibited a markedly slower production pace, favoring sustainable inventory models and showcasing an active pursuit of waste management and environmental consciousness.

In essence, fashion social commerce, an evolving realm, emerges not merely as a transactional platform but as a conduit for values, trust, and sustainable choices. Its transformative potential within the fashion industry, reflected in employment creation, gender inclusivity, and environmental consciousness, accentuates its role in steering the industry toward a more sustainable future. As fashion social commerce continues to burgeon, its synergy with sustainable practices may serve as a blueprint for a more conscientious and inclusive fashion landscape globally.

As a country with a thriving fashion industry, India can leverage the insights gained from this research to develop prototypes for marketing fashion social commerce in a sustainable manner. By doing so, India can not only boost the field of fashion social commerce but also enhance social commerce's brand image and perceived value.

Overall, the findings presented in this article contribute to the growing body of knowledge on fashion social commerce and its intersection with sustainability. The research provides valuable insights for businesses, policymakers, and scholars interested in fostering sustainable practices within the fashion industry. By embracing these findings, stakeholders can work towards a more sustainable future with fashion social commerce, benefiting both the environment and the economy.

References

Arora, A., 2021. Can social commerce empower micro-entrepreneurs in a post Covid Era? *The Economic Times*, [online] 13 February. Available at: <https://economictimes.indiatimes.com/small-biz/entrepreneurship/can-social-commerce-empower-micro-entrepreneurs-in-a-post-covid-era/articleshow/80892379.cms?from=mdr> [Accessed on 20 May 2022].

Bliss, D., 2019. The huge toll of 'fast fashion' on the planet – and why the answer could be circular. *National Geographic*, [online] 4 July. Available at: <https://www.nationalgeographic.co.uk/environment/2019/06/the-huge-toll-fast-fashion-the-planet-and-why-the-answer-could-be-circular> [Accessed 25 May 2022].

Bukhari, S.S., 2021. Green marketing and its impact on consumer behavior. *European Journal of Business and Management*, [pdf] 3(4), Available at: < Shttps://core.ac.uk/download/pdf/234624075.pdf> [Accessed 30 May 2022].

Fibre2Fashion, 2019. 5 ways to make fashion industry more sustainable in the year 2020.

Fibre2Fashion, [Online] Available at: <https://www.fibre2fashion.com/industry-article/8520/5-ways-to-make-fashion-industry-more-sustainable-in-the-year-2020> [Accessed 30 May 2022].

Ghosh, M. and Nath, P., 2016. Empowerment of Women in Fashion Entrepreneurship. *Women's Business Journal*, 20(1), pp.78-92.

Lehtinen, E., n.d. What Is social commerce? Why your business should consider it. *Giosg*. [blog] Available at: <https://www.giosg.com/blog/social-commerce> [Accessed 05 June 2022].

Lu, B., Fan, W. and Zhou, M., 2016. Social presence, trust, and social commerce purchase intention: An empirical research. *Computers in Human Behavior*, 56, pp. 225-237.

Okafor, J., 2021. 37 Fast Fashion Facts & Statistics. *TRVST* [online] 30 June. Available at: <https://www.trvst.world/sustainable-living/fashion/fast-fashion-facts-statistics/> [Accessed 15 June 2022].

Prasad, A., 2018. Rural employment in fashion industry. *Journal of Rural Economics*, 30(4), pp.401-415.

Ro, C., 2020. Can fashion ever be sustainable? *BBC*, [online] 11 March. Available at: <https://www.bbc.com/future/article/20200310-sustainable-fashion-how-to-buy-clothes-good-for-the-climate> [Accessed 17 June 2022].

Sarkar, A. and Singh, M., 2020. Leadership roles and women empowerment in commerce. *Social Commerce Review*, 25(2), pp.201-215.

Srivastava, A., 2022. *Sustainability in fashion social commerce in the Indian marketplace*. BFTech. National Institute of Fashion Technology.

Stallard, E., 2022. Fast fashion: How clothes are linked to climate change. *BBC News*, [online] 29 July. Available at: <https://www.bbc.com/news/science-environment-60382624> [Accessed 20 June 2022].

Sun, M., Grondys, K., Hajiyev, N. and Zhukov, P., 2021. Improving the e-commerce business model in a sustainable environment. *Sustainability*, [e-journal] 13(22), 12667. https:// doi.org/10.3390/su132212667.

Theis, S. and Rusconi, G., 2019. Social commerce entrepreneurship and new opportunities for women's financial inclusion in India and Indonesia. *World Bank Org.* [online] Available at:<https://www.womensworldbanking.org/wp-content/uploads/2018/12/2019_Social_Commerce_Report.pdf> [Accessed 22 June 2022].

Turban, E., Whiteside, J., King, D. and Outland, J., 2017. Overview of electronic commerce and social commerce. In: Turban, E., ed. Introduction to electronic commerce and social commerce. Springer Texts in Business and Economics. Springer, Cham. https://doi.org/10.1007/978-3-319-50091-1_1.

UN Women, 2015. *The 2030 agenda for sustainable development*. [online] UN Women – Headquarters. Available at: <https://www.unwomen.org/en/what-we-do/2030-agenda-for-sustainable-development> [Accessed 22 June 2022]

Unilever, 2023. *How social media is helping make the switch to sustainability*. Unilever. [online] 17 April. Available at: <https://www.unilever.com/news/news-search/2023/how-social-media-is-helping-people-make-the-switch-to-sustainability/> [Accessed 27 June 2022].

United Nations (n.d). *Sustainable Development Goals*. [online] Available at: <https://sdgs.un.org/> [Accessed 29 June 2022].

World Bank (n.d.). *Female entrepreneurship resource point - introduction and module 1: Why gender matters*. [online] Available at: <https://www.worldbank.org/en/topic/gender/publication/female-entrepreneurship-resource-point-introduction-and-module-1-why-gender-matters> [Accessed 30 June 2022].

About the authors

Akshita Srivastava graduated with a Bachelors in Fashion Technology from NIFT, New Delhi, in the year 2022. She holds a keen interest in sustainable aspects of fashion and aims to be a part of the sustainable fashion evolution. She was also a part of the National Commission for Women and the India SME Forum's program 'Empowering Women through Entrepreneurship', where she received training from the Indian Institute of Management, Bengaluru. She is currently pursuing a PGDM in Human Resource Management from XLRI, Jamshedpur.

akssrivastava7467@gmail.com

Suman Verma is Associate Professor with the Department of Fashion Technology and Unit in Charge (Information Technology), Head Office, NIFT. She is pursuing her PhD in business administration and specializes in fashion e-commerce and management. She has obtained various certifications in software programming. Her passion for design and technology brought her to join NIFT in 2003 in Delhi. She has worked in the software industry and has been an academician for almost 19 years. She specializes in information technology, management, database design, enterprise resource planning, artificial intelligence, IoT (Internet of Things), e-commerce, web design, and graphic software.

suman.verma@nift.ac.in

Parameters for Sustainable Consumption Behavior towards Denim

Kanishka and Deepak Joshi

Abstract

Clothes give an identity to one`s personality; this is one reason that clothing has taken up so much space in our lives and wardrobes. But with the rise in consumption, there has also been an increase in concern over the sustainability of consumption patterns. Brands have been on their toes to keep up with this delicate balance between revenue and sustainable production. Many a time, brands try to catch up with the sustainability bandwagon by adopting greenwashing, which augments the brand image but rarely contributes to planetary benefits. Consumers are now more conscious and aware of the choices that they make. Therefore, understanding the factors that give rise to sustainable consumption behavior among consumers becomes crucial to serving them better and catering to their needs in a way that balances the environmental impact. With heightened awareness, consumers also want these sustainability claims to have concrete backing in traceability, more so for clothing items that are excessively consumed. A pair of denim jeans is one such item of clothing that is considered essential and takes up a place in almost every household. It is a garment that is often looked down upon when it comes to environmental impact due to its massive water consumption and unsustainable production process, and that is why denim as a fabric creates a colossal ecological footprint. This study explores parameters for sustainable consumption behavior towards denim from a consumer`s perspective, so that it becomes more apparent for brands to work on those key areas and understand pain points for consumers. Insight on consumption behaviour will create pathways to an enhanced understanding of sustainable consumer behavior.

The research entailed a consumer survey in the Delhi NCR region using a structured questionnaire that was based on three broad parameters and 14 individual items identified through the Delphi method. Factor analysis was performed to reduce the large number of variants to fewer factors. Four factors, namely, self-care, consciousness, traceability, and utility, were derived that contribute towards sustainable consumption. The study's results gave some crucial insights, highlighting major factors that give rise to sustainable consumption behavior towards denim.

Keywords: Sustainability, consumption phases, consumption behavior, traceability, sustainable denim

Introduction

Over the years, consumption of clothing has increased significantly. Each stage of garment processing utilizes valuable natural resources and has an environmental bearing. With the surge in consumption, there has also been a rise in concern about environmental impact. Consumers have developed a heightened sense of consciousness, which has shaped their buying behavior and ultimately impacted their purchase decisions. Brands have taken up various sustainability initiatives to cater to consumers' needs and create a positive impact on the environment.

Some garments seem basic and harmless in terms of environmental impact, but when they are re-evaluated on the pedestal of environmental damage, the results paint an entirely different picture. Denim jeans are seemingly humble garments that have been made through different fashion seasons, easily adapting to changing cuts, patterns, and styles. Denim fabric is one of the most important and highly used textiles due to its exclusive features, including colour, versatile appearance, and high strength, that are widely used by people (Maryan and Montazer, 2013). A pair of denim jeans is a garment whose consumption is high; with its wide variety of cuts and durability, it is a favourite among every generation. Still, in terms of the environmental impact, it demands massive water consumption throughout its entire product life cycle, and each stage of garment processing has environmental consequences. Production of a single pair has an enormous environmental footprint using an average of 2,113 gallons of water, 48 kilowatts of energy (Levi Strauss, 2015), and 1.1 pounds of toxic and corrosive chemicals (Candiani Report, 2016). Therefore, sustainable consumption in terms of denim is explicitly a gap area in the existing literature. Hence, sustainability initiatives for this particular garment can leave a considerable imprint. It becomes crucial to understand the factors that give rise to sustainable consumption behaviour—the key factors that would entice a consumer towards buying sustainable denim.

In spite of environmental concerns, the trend indicates that the worldwide demand for denim products over the last few decades has increased tremendously. Considering that global jeans production in 2020 was estimated to be more than 3.5 billion units per year, the extent of environmental damage caused by this industry is quite evident. Hence, the question of sustainable production arises in the denim industry (Chatterjee, Sharma and Pal, 2020).

The majority of a product's environmental impact lies in the raw material and processing stages. Denim has seen green practices in the field of raw materials such as organic cotton or cotton certified by BCI, and manufacturing has seen innovations in terms of washing techniques. Research and development all over the world has undertaken many issues related to denim recycling, such as making the best use of used materials for new product development. Many retailers make immense efforts to show their involvement in the closed-loop recycling initiative by encouraging consumers to bring back old, used garments for new ones and recycling these garments for the manufacturing of raw materials or intermediate substances. With various initiatives, such as the use of organic cotton or recycled material, brands are working towards introducing sustainable initiatives.

Consumers today want to know about every aspect of the product, from packaging to shipping. Consumers who display sustainable consumption behavior also seek transparency amid rampant greenwashing and want to trace back the claims of brands in this direction, and sellers are confused regarding the selection of parameters that validate sustainability in their denim. While sustainability in garments in general is well understood, factors that give rise to sustainable consumption of denim from the consumer`s perspective lack research. Also, the consumer is not just satisfied with buying sustainable denim; they want to go a step further and validate those claims. Therefore, an understanding from the consumer`s perspective of the factors that give rise to sustainable consumption behavior will provide a clear direction to brands to further enhance the consumer experience and scope to establish a framework in terms of application in the future.

The Oxford Lexicon defines traceability as "*the quality of having an origin or course of development that may be found or followed"*. While sustainability has become a widely used term, traceability and validation of claims are still in the nascent stages. Many brands make their claims, and many certifications buttress those claims. There are still plenty of brands that make their claims but do not show any proof of authenticity. While the former is successful in proving their intent through certification, many questions remain lingering, such as the places the products have travelled in their production journey, the workers who have stitched the garment, etc. Many manufacturers and brands hesitate to go for third-party authentication.

Tracing the product right back to the farm from where raw fiber is procured is challenging. With multiple types of certifications, consumers and manufacturers are both confused

because aligning each process into a linear thread of traceability is not an easy feat. An important point in the world of clothing seasons and ever-changing styles is how the product is handled after its life. End-of-life traceability is still a new phenomenon in the fashion and retail industries. In the last decades, researchers have paid attention to extending the sustainability concept at the supply chain level, going beyond the typical boundaries of a company dedicated to the production of goods. Indeed, it is essential to consider not only the manufacturing processes needed to realize a product has to be traceable but also the entire network of stakeholders and suppliers involved in its production, from dealing with raw material procurement to others dedicated to the final product delivery and disposal. (Germani, et al., 2015).

Review of Literature

Sustainable consumption behavior

Promoting sustainable consumption behavior is high on the agenda for both policymakers and researchers. Robins and Roberts (1997) outline sustainable consumption as a level of consumption that balances time with costs in terms of money and simultaneously responds to present and future life needs. Appropriate methods of evaluating the sustainability of consumption behaviors are crucial to the success of economic and ecological functions. Fischer, Böhme and Geiger (2017) state that the development of such methods is hindered by two obstacles: (1) the lack of consensus on which consumption behaviors should be considered sustainable, and (2) the absence of a shared reference framework to integrate existing fragmented research on various consumption behaviors. A report by Ellen MacArthur Foundation (2017) underlines that sustainable consumption behavior is crucial in the fashion industry, as it is regarded as one of the most polluting industries. To make the textile industry sustainable, changing consumer behavior towards it is a prerequisite. To promote sustainable consumption patterns, it is necessary to comprehend consumption patterns throughout all consumption phases. However, only a few studies have examined the entire consumer purchase, use, and disposal cycle. Soyer and Dittrich (2021) have researched the three phases of consumption by confronting the question of how to convince consumers to purchase, use, and dispose of clothing in a more sustainable manner. Lehner, (2015) gives new insights into the “attitude-behavior gap” in sustainable consumption and how retailers can more effectively encourage sustainable consumption behavior in retail stores.

Quoquab, Mohammad and Sukari (2019), in their scale for sustainable consumption, include three parameters: quality of life, care of the environment, and care for future

generations. Park and Lee, (2020) have developed a scale for sustainable consumption. Their study conceptualizes, develops, and validates a scale to measure sustainable consumption of clothing products (SCCP) from the perspective of general clothing consumers.

Sustainable consumption research has grown rapidly as a scholarly field (Reisch et al., 2016). But when it comes to clothing and denim in particular, there is a gap in the area as factors that specifically give rise to sustainable consumption behavior towards denim are yet to be explored, as denim jeans are one of the most used garments and have a huge contribution towards the environmental impact of their production.

Parameters for sustainable denim

It takes 1,500 gallons of water to cultivate and process the 1.5 pounds of cotton required to make a pair of denim jeans, which poses a problem for the environment. Typically, denim is constructed with indigo-dyed yarn. Originally, indigo dye was derived from plants, but the trend transitioned to synthetic indigo dye over time. It is difficult to recycle denim due to the use of metal accessories such as buttons, zippers, rivets, and leather-look labels (Amutha, 2017). Due to such issues, the sustainability of denim is often questioned.

In the literature, many research papers elaborate on sustainability and describe the three dimensions as environmental, economic, and social well-being (Adams, 2006). Denim mills are spending large amounts of money on developing new concepts in denim, which in turn means that all jeans manufacturers will experiment with and achieve new levels of finishing (Roshan, Sandeep and Jegadeesh, 1996). Many experts believe that process forms a crucial parameter. For instance, in the wet processing of denim, different mechanical and chemical finishing operations can be replaced by enzyme treatments, as enzymes are eco-friendly, non-toxic, and fully biodegradable compounds (Mazumder, 2016). While many others argue that raw materials are equally vital, a prudent selection has to be made from the very beginning, like mechanically recycled cotton fiber instead of virgin cotton fiber, which is one of the most essential raw materials in textiles and grown using a high amount of water and pesticides. Conscious choices like a combined heat and power (CHP) plant instead of grid energy make a difference in terms of the environmental impacts, cost, and quality of denim fabric (Fidan, Aydoğan and Uzal, 2021).

The most common view is to look at the entire system as a complete and holistic mechanism where each part is inseparable from raw material to final product. While some consider the final product as the last leg, others want to go beyond denim and include its packaging in the product's afterlife.

At each step, there is certification to authenticate the sustainability claims, like GOTS (Global Organic Textile Standard), BCI (Better Cotton Initiative), to procure raw cotton, and OekoTex Standard 100 for bamboo procurement. For packaging, there are FSC (Forest Stewardship Council) parameters for sustainable denim. Though they vary across manufacturers, brands, rating and certification agencies, etc. The reasons can vary from differences in the target consumer group to different demographies. The constant part is understanding changing environmental needs and being aware of consumer preferences.

Traceability in denim

Supply chain traceability requires recording various types of information at different stages of the product transformation, from raw material production to reverse logistics. Traceability can be adopted to control counterfeiting, to document the origin of a product, to leverage cultural assets (such as "made in" or fair trade products), to promote corporate social responsibility (CSR), and to increase the transparency and perceived quality of marketed products. For example, who, where, when, and how a product was manufactured (Pigni and Crave, 2007). Although connected through a complex network, supply chain partners find it difficult to identify and access information related to the suppliers involved (Grimm, Hofstetter and Sarkis, 2016). Different traceability factors that are essential are depicted in Figure 1. For instance, traceability implementation has long been reported to restore consumer confidence in product quality and safety by providing more information related to product origin, composition, quality, etc. (Cheng and Simmons, 1994).

Consumers' perceptions of the concepts of denim quality and safety are associated with the improvement of denim supply chain traceability, and consumers will base their purchasing intentions on these beliefs (Van Rijswijk et al., 2008). Traceability systems are becoming important for tracking, monitoring, and managing product flows through supply chains, as well as certifying production, processing, and packaging. Environmentally sustainable production is a credible attribute that is gaining importance in the eyes of consumers (Myae and Goddard, 2012).

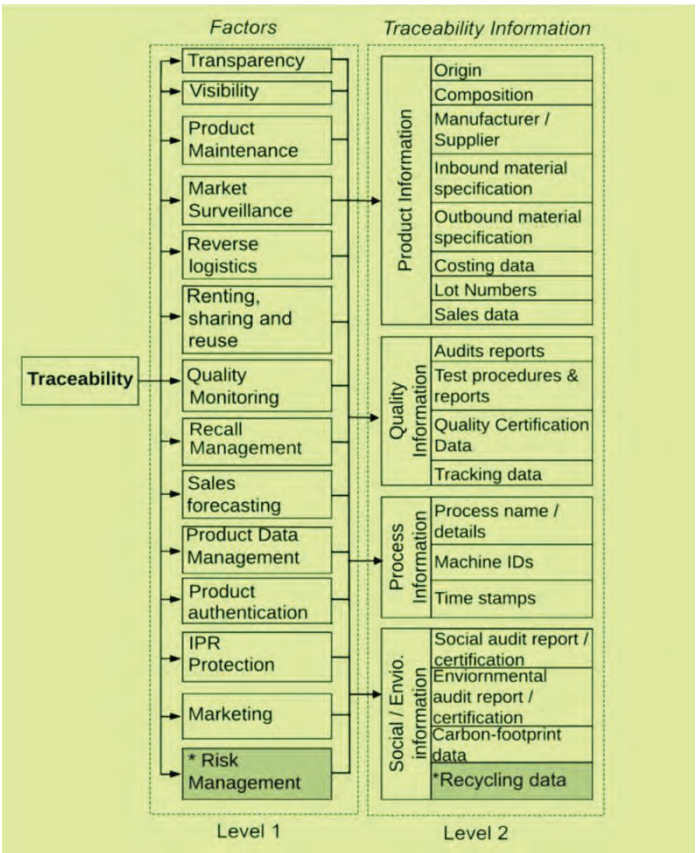

Figure 1: Traceability Factors *(Agrawal and Pal 2019)*

Research Problem

The existing literature gives insights about sustainable consumption behavior towards clothing in general, but there is a lack of study on sustainable consumption behavior towards denim. Since denim has significant consumption in terms of volume and a significant environmental footprint, it becomes crucial to explore this aspect of sustainable consumption behavior even further. Traceability is an important aspect of sustainability. While traceability has been studied in depth for the clothing and apparel industry, a study that focuses explicitly on denim is missing. Different papers discuss various factors of traceability, but none cover it from the consumer`s perspective. Getting into the mind of the consumer will enhance the existing understanding of consumer behavior, and therefore, it presents itself as an interesting area of research. This study explores the factors that give rise to sustainable consumption behavior in denim and traces the parameters that impact traceability.

Research Methodology

This study was divided into two phases.

First phase

In the first phase, a Delphi method was adopted to arrive at the initial parameters related to sustainable consumption behavior (Figure 2).

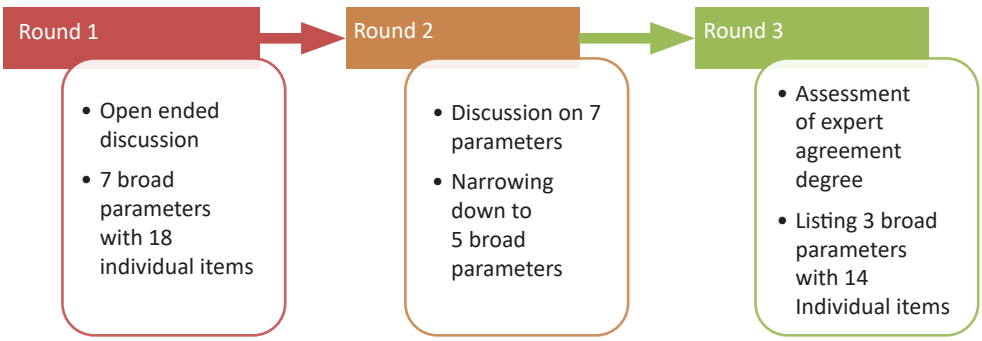

Figure 2: Process of Delphi method

Ten experts with 10–15 years of experience in denim production participated in this study. Two of these experts had over 15 years of experience as category managers for denim brands. Two others had 10 years of experience as sourcing managers. Another two experts were employed in the industry, handling sales positions for a denim brand. Three experts had experience as buyers in a buying house handling denim brands. Lastly, one of the experts was a brand director. A semi-structured questionnaire was prepared based on the information derived, and after the experts answered, another round of discussion was conducted to arrive at a consensus among experts. On the basis of responses, crucial areas of sustainable consumption behavior in denim were shortlisted.

The three broad parameters that were identified are stated below:

- Existing awareness about sustainability in denim includes socio-economic as well as ecological dimensions. It included items such as:
  - Material composition
  - Fair trade practices
  - Overall environmental impact

  - Concern for the future generation
  - Impact of chemicals on health
- Consumption phases, which included stages of product acquisition, usage, and disposal. It included the following items:
  - Comfort derived from the product
  - Utility of the product
  - Price of the product
  - In sync with the trend
  - Mindful product usage
  - Responsible buying behavior
- Areas of traceability in denim It included the following items:
  - Accountability in stages of the supply chain
  - Ensuring an environmentally conscious production process
  - Validation of responsible disposal of products

Second phase

The items shortlisted in the first phase were used as a base for constructing a structured questionnaire in the second phase. The questionnaire consisted of objective, close-ended questions, and a few questions were based on the Likert scale.

This study is exploratory in nature, where exploratory factor analysis has been used to map the factors for sustainable consumption behavior.

The sample frame consisted of denim consumers who were using branded denim, both male and female, in the age group of 18–31 years and who were residents of Delhi-NCR. The non-probability judgmental sampling technique was used with a sample size of 170, of which 164 responses were complete in all aspects and formed the basis for this study. SPSS was used to carry out factor analysis to arrive at the factors needed to explore sustainable consumption behavior.

Result Interpretation

The socio-demographic profile of the respondents is indicated in Table 1. A total of 170 responses were received, out of which 164 were complete in all aspects. Out of the total respondents, 65.9 percent were females and 34.1 percent were males. 14.7

percent of the respondents were in the age group of 17–20 years, 58.8 percent of the respondents were in the age group of 21–24 years, 11.8 percent of the respondents were in the age group of 25–28 years, and 14.7 percent belonged to the 28–31 year age group.

Table 1: Socio-demographic profile of respondents

Indicators	Number	Percentage (%)
Gender		
Male	58	34.1
Female	112	65.9
Age Distribution		
17-20	25	14.7
21-24	100	58.8
25-28	20	11.8
28-31	25	14.7
Education		
Secondary/Higher Education	32	18.8
Graduate	70	41.2
Post Graduate	66	38.8
Ph.D.	2	1.2
Occupation		
Government Service	10	5.9
Private Service	98	57.6
Business	37	21.8
Unemployed	25	14.7
Monthly Household Income		
Less than Rs.40000	32	18.8
Rs.40001 to 60000	20	11.8
Rs.60001 to 80000	36	21.2
Rs.80000 to 100000	42	24.7
More than Rs.100000	40	23.5
Number of Family Members		
Upto 3	67	39.4
4-6	89	52.4
6-8	10	5.9
9 and above	4	2.4

The correlation matrix was chosen over the covariance matrix as all the variables were not measured on the same scale. The coefficient of correlation for most observed variables was between .317 and .746 in absolute terms, which was in the desired range of 0.30 to 0.80.

All the coefficients of correlation were checked at a 0.05 level of significance, and the p-value of most coefficients was below 0.05, indicating that they were significant. Some of the coefficients of correlation were not in the desired range; therefore, the data was checked for multicollinearity. The determinant value for the matrix was 3.51, which was greater than 0.00001; therefore, no multicollinearity was found in the data set.

Kaiser meyer olkin and bartlett`s test

The Kaiser-Meyer-Olkin (KMO) Test measures the suitability of the data for factor analysis. The value for the KMO test statistic for the given data set was 0.672, which makes it suitable for running factor analysis. The calculated value, or Bartlett's test of sphericity, for this data set was 895.354, which was greater than the tabulated value. A significant result was that the observed variables are related and suited for structure detection.

The initial eigenvalue of all the variables are given in Table 2. In the analysis, all the extracted values are high. This means that the obtained factors can explain the most variation in the observed variables.

Following analysis, only the first four factors were retained, whose eigenvalue was greater than 1. Since factor analysis was conducted on the correlation matrix, the variables were standardized, which means that each observed variable had a variance of 1, and the total variance was equal to the number of variables used in the analysis, in this case, 15. Varimax rotation tries to maximize the variance of each of the factors, so the total amount of variance accounted for is redistributed over the three extracted factors.

The scree plot graphs the eigenvalue against the factor number (Figure 3). The values for the same are given in Table 2 in the first two columns. From the fifth factor, it can be observed that the line is almost flat, meaning each successive factor accounts for smaller and smaller amounts of the total variance. This point is called the inflection point from which the graph becomes flat, and in this analysis, it is obtained on the fifth factor, as per the scree plot.

As per the eigenvalue criteria, the eigenvalue of the fifth factor is 0.743, which is lower than one, and it can only explain 4.953 percent of variation, which is quite low. Therefore, we go with the eigenvalue criteria and choose four factors.

Table 2: Total variance explained

Extraction Sums of Squared									
Initial Eigenvalues				Loadings			Rotation sums of Squared loadings		
Factor	Total	Percentage of variance	Cumulative Percentage	Total	Percentage of variance	Cumulative percentage	Total	Percentage of variance	Cumulative percentage
1	6.266	41.771	41.771	6.091	40.608	40.608	5.356	35.706	35.706
2	3.594	23.963	65.733	3.342	22.281	62.889	2.629	17.528	53.234
3	1.608	10.719	76.452	1.302	8.682	71.572	1.848	12.317	65.551
4	1.010	6.731	83.183	.791	5.271	76.843	1.694	11.291	76.843
5	.743	4.953	88.136						
6	.414	2.758	90.894						
7	.333	2.222	93.116						
8	.290	1.930	95.046						
9	.216	1.438	96.484						
10	.157	1.049	97.533						
11	.119	.793	98.327						
12	.111	.738	99.065						
13	.068	.455	99.520						
14	.051	.342	99.862						
15	.021	.138	100.000						

Extraction Method: Principal Axis Factoring

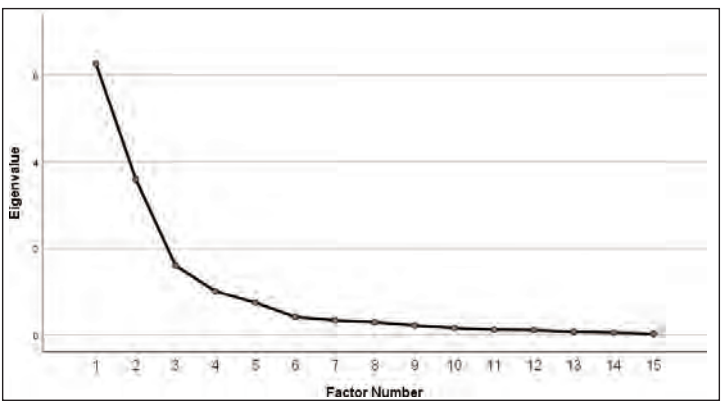

Figure 3: Scree Plot

Table 2 contains the unrotated factor loadings, which are the correlations between the observed variables (15 in this study) and the factor. Four factors were extracted by the principal axis factoring method, and 16 iterations were required. Factor rotation was conducted by observing the correlation matrix. It was concluded that the observed variables were correlated, and therefore a Varimax rotation was conducted, which was also an orthogonal rotation and was meant for correlated observed variables.

Table 3 contains the rotated factor loadings, which represent both how the variables are weighted for each factor and also the correlation between the variables and the factor.

Table 3: Factor matrix

S.No	Factor	1	2	3	4
1.	Fair trade practices and ethical work	.915			
2.	Responsible disposal of product	.913			
3.	Environmentally conscious production process	.905			
4.	Future generations	.841			
5.	Traceability of sustainable supply chain	.819			
6.	Raw material composition	.805			
7.	Health	.724	.571		
8.	Environment Impact	.681			
9.	Responsible buying		.812		
10.	Trend		.718		
11.	Comfort		.682	.517	
12.	Sustainability	.541	.562		
13.	Utility		.552	.660	
14.	Price			.531	
15.	Concern for future generations		.516		.547

Extraction Method: Principal Axis Factoring

For orthogonal rotations, such as Varimax, the factor pattern and factor structure matrices are the same. Four factors were extracted by Varimax rotation with Kaiser normalization. It was convergent in five iterations (Table 4).

Table 4: Rotated factor matrix[a]

S.No	Factor	1	2	3	4
1.	Environmentally conscious production process	.957			
2.	Responsible disposal of the product	.928			
3.	Raw material composition	.907			
4.	Traceability of sustainable supply chain	.880			
5.	Fair trade practices and ethical work	.874			
6.	Future generations	.731			
7.	Environment Impact	.579			
8.	Comfort		.821		
9.	Health		.791		
10.	Trend		.650		
11.	Price			.853	
12.	Utility			.677	
13.	Mindful product usage				.817
14.	Responsible buying				.657
15.	Concern for future generation				.566

Extraction Method: Principal Axis Factoring

Rotation Method: Varimax with Kaiser Normalization

a. *Rotation converged in 5 iterations*

Using the rotated factor loadings, the items that constitute each factor were obtained, which are as follows:

Factor 1 is explained by the following items: comfort, health, and trend.

Factor 2 consists of the following items: responsible buying, concern for the future, and mindful product usage.

Factor 3 is characterized by these items: environmentally conscious production process, raw materials, supply chain, fair trade practices, and responsible disposal.

Factor 4 is influenced by material composition and price.

Labelling of factors

Factor One (Self-Care): Three items, namely comfort (0.821), health (0.791), and trend (0.566), have large positive loadings on this factor (Figure 4). When the respondents were asked to rate the importance of factors when purchasing sustainable denim,

55 percent of respondents gave comfort the highest ranking, and 25 percent of respondents gave health the second highest rating. The impact of synthetic dyes on human skin and the overall impact of deleterious pesticides used for cotton cultivation were causes of concern for the health of consumers. Lastly, trend was an important factor, as respondents wanted sustainable denim jeans to be in sync with the ongoing trend. Vingilyte and Khadroo (2022) state that personal clothing style is predicated on self-knowledge, consistency, and an enduring sense of comfort. In this study, self-care was used to holistically cover items such as comfort derived from sustainable denim, the health impacts of sustainable denim versus regular denim for consumers, and resilience in adopting trends for sustainable denim.

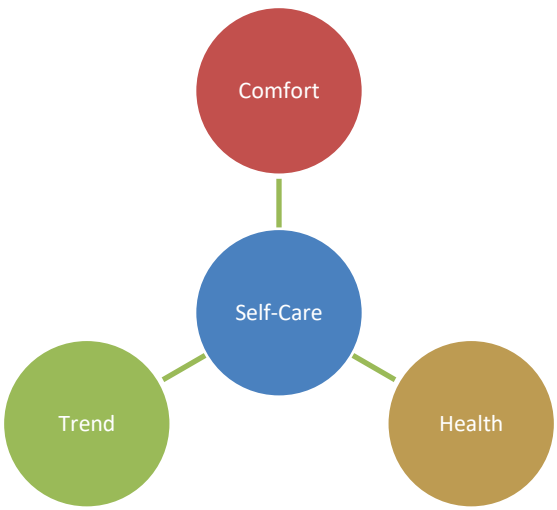

Figure 4: Factor One (Self-Care)
Source: Primary data

Factor Two (Consciousness): The importance of mindful product usage (0.817), responsible buying (0.657), and concern for future generations (0.731) have large positive loadings on this factor that has been labeled as Consciousness (Figure 5). Quoquab, Mohammad and Sukari (2019), in their scale for sustainable consumption, included three parameters: quality of life, care of the environment, and care for future generations. Soyer and Dittrich, (2021) classified sustainable consumption behavior using three consumption phases, i.e., purchasing, using, and disposing of clothes. When it comes to sustainability, only a product made from sustainable production methods is not enough; how the product is used during its life is equally important. 82 percent of respondents felt that mindful product usage was a crucial factor that impacted

sustainability. Following care instructions augments the product's life and contributes to sustainable consumer behavior. Responsible buying was important, as respondents felt this would lead to greener consumer practices. Concern for future generations was a factor that resulted in sustainable consumer behavior. It is a well-established fact that the world has finite resources, and with its huge consumption, the world is heading towards a resource crunch and a future of instability. It was refreshing to note that consumers now worry about future generations and consider that when making a purchase decision.

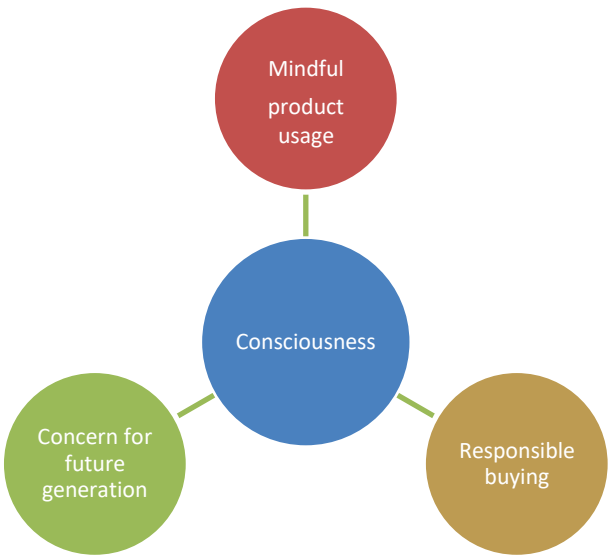

Figure 5: Factor Two (Consciousness)
Source: Primary Data

Factor Three (Traceability): Six items, such as the environmentally conscious production process (0.928), responsible product disposal (0.957), raw material composition (0.907), traceability of the supply chain (0.880), fair trade practices and ethical work (0.874), and environmental impact (0.539), have significant positive loadings on this factor (Figure 6). Agrawal and Pal (2019) identified factors such as product information, quality information, process information, and social and environmental information as crucial to traceability. Since the six items constitute traceability, this factor has been labeled as traceability. In the current study, traceability was a crucial factor for sustainable consumption behavior, which included items such as transparency in the supply chain, responsible disposal after the production process, traceability of raw material suppliers, and adoption of fair trade practices.

Figure 6: Factor Three (Traceability)
Source: Primary Data

Factor Four (Utility): Price (0.677) and material composition of the denim (0.822) have large positive loadings on this factor that has been labeled as utility (Figure 7). Respondents were keen on verifying the material composition of the denim jeans they were purchasing, and that is why, when it comes to sustainable denim, they make an effort to check the material composition labels. Price is an important aspect of any product purchase, and denim jeans are no different. Before making a purchase, consumers felt that price was an important factor that they considered, and 92 percent were willing to pay an increased price to buy a sustainable pair of denim jeans. This is coherent with what Robinson, (2012) points out: "customers are not consuming products, but value", which shows that consumers are evaluating their choices before making a purchase, and sustainability in denim is an added value for them.

Together, all four factors, namely, self-care, consciousness, traceability, and utility, explain 0.76843, or 76.843 percent, of the variation in the data.

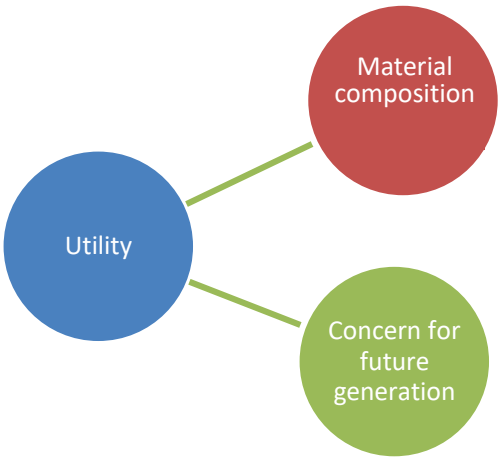

Figure 7: Utility
Source: Primary data

Discussion and Conclusion

In this study, four major factors that indicated sustainable consumption behavior towards denim specifically were established. With these four factors, a model for sustainable consumption behavior towards denim was developed (Figure 8), and factors such as self-care and utility were seen in the context of sustainable denim, which were not explored previously.

According to Rijswijk et al., (2008), traceability's significance to customers lies in the benefits related to aspects they consider important when it comes to denim. In this study, traceability factors can serve as proxies. For instance, quality can be inferred from the raw materials, and safety can be assessed by understanding the production process and its environmental impact.

Rijswijk et al. (2008) also discovered that consumers' perceptions of denim quality and safety are linked to the improvement of denim supply chain traceability. These beliefs influence consumers' purchasing intentions, a finding that aligns with the results of this study.

The four parameters identified for sustainable consumption in denim, namely, self-care, consciousness, traceability, and utility, had a bearing on individual items. Self-care had further loadings in the form of items such as comfort, health, and trend. Comfort signifies consumers who wish to purchase sustainable denim jeans without sacrificing

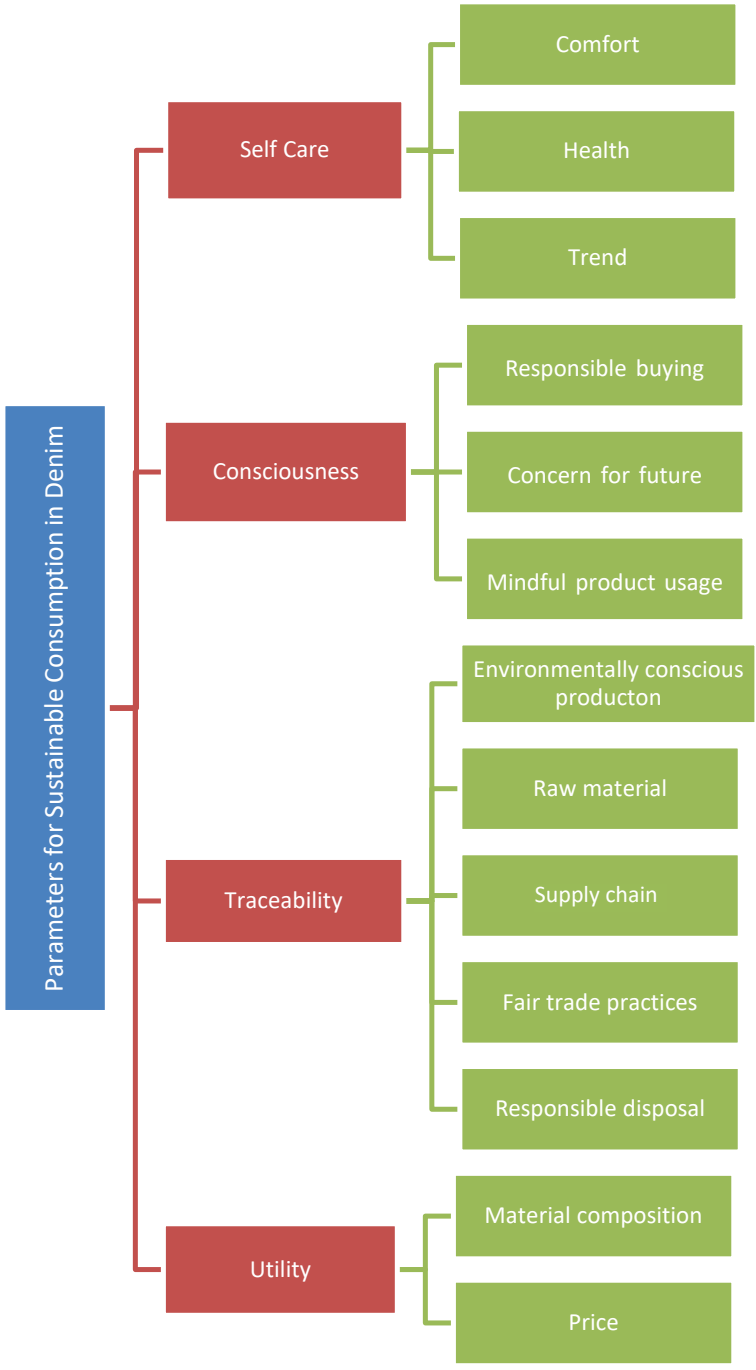

Figure 8: Model indicating parameters for sustainable consumption behavior in denim.
Source: Primary data

the comfort associated with regular jeans. Health was also an important aspect that was considered when purchasing sustainable denim, as chemical dyes were seen as a threat to health for consumers. Consciousness came from items such as concern for the future generation, responsible buying, and mindful product usage. This indicates that consumers are very cognizant of their buying behavior. They were aware of the need for the current generation to use its limited resources wisely without compromising the needs of future generations. Mindful product usage was crucial in extending the life of the product, which shows a positive trend in consumers towards the longevity of the product, a step away from fast fashion.

Traceability as validation of sustainability claims enhances consumer trust and thereby adds value. Traceability in sustainable denim adds to the product benefit, which in turn facilitates purchase intention. The consumers wanted to be aware of the material used in production, the production process employed, the supply chain information, and its impact on the environment. The traceability factors identified enhance the consumer's understanding of this aspect and can aid in implementing essential changes in denim jeans production. Further studies can include the impact of the application of traceability in the denim industry and the tools through which this can be explored, such as block chain technology. Information such as material composition and price become important aspects of the factor of utility. Consumers expressed their willingness to pay a premium for a sustainable pair of denim jeans.

This study lays the groundwork for further studies in terms of sustainability in denim. Confirmatory factor analysis can be performed to verify the factor structure of the observed variables.

References

Adams W.M., 2006. *The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century*. [pdf] UK: IUCN, Available at: < https://portals.iucn.org/library/sites/library/files/documents/Rep-2006-002.pdf> [Accessed 25 May 2022]

Agrawal T.k. and Pal R., 2019. Traceability in Textile and Clothing Supply Chains: Classifying Implementation Factors and Information Setsvia Delphi Study. *Sustainability,* [e-journal] 11(6), pp.6-7. 10.3390/su11061698.

Amutha, K., 2017. Environmental impacts of denim. *Sustainability in Denim*, [e-journal] pp.27-48. https://doi.org/10.1016/B978-0-08-102043-2.00002-2.

Candiani, 2016. Sustainability. [online] Available at: <https://www.behance.net/gallery/67996205/Candiani-Denim-sustainability-report-2016> [Accessed 30 May 2022]

Chatterjee, K.N., Sharma, D., and Pal, H., 2020. Quality aspects of sustainable handloom denim fabrics made of handspun and machine spun cotton yarn. *Journal of Textile and Apparel, Technology and Management*, *11*(2). [online] Available at: < https://www.researchgate.net/publication/342888462_Quality_Aspects_of_Sustainable_Handloom_Denim_Fabrics_Made_of_Hand_Spun_and_Machine_Spun_Cotton_Yarn_Scopus > [Accessed 10 June 2022]

Cheng, M.J. and Simmons, J.E.L., 1994. Traceability in Manufacturing Systems. *International Journal of Operations & Production Management,* [e-journal] *14(10)*, pp.4–16. https://doi.org/10.1108/01443579410067199.

Ellen MacArthur Foundation, 2017. *A new textiles economy: Redesigning Fashion's Future*. [online] Available at: <https://ellenmacarthurfoundation.org/a-new-textiles-economy> [Accessed 23 May 2022].

Fidan, F., Aydoğan, E. K., and Uzal, N., 2021. An integrated life cycle assessment approach for denim fabric production using recycled cotton fibers and combined heat and power plant. *Journal of Cleaner Production*, [e-journal] *287*. https://doi.org/10.1016/j.jclepro.2020.125439.

Fischer, D., Böhme, T. and Geiger, S.M., 2017. "Measuring young consumers' sustainable consumption behavior: development and validation of the YCSCB scale", *Young Consumers*, [pdf] Available at: < http://fox.leuphana.de/portal/files/9970474/Fischer_B_hme_et_al._2017_Measuring_Young_Consumers_Sustainable_Consumption_2_.pdf > [Accessed 22 May 2023]

Germani, M., Mandolini, M., Marconi, M., Marilungo, E., and Papetti, A., 2015. A system to increase the sustainability and traceability of supply chains. In *Procedia CIRP* . 29, pp.227–232. https://doi.org/10.1016/j.procir.2015.02.199

Grimm, J.H., Hofstetter, J.S. and Sarkis, J., 2016. Exploring sub-suppliers'compliance with corporate sustainability standards. *Journal of Cleaner Production*, [e-journal] 112, pp.1971-1984. https://doi.org/10.1016/j.jclepro.2014.11.036.

Lehner, M., 2015. Retail store influence on sustainable consumption behaviour. *International Journal of Quality and Service Sciences*, [e-journal] *7*(4), pp.404–423. https://doi.org/10.1108/IJQSS-05-2014-0031.

Levi's Strauss & Co., 2015. *The life cycle of a jean*. [pdf] Available at: <https://levistrauss.com/wp-content/uploads/2015/03/Full-LCA-Results-Deck-FINAL.pdf > [Accessed: 15 June 2023]

Maryan, A.S., and Montazer, M., 2013. A cleaner production of denim garment using one step treatment with a mylase/cellulase/laccase. *Journal of Cleaner Production*, [e-journal] 57, pp.320–326. https://doi.org/10.1016/j.jclepro.2013.05.041.

Mazumder, S., 2016. Effects of sand blasting with industrial enzyme silicon wash on denim apparel characteristics. *Daffodil International University Journal of Science and Technology,* [e-journal] 5(1), https://doi.org/10.3329/diujst.v5i1.4377.

Myae, A. and Goddard, E., 2012. Importance of traceability for sustainable production: A cross-country comparison. *International Journal of Consumer Studies*, [e-journal] 36(2), pp.192–202. https://doi.org/10.1111/j.1470-6431.2011.01084.x.

Park, S. and Lee, Y., 2020. Scale Development of Sustainable Consumption of Clothing Products. *Sustainability*, [e-journal] 13(1), p.115. https://doi.org/10.3390/su13010115.

Pigni, F. and Crave S., 2007. Traceability in the Textile and Clothing Industry: Issues and Implications for RFID Adoption. *Mediterranean Conference on Information Systems.* [online] Available at: < https://www.researchgate.net/publication/235800815_Traceability_in_the_Textile_and_Clothing_Industry_Issues_and_Implications_for_RFId_Adoption> [Accessed 20 June 2023]

Reisch, L.A., Cohen, M., ThØgersen, J. and Tukker, A., 2016. Frontiers in sustainable consumption research. *GAIA - Ecological Perspectives for Science and Society*. [e-journal] 25(4), pp.234-240. 10.14512/gaia.25.4.4.

Robinson, C.K., 2012. Peter Drucker on marketing: Application and implications for libraries. *The Bottom Line*, [e-journal] 25(1), pp.4–12. 10.1108/08880451211229153.

Robins, N., and Roberts, S., 1997. Reaping the benefits: trade opportunities for developing-country producers from sustainable consumption and production. *Greener Management International*, *19*, pp.53–66.

Roshan, P., Sandeep, N.R. and Jegadeesh, T., 1996. Denim: The ever green favorite. Textile Dyer & Printer, India.

Soyer, M. and Dittrich, K., 2021. Sustainable Consumer Behavior in Purchasing, Using and Disposing of Clothes, *Sustainability*, [e-journal] 13(15), p.8333. 10.3390/su13158333.

Rijswijk, W.V., Frewer, L.J., Menozzi D. and Faioli G., 2008. Consumer perceptions of traceability: A cross-national comparison of the associated benefits. *Food Quality and Preference*, [e-journal] 19(5), pp.452-464 https://doi.org/10.1016/j.foodqual.2008.02.001.

Vingilyte, J. and Khadaroo, A., 2022. Personal clothing style and self-concept: Embracing the true, the ideal and the creative self. *Fashion, Style & Popular Culture*, [e-journal]. 10.1386/fspc_00130_1.

Quoquab, F., Mohammad, J. and Sukari, N.N., 2019. A multiple-item scale for measuring "sustainable consumption behaviour" construct: Development and psychometric evaluation. *Asia Pacific Journal of Marketing and Logistics,* [e journal] 31(2), pp.791–816. https://doi.org/10.1108/APJML-02-2018-0047.

About the authors

Kanishka is Assistant Professor at NIFT, Delhi. She has completed her Masters in Fashion Management from NIFT Delhi with academic excellence and has worked in the industry with brands such as Accessorize and Uniqlo. She is currently pursuing her PhD in consumer behavior from NIFT.

kanishka.kanishka1@nift.ac.in

Deepak Joshi has a PhD in management and is UGC NET-Management Qualified. He has an FDP from IIM and holds the degree of Master of Fashion Management from NIFT. He has over 15 years of experience in corporate and academic settings. He has previously served in the FDDI, Ministry of Commerce and Industry, Government of India, as Senior Faculty, Retail. His other significant stints include serving Future Group in various roles, such as brand relationship manager, assistant mall manager, and store manager. Currently, he is Assistant Professor at the FMS Department, NIFT Delhi, and the Unit Incharge of the Publication Unit.

deepak.joshi@nift.ac.in

Product Attachment and Sustainability: Two Facets of the Same Coin

Sareekah Agarwaal and Ruby Kashyap Sood

Abstract

Intertwined with our histories and identities, clothes are memory-holders charged with emotions. Whether we use clothes as a mark of distinction, as symbols of family or self-identity, or as a means to connect with our loved ones, clothes are narratives in material form that tell stories of our lives, values, beliefs, and family history. India has always mesmerized the world with its uniquely handcrafted textiles, most of which are passed on from one generation to the next as treasured keepsakes. There could also be some that have been acquired within one's lifetime but are worthy of being preserved for future generations for the symbolic meanings they hold.

With sustainability and slow fashion being widely used buzzwords in the fashion and textile industries for the past decade or so, it is the responsibility of manufacturers, retailers, and consumers to take charge and adopt effective strategies towards building a sustainable society. Besides technological solutions, countless other measures can be taken to reduce overproduction, overconsumption, and the throwaway culture that exists in the fashion industry. Strategies contributing to longer lifespans of textile and clothing items can prove to be an effective step towards sustainability. Uncovering the stories behind some treasured textile keepsakes can be a good idea to see if there exists an emotional connect between the owners and the objects, which can drive them to hold on to these objects for as long as possible, thus contributing to a sustainable society as well as providing a way to understand experiences of both change and continuity within individual and family lives and traditions.

Through this article, the authors endeavor to find out if owners have an emotional connection or memories attached to some of the treasured textile objects that are lying unnoticed in their closets that are not only representative of the rich textile crafts of India but are meaningful assets for the symbolic value they may possess. The study covers four case studies to assess intangible product attachment attributes. The research concludes that memories and emotions attached to a product can contribute to its longevity and foster sustainability.

Keywords: Sustainability, slow fashion, storytelling, product attachment, heirlooms, emotional objects, consumer-product relationship

Introduction

Products are all around us in our daily lives. Some are self-made or purchased, while others are handed down by family and friends for one reason or another. In due course, a few of the products are favored, and ethereal associations are formed with these objects as they convey a special meaning (Wallendorf and Arnould, 1988). The users enter into an emotional relationship with these special possessions (Davis, 2002) and tend to care for them for a long time, even after their utility is lost. These 'treasured' possessions represent objects of attachment having symbolic meaning related to family history, cultural beliefs, self-identity, affiliation with particular cultural, political, or religious philosophies, societal groups, or sub-groups (Crilly, Moultrie and Clarkson, 2004, as cited in Hwang and Self, 2015). Valued material possessions are highly laden with emotions and memories. They may act as reminders of certain people or events or evoke memories of the past, which have a relatively strong effect on consumer-product attachment (Wallendorf and Arnould, 1988). These beloved clothes, reminiscent of sentiments, make the users smile or feel sad, reminding them of significant places, people, or events every time they see or hold them in their hands. Hence, they do not wish to part with these cherished objects in their lifetime or even later. Most often, the owners and makers also reuse and repurpose their prized possessions. These objects, when they find a new face, sometimes bring a smile to the faces of their users or give them satisfaction as they remember their past associations or relationships. This not only shows care for their emotions and memories but also for the community and environment.

Besides having the value of history, emotions, memories, and experiences, treasured keepsakes also possess the value of sustainability, as they satisfy all four pillars of sustainability, i.e., human, social, economic, and environmental. They have lasted in the closets for years, and the owners have no intention to dispose of or replace them with new ones, thereby preventing them from buying something similar. When a person experiences a strong relationship with a product, disposing of or replacing it seems undesirable because if the product is lost, its special meaning is lost as well (Schifferstein and Zwartkruis-Pelgrim, 2008). Hence, people exhibit protective behavior towards these products more frequently than those to which they are less attached (Schultz, Kleine, and Kernan, 1989). Reusing and repurposing infuses a new lease of life into them, thereby facilitating a circular economy for textiles (Schumacher and Forster, 2022).

Product attachment broadly refers to the psychological connection between an individual and a particular material object that develops instantaneously or over time due to several factors (Figure 1) and affects the consumption and disposition behaviors

of the owners. Product attachment can thus be defined as the degree of the emotional bond—strong or weak—that exists between a consumer and a particular object (Schultz, Kleine, and Kernan, 1989; Mugge, Schoormans and Schifferstein, 2005; Schifferstein and Zwartkruis-Pelgrim, 2008). Product attachments are constructed from the four broad types of pleasure enjoyed by people: physio-pleasure, psycho-pleasure, socio-pleasure, and ideo-pleasure (Tiger, 1992). Several possible determinants of attachment to objects are: the object evokes memories of persons, places, or events; provides pleasure; the object reflects one's self-identity (Ramirez and Ward, 2015; Schifferstein and Zwartkruis-Pelgrim, 2008); the object has value—expensive, exotic, or rare; aesthetics; the object has utility (Schifferstein and Zwartkruis-Pelgrim, 2008); the way the object is made (hand-made, self-made); the object is inherited or gifted. Various characteristics that depict attachment are: attachment formation is not deliberate (Schultz, Kleine, and Kernan, 1989). It requires a personal history between the person and possession (Kleine and Baker, 2004); attachment is dynamic. It evolves over time (ibid.); attachment is multidimensional (cognitive, emotive, and behavioral); it has relative strength (strong to weak); it is a kind of self-extension (ibid.; Jackson, 2005).

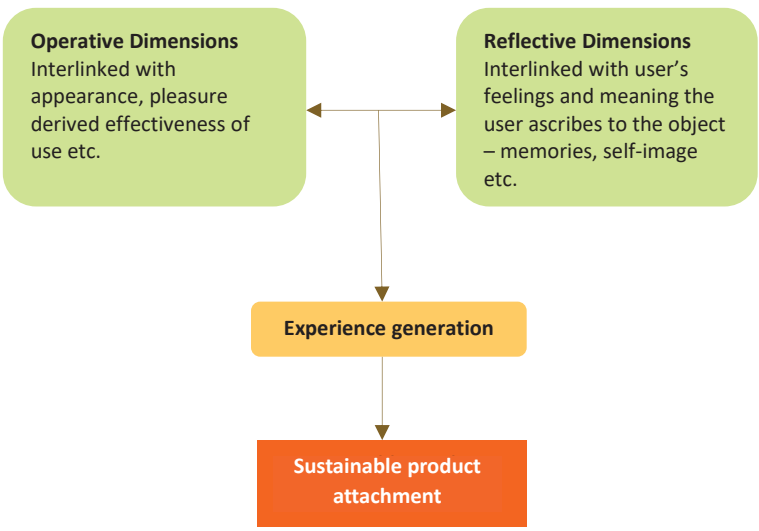

Figure 1: Sustainable product attachment derived due to interplay between different dimensions as adapted from the study of Niinimäki, 2010

Material possessions don't last forever. At some point, they lose their utility or become undesirable enough to be discarded or replaced. Humans have a tendency to discard things for a number of different reasons. First, they become dissatisfied or disappointed with the performance of their currently owned product. Second, they look old-fashioned in comparison to more fashionable and stylish designs available on the market. Third,

improved financial conditions can encourage disposal or replacement (Bayus and Gupta, 1992; Van Nes, 2003, as cited in Mugge, Schoormans and Schifferstein, 2005), and so on. Sometimes durable products, even if they function properly at the time of disposal, are discarded by consumers (DeBell and Dardis, 1979; Van Nes, 2003, as cited in Schifferstein and Zwartkruis-Pelgrim, 2008). From the viewpoint of sustainability, the short life span of clothing due to the early disposal of products in high quantities is detrimental as it comes at an astonishing environmental and social cost. Cooper (2005) states that sustainable consumption requires increased product life spans, which could be achieved by greater product durability and product life extension, for which the owners may need to develop greater attachment to their possessions so that disposal or replacement of products can be slowed down. Research has shown that a strong emotional relationship between the user and the object can postpone their disposal or replacement for a longer time (Schifferstein and Zwartkruis-Pelgrim, 2008), as material possessions are important to consumers not just for their functionality but for what they signify about the users and their lives, convey meaning, tell stories, and contribute to human identity (Cooper, 2005; Jackson, 2005). A grandmother's wrap, a woman's wedding dress, a mother's sari, a self-crafted quilt, a child's first dress, and more are all special as they are symbols of family history and identity, communicating personal, social, and cultural meaning.

When it comes to sustainability in the fashion and textile industries, the production and consumption of clothing have increased multifold in the last few decades—something we know of by merely looking at our wardrobes—leading to a proportional increase in the amount of textile waste. This has posed serious environmental and societal problems, especially in developing economies, as it uses up more scarce resources and generates a lot of waste. Facts like the fast fashion industry is the second-biggest consumer of water and is responsible for 8–10 percent of global carbon emissions (UN Environment Programme, 2019), and emissions from textile manufacturing alone are projected to increase by 60 percent by 2030 (UN Framework Convention on Climate Change, 2018) are disturbing enough to draw everyone's attention to this growing menace. It stresses the need for more sustainable business models and practices at every stage of the product life cycle, from conception of design to production, consumption, and disposal. Sustainability is not just about using fewer resources and greener ways of production; it is much more about taking into account the social, economic, environmental, and cultural dimensions of the business environment (Werbach, 2009). Hence, understanding the role of consumer-product attachment in contributing to sustainability, particularly in the fashion industry, becomes pertinent as the longevity of a product's life span is primarily determined by the consumer, not by the manufacturer (Stahel, 1986).

A lot of Indian and international designers are encouraged to take up sustainable product design on account of social, environmental (Papanek, 1984; Whiteley, 1993),

and psychological considerations. Eternally Yours, which originated in the Netherlands almost two decades ago, spearheaded discussion on 'product endurance' (Hinte, 1997). It's bilingual conference 'Time in Design' reflected on the possibilities of cultural life extension of products by tracing how carefully and intimately they are used. Brands like H&M, Grassroot, Nicobar, 11.11, Doodlage, B-Label, KharaKapaas, and more are producing sustainable clothing by introducing circular business models to extend the lifetime of products and materials through repair, reuse, and remake before recycling, using plant-based fibers, and adopting new and revolutionary techniques for sustainable production. But the role that emotions play in promoting large-scale sustainable behavior among users has not been fully exploited. If sustainable consumption requires products to last longer, it is imperative to understand the meaningful associations that users form with products over time and how they may be better leveraged to elongate the length of ownership.

The art of creating handcrafted textiles and the act of passing down clothing and textile items from one generation to the next is rooted in Indian culture. Thus, almost every Indian household may have a piece or two soaked up with memories of the owners or makers. Besides these, there may be some pieces that have been bought during one's lifetime or are self-made. To fully understand the meaning of these possessions, further research is needed (Wallendorf and Arnould, 1988). Also, to understand the role of consumers in promoting sustainability, research is needed to explore the intangible product attributes like memories, emotions, experiences, and reliability, among others, along with the tangible product attributes that have already received much attention in the past few decades. This research article presents four case studies of the owners of some cherished clothing or textile objects from Indian families in order to ascertain if emotions and memories play an important role in extending the life span of products, thus contributing to sustainability. These case studies attempt to study the consumer-product relationship that develops over time and may impact disposal of the product—the weakest link in the product life cycle. As Jackson (2005) states, consumption is not just about functionality but usage in pursuit of meaning; no pure functional account of objects will deliver a comprehensive understanding of consumer behavior. Hence, this research focuses on person-product attachments to clothing items and the context of attachment by narrating stories of objects as provided by the owners to obtain a solid evidence base to evaluate the potential for sustainability via emotional longevity.

Methodology

The main objective of the study was to determine the relationship between product attachment and sustainability. The main focus of the research was to examine if emotional attachment to textiles and clothing leads to the longevity of a product.

To conduct the study, a qualitative case study approach was employed for a deeper understanding of the subject. Four case studies are covered in this article. The purposive sampling technique was used to select the subjects. The selected participants had a higher vocational or academic education (Table 1) and possessed a handcrafted textile or clothing item that was either handed down from one generation to the next or was self-acquired.

A semi-structured interview schedule was prepared to determine the relationship between the selected product and owner and assess the attachment attributes. In-home personal interviews were conducted with the selected participants, both men and women, between 65 and 80 years old, to investigate the special and meaningful attachment to clothing items they typically owned. The participants were asked to have the items with them while they talked about them. As part of the interview, the participants were asked a series of questions not only about the product but also about their memories of the object and their relationship with it, if any. Respondents were also asked to report on how they felt when they touched or thought about the product. The interviews were recorded for the accuracy of the data. A written consent, duly signed by the participants, was obtained before the interview, which confirmed that the information shared by them could be freely published in various sources. Photographs of the participants and their products were taken for visual reference and the authenticity of the data.

Table 1: List of participants

S.No.	Name of the participant	Professional status and job title (if any)	Title of the object
1	Dr. Kusum Chopra	Former Professor and Chairperson, Fashion Design Department, National Institute of Fashion Technology, New Delhi	Peach Pakistani *Shalwar*
2	Mr. Kheemraj Nandlal Rathi	Craftsman, Barmer Appliqué and Embroidery	Red Block Printed Women's *Odhani;* Red Block Printed Girl's *Odhani*
3	Late Mr. Satya Narain Agarwal	Former Managing Director, Electrosteel Castings Pvt. Ltd.	Blue *Makhmal* (chenille) Dress
4	Dr. Ruchira Ghose	Former Chairman and Director, National Crafts Museum, New Delhi	Checkered Kanjeevaram Sari

Results and Discussion

Textile possessions, whether gifted, self-made, or acquired, are reservoirs of memories and narratives. They evoke memories and feelings—a fact that surfaced when interaction happened with all four selected participants. The most frequent reason for valuing these objects, as given by each participant, were the memories they were associated with—people, events, and relationships—that overshadowed the functionality and aesthetics of the objects. They are not just carriers but keepers of memories and experiences, as described by Dr. Kusum Chopra (Figure 2), a participant, while narrating her story of attachment with a peach-colored Pakistani *shalwar* she owns from her grandmother's collection.

"Born in March 1947 in Lahore, Dr. Kusum Chopra was just six months old when she witnessed the Union Jack being lowered and the Indian tricolor being raised at the stroke of midnight on August 15, 1947. It was raining heavily, but her father, an engineer, Mr. Jagdish Mitter, made sure that she witnessed the occasion as, after decades of endeavor, independence had arrived. With independence also came the partition of the Indian subcontinent into India and Pakistan, resulting in mass migrations across the newly formed nations. It was then that Dr. Kusum, along with her parents, grandparents, and other relatives, abandoned their homes in Pakistan and moved to India with their belongings.

Dr. Kusum's grandparents used to stay with her, but they had a house in Rohtak (Haryana) too, where all their belongings lay stacked in trunks. No one bothered about them until it was time for Dr. Kusum's wedding in 1969, as her grandmother, Mrs. Dhan Dei (Devi), wanted to pass on a few things to her granddaughter as a part of her trousseau, which probably she would have gotten in her trousseau or may have acquired during her lifetime.

One of the objects that was passed on to Dr. Kusum was a peach-colored Pakistani shalwar that was baggy and atypically wide at the waist and tapered to a narrow, cuffed bottom. It was a ceremonial shalwar that was worn occasionally by her grandmother. After her, it was Dr. Kusum who wore the shalwar for a wedding with little alteration of the pauncha so that it fitted well (Figures 3 to 5).

The sentimental value of this piece is worth a great deal for Dr. Kusum Chopra. Besides this, she has some more cherished pieces in her wardrobe. With every piece she owns, she takes a trip down memory lane and celebrates the nostalgia. At 75, her enthusiasm to share her stories is inspiring. Since the objects she owns are not of much practical

importance now but certainly are historic pieces of academic value, Dr. Kusum has decided to donate her prized possessions to the Clothing and Textile Department Museum of Maharaja Sayajirao University in Vadodara, Gujarat—her alma mater!"

Figure 2: Dr. Kusum Chopra

Figure 3: Dr. Kusum Chopra wearing the peach Pakistani *shalwar* at a wedding function

Figure 4: Dr. Kusum Chopra showcasing the *shalwar* at a seminar in New Delhi

Figure 5: The *shalwar* with Zardozi embroidery on the pauncha

Dr. Kusum Chopra's *shalwar*, despite the significant signs of ageing it shows, breathes life even today as it still forms a part of her wearable clothing items. Also, she always tries to utilize any opportunity that comes her way to showcase her legendary objects to let the world know that such things existed in the past and what we have today are readapted versions of these age-old items. She doesn't believe that the old must make way for the new; in fact, the new must complement the old for it to live longer.

Mr. Satya Narain Agarwal, another participant in the study, explained that objects that reflect attachments based upon personal memories are special, as he talked about

his most cherished 'Blue *Makhmal* Dress' that was once gifted to him by his great grandfather and now belongs to his grandchild, Ms. Anya Agarwal, who lives in Chicago (Figure 6).

Figure 6: Ms. Anya Agarwal with her grandfather late Mr. Satya Narain Agarwal

"Born in the year 1939, Mr. Satya Narain Agarwal belonged to a reputed jeweler family in Lucknow, whose members were treated with great deference in society. He was the first fourth-generation child born to Mr. Kundan Lal ji, his great-grandfather, and this was a matter of pronounced celebration! To mark this momentous occasion, not only were the great-grandparents offered the golden ladder, but a special dress was made for 'Satya' by the Muslim karigars (craftsmen) of Lucknow who worked for the Nawabs! The two-piece dress is beautifully enhanced with Zardozi embroidery in real gold and silver metal threads. No wonder the embroidery still retains its charm even after 82 years of storage and use!

In the year 1963, 'Satya' met his special someone, and they got married. They were soon blessed with two wonderful boys who got married in 1989 and 1991, respectively. Then came 'Anya' to Rajeev (the elder son) and 'Karan' to Arvind (the younger son) in the year 1996—an occasion to celebrate again and a time for family rituals to repeat.

According to social customs, the golden ladder is offered to the great-grandparents when a boy is born in the fourth generation of a family. But Anya being the first fourth-generation child to Mr. Triloki Nath Agarwal, it was decided to change the customary tradition as the family strongly believed that both sons and daughters should be equally respected—the reason why Anya was never called the grand granddaughter but always the grand grandchild of her great grandparents! The family relived the old memories. A golden ladder was offered to the great-grandparents, and 'Anya' was gifted the 'blue makhmal dress' by her great-grandmother (Figures 7 to 9).

It's 2023; Anya is now 26 years old, and she recently lost her beloved grandfather, Mr. Satya Narain Agarwal, with whom she shares a special bond as they both have something in common: the 'blue makhmal dress'! It's a reminder to her of her grandfather's unconditional love and affection, which has been stored by the family with much love and care. Probably, they might also want to pass this legacy on to their next generation to bring the old and the new together."

Figure 7: Late Mr. Satya Narain Agarwal with his grandchild Anya on the day of the ceremony

Figure 8: Anya with her father on her first birthday wearing the blue *makhmal* dress

Figure 9: The blue *makhmal* dress

Mr. Satya Narain Agarwal's account of his blue *makhmal* dress clearly indicates that clothes are carriers of family identity and traditions. They become memory holders and have the capacity to repeat the experience when used again in similar situations. The special feelings they evoke are meaningful because they not only serve as special bonding experiences but also establish a foundation for family values. Passing down his blue *makhmal* dress to his grandchild is an implicit way of passing down family values to the next generation, as these values have the power to shape them in accordance with what the family has envisioned.

Objects are extensions of one's self. Also, they are cherished if they are hand-made or self-made. This is clearly evident from the case study of Mr. Kheemraj Rathi, a renowned craftsman of Barmer appliqué and embroidery and owner of 'Red Block Printed Women's *Odhani'* and 'Red Block Printed Girl's *Odhani'* (Figures 10 to 12).

Figure 10: Mr. Kheemraj Rathi with his son in his assigned vendor space at Craft's Museum, New Delhi

Figure 11: Red Block printed women's odhani

Figure 12: Red block printed girl's *odhani*

"Born in Pakistan in 1957 into a family of artisans, Mr. Kheemraj Rathi came to India along with his parents in 1971. The initial years were difficult for the family as there was not enough money. So they took up small jobs, and Mr. Kheemraj, alongside, began to learn the craft skills from his father, Mr. Nandlal Rathi. It's been fifty years now since he has been practicing the craft. Coming from a remote location and humble background, Mr. Kheemraj Rathi traces his love for Indian traditional arts to his childhood days. He always had an eye for art and understood the effort and complexity that go into the making of a handmade textile, especially in those days when technology was lacking. So he started collecting old pieces from the Thakurs and Sahukars (the upper class) of the surrounding villages, for whom textile inheritances were nothing more than a medium of making money. These old pieces of art give subtle clues that enable him to create

interesting motifs and designs in appliqué and embroidery that breathe new life into his creations. They are a huge inspiration that consistently guides his design aesthetic.

The bright red odhani he owns is around eighty years old, worn by the women of the elite during their wedding ceremonies. Hand-block printed in silver and gold, the odhani is a classic piece to treasure. As it's an old piece, there are signs of wear, and a part of it is also damaged on one of the sides. But Mr. Rathi is not afraid of pieces that show wear. The artisanship in things from the past is what his eye is after, and he collects what he likes.

Another piece he had was again a bright red, eighty-year-old odhani, made for a small girl, made in handspun and handwoven mulmul. This odhani had an almost similar layout as the one made for women but different patterning. The odhani features floral motifs with patterned borders adorned with silver and gold khari. 'These pieces are rare, as it's difficult to get both the odhanis made for a mother as well as for her daughter. They belong to the same family, and I bought it for 17,000 INR from an old woman who belonged to a rich family in the year 1992', Mr. Kheemraj mentioned.

Mr. Rathi's fondness for Indian textile craft is evident in his collection. For him, it's a lifelong passion. His deep curiosity for knowledge of old traditions and techniques is what keeps him going. He doesn't consider himself to be a 'collector' but leaves no opportunity to add a piece of art to his small collection whenever he finds it. He is open to selling his collection pieces, provided he gets a customer who has knowledge of and understands the value of these rare textiles. He would not just sell them for money. He even plans to have a small museum in Barmer, as he feels that collections are worth only when they are noticed."

Kheemraj Rathi provides an enduring example of how textile pieces of the past must be valued and preserved for future generations. First, it's ability to inspire the artisans for their own work, and secondly, it's hard to recreate such pieces of art. According to him, whatever is 'Made in India' should remain in India! Salute to his spirit!

Clothing objects are a reflection of one's identity and can also represent achievements in a person's life. This is clearly evident from the case study of Dr. Ruchira Ghose (Figure 13). Her account is an example of how through clothing choices, one can consolidate their own identity and inner self, both at the emotional level and in professional interactions, as she talked about some of her prized possessions.

"Dr. Ruchira Ghose is admired for her literary writings as much as she is admired for her sense of style. What sets her apart is her passion for hand-woven saris with minimalist aesthetics. From traditional handlooms to statement contemporaries, Dr. Ruchira Ghose has a rich mix of saris in her wardrobe. Born in 1950, she attributes her love for saris to her childhood days. She grew up feasting her eyes on her mother's saris and, since then, couldn't wait to wear her first sari.

Dressed in a serene white sari with streaks of black in soft mul, Dr. Ruchira Ghose shared her carefully curated finds—her simple yet exotic saris—from the creations of Rta Kapur Chisti, Neeru Kumar, Rukmini Devi Arundale, and more. She gazed at every sari she took out of her cupboard with fondness and passion, and her eyes sparkled when she talked about them.

One of her most treasured pieces from her collections is a gorgeous Kanjeevaram, bought in the early 1990s in Delhi, apparently a copy of a sari that was in the collection of Rukmini Devi Arundale in Tamil Nadu. With a wide border in contrast colors, the sari looks lovely when worn, and Dr. Ghose considers it one of her prized possessions. She remembered receiving many compliments when she wore it for a big celebration at the Swiss embassy, probably in 2015, and that was the last time it was worn. Since then, the sari has been left hanging on the rail, changing cupboards with every season! (Figure 14).

Another favorite collection of hers consists of the saris she bought from the Kalingavastra exhibition, curated by textile conservationist and cultural revivalist Martand Singh and designer Rakesh Thakore in the nineties. Simple but unusual, the saris have a unique appeal in terms of their colors and patterns. No wonder, as the collection was the result of several years of hard work by Martand Singh and Rakesh Thakore, who developed a design directory for weavers in Odisha to bring new patterns and new colors to Odisha weaving (Figure 15). Dr. Ruchira Ghose has fond memories of the exhibition, as she too was part of the project. She remembered buying around twenty saris from the exhibition for herself, her family, and friends!"

Figure 13: Dr. Ruchira Ghose

Figure 14: The checkered Kanjeevaram Sari

Figure 15: Saris from the collection of Dr. Ruchira Ghose

All these objects she has in her cupboard are soaked with her personal and professional experiences. They are an expression of her personality and achievements, generating a rewarding experience every time she sees them. Her case study clearly suggests that possessions contribute to an individual's identity (Belk, 1988), and the user may be emotionally engaged with his or her clothing objects at multiple levels of meaning and memory.

In the aforementioned case studies, the users have owned all of the clothing items mentioned for more than 25 years. The narratives provided by the users support the fact that although sustainable object attachment results from the interplay of both operative and reflective dimensions, the contribution of reflective dimensions is greater (Niinimäki, 2010; Mugge, Schoormans and Schifferstein, 2005), as it is driven by the emotions and thought processes of the individual possessing the object. It builds over time and connects the person with his or her past experiences, personal history, family values, self-identity, self-extension, satisfaction, and more. This implies that the preservation of memories can prove to be the most promising strategy for prolonging the life of a product, preventing its disposal, and thus contributing to sustainability. Attachment is highly correlated with irreplaceability and, to a much lesser extent, with functionality (Schifferstein and Zwartkruis-Pelgrim, 2008). The reasons underlying attachment may be different in all cases, but the common point is that all objects are cherished for the memories they evoke—those of the past and those that have accumulated over time—and that attachment varies with the duration of ownership (Schifferstein and Zwartkruis-Pelgrim, 2008). Dr. Kusum Chopra initially valued her object for its connection with her grandmother, then for its functionality, and now she is willing to part with it as she feels that her objects are of great value to the students. Mr. Kheemraj Rathi bought the object to make it a part of his collection and take inspiration from it for his own work. Now he cares for the object as, being an artisan himself, he

understands that such pieces cannot be recreated; hence, they should be preserved well for future generations. Products may remain unchanged, but their relationship with and meaning to the owners change over time (Niinimäki and Armstrong, 2013). Mr. Satya Narain Agarwal valued his object as it was representative of family traditions, while his granddaughter Anya valued it as a reminder to her of her beloved grandfather. Clothes reveal the identity of the wearer. When connected with significant events or occasions in professional and personal lives, they become more meaningful in communicating confidence, comfort, status, and feelings that make them worthwhile. From Dr. Ruchira Ghose's account, one can discern that passion, along with memories, makes one hold on to textiles for life.

Conclusion

From the above discussion, it can be concluded that clothing objects are not merely valued for their functionality. They are also cherished for their nostalgic value, as they tell stories of the past, remind users of their loved ones, reflect values, and contribute to human identity. These items have many trajectories, from family heirlooms to individual mementoes (Stallybrass and Stewart, 1993) and hand-me-downs to reused and recycled items (Norris, 2005). In order to get a better understanding of what humans were, what they are, and what they will be, it is important to understand what goes on between them and their possessions (Csikszentmihalyi and Halton, 1981).

Most of the treasured keepsakes are old, handmade, high-quality pieces made from more sustainable processes and raw materials that can last longer. They are timeless pieces that have the potential to lead the way for slow fashion, a concept that is already making strides in the fashion industry but whose current approach is ad hoc. Fostering personal connections with textile possessions can prove to be a strategic approach towards sustainability. Products with which the users experience attachment tend to last longer as the users want to prolong the memory; hence, they prolong the item by taking greater care of it, thus contributing to a sustainable society. Studies have been done using a quantitative approach to examine product attachment, but few insights have been provided by them into the underlying emotions and memories that the products hold—a crucial factor in determining consumer-product attachment. Therefore, both quantitative and qualitative studies are necessary to provide a thorough understanding of the concept of product attachment (Mugge, Schoormans and Schifferstein, 2005). If durability is considered to be one of the most obvious strategies for longevity of product life span (Weizsacker, Lovins and Lovins, 1997, as cited in Ramirez and Ward, 2015), there is certainly a need for a more holistic approach to durability—one that not only considers an item's physical but also emotional resilience.

References

Bayus, B.L., and Gupta, S., 1992. An empirical analysis of consumer durable replacement intentions. *International Journal of Research and Marketing,* [e-journal] 9(3), pp.257-267.

https://doi.org/10.1016/0167-8116(92)90021-C.

Belk, R.W., 1988. Possessions and the Extended Self. *Journal of Consumer Research*, [e-journal] 15(2), pp.139–168. https://doi.org/10.1086/209154.

Cooper, T., 2005. Slower Consumption: Reflections on Product Life Spans and the "Throwaway Society". *Journal of Industrial Ecology.* [pdf] Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1162/1088198054084671> [Accessed 17 August 2022].

Csikszentmihalyi, M., Halton, E., 1981. The Meaning of Things: Domestic Symbols and the Self. *Contemporary Sociology a Journal of Reviews,* 12*(4),* 1-14. [online] Available at: <https://www.researchgate.net/publication/224927533> [Accessed 19 June 2023].

Davis, Gary 2002. Prolonging the Pleasure. In *Pleasure with Products: Beyond Usability*, eds. William S. Green and Patrick W. Jordan, London: Taylor & Francis, 315-319.

Debell, M., and Dardis, R., 1979. Extending Product Life: Technology Isn't the Only Issue. *Advances in Consumer Research*, 6(1), pp.381-385. [online] Available at: <https://www.acrwebsite.org/volumes/9580> [Accessed 18 August 2022].

Fast Fashion and Its Environmental Impact. In: Maiti, R. *earth.org* [online]. Hong Kong, June 2022. Available at: <https://earth.org/fast-fashions-detrimental-effect-on-the-environment/> [Accessed 20 August 2022].

Hinte, E.V., 1997. *Eternally yours: Visions on product endurance*. Rotterdam: The Netherlands: 010.

Hwang, Y. and Self, J.A., 2015. *Exploring Symbolic Meanings behind Personal Products of Attachment.* [pdf] Korea: International Design Congress. Available at: <https://static1.squarespace.com/static/514ba64be4b09fef8c0a47f1/t/59d430de9f8dcea3fbbd91a4/1507078368655/EXPLORING+SYMBOLIC+MEANINGS+BEHIND_KSDS_0.3_YH_JS_2015.pdf> [Accessed 4 August 2022].

Jackson, T., 2005. *Live Better by Consuming Less? Is There a "Double Dividend" in Sustainable Consumption?* [pdf] Journal of Industrial Ecology, Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1162/1088198054084734> [Accessed 17 August 2022].

Kleine, S.S. and Baker, S.M., 2004. *An Integrative Review of Material Possession Attachment. Academy of Marketing Science Review*, 1(1). [online] Available at: <https://www.researchgate.net/publication/242546021> [Accessed 30 June 2022].

Mugge, R., Schifferstein, H.N.J. and Schoormans J.P.L., 2005. Design Strategies to Postpone Consumers 'Product Replacement: The Value of a Strong Person-Product Relationship. *The Design Journal, 8(2).* [online] Available at: <https://www.tandfonline.com/doi/abs/10.2752/146069205789331637> [Accessed 15 July 2022].

Niinimäki, K., 2010. Eco-clothing, consumer identity and ideology. *Sustainable Development*, [e-journal] 18(3), pp.150-162. https://doi.org/10.1002/sd.455.

Niinimäki, K. and Armstrong, C., 2013. From pleasure in use to preservation of meaningful memories: A closer look at the sustainability of clothing via longevity and attachment. *International Journal of Fashion Design, Technology and Education,* [online] Available at: <https://www.researchgate.net/publication/271673029> [Accessed 18 August 2022].

Norris, L., 2005. Cloth That Lies: The Secrets of Recycling in India. In: Küchler, S. and Miller, D. Ed. *Clothing and Materiality*. Oxford, New York: Berg

Papanek, V., 1984. *Design for the real world*. 2nd ed. London: Thames and Hudson.

Ramirez, K.K. and Ward, S., 2015. *A Framework for Understanding the Role of Product Attachment in Enabling Sustainable Consumption of Household Furniture*. [pdf] PLATE Conference. pp.173-181. Available at: <http://www.plateconference.org/pdf/plate_2015_proceedings.pdf> [Accessed 17 August 2022].

Schifferstein, H.N.J. and Zwartkruis-Pelgrim, E.P.H., 2008. Consumer-Product Attachment: Measurement and Design Implications. *International Journal of Design,* [pdf]. Available at: <http://www.ijdesign.org/index.php/IJDesign/article/viewFile/325/205> [Accessed 17 August 2022].

Schultz, S.E., Kleine, R.E. and Kernan, J.B., 1989. These Are A Few of My Favourite Things: Toward an Explication of Attachment as a Consumer Behaviour Construct. *Advances in Consumer Research Association for Consumer Research*. [online] Available at: <https://www.researchgate.net/publication/235361526>

Schumacher, K., and Forster, A.L., 2022. *Facilitating a Circular Economy for Textiles Workshop Report.* Report no. 1500-207. [online], National Institute of Standards and Technology. https://doi.org/10.6028/NIST.SP.1500-207.

Stahel, W.R., 1986. Product life as a variable: the notion of utilization. *Science and Public Policy*, [e-journal] 13(4), pp.185–193. https://doi.org/10.1093/spp/13.4.185.

Stallybrass, P., 1993. Worn Worlds: Clothes, Mourning and the Life of Things. *The Yale Review*, 81(2), pp.35-50.

Stewart, S., 1993. *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection*. London: Duke University Press.

Wallendorf, M. and Arnould, E.J., 1988. ”My Favourite Things”: A cross-Cultural Inquiry into Object Attachment, Possessiveness, and Social Linkage. *Journal of Consumer Research*, 14(4). [online] Available at: <https://www.researchgate.net/publication/247560620> [Accessed 18 August 2022].

Werbach, A., 2009. When sustainability means more than ’green‘. *McKinsey & Company*. [online] Available at: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/when-sustainability-means-more-than-green> [Accessed 30 June 2022].

Whiteley, N. 1993. *Design for society.* London: Reaktion Books.

About the authors

Sareekah Agarwaal is an Indian textile archivist, curator, academician, research scholar, and textile professional who obtained her Master's degree in Fabric and Apparel Science from Delhi University. She started her career as a freelancer and made her debut in the corporate world in 2006 with a consulting firm for technical textiles. She even worked as an assistant professor in the Department of Fabric and Apparel Science at Lady Irwin College, Delhi University, and also served as a senior consultant at Indira Gandhi National Open University. Sareekah has authored many chapters in books and also has some MOOCs to her credit. Sareekah is currently working at the National Institute of Fashion Technology, New Delhi, to develop a national knowledge portal named 'The Repository: Indian Textiles and Crafts (RTC)' for the Ministry of Textiles under the Craft Cluster Initiative of the NHDP program being implemented by the Office of the Development Commissioner (Handlooms and Handicrafts).

sareekah.agarwaal@nift.ac.in

Ruby Kashyap Sood is a Professor in the Textile Design department, National Institute of Fashion Technology, New Delhi, and Head of the Publication Unit. She has more than two decades of teaching experience. Her areas of specialisation include surface design, craft studies and textile art. A Master's in Textiles and Clothing from Delhi University, she has done extensive research on traditional Indian textiles and costumes. Ruby has co-authored books titled 'Celebrating Dreams – Weddings in India' and 'Traditional Indian Textiles'. Her doctoral thesis, titled 'A Study on the Metamorphosis of the Indian 'Choli' Blouse and the Development of a Readymade Sari Blouse', is an extensive body of work on the Indian blouse. She has presented research papers at prestigious conferences and published several articles in reputed journals and periodicals. She is also a member of the Advisory Board of *The Journal of Dress History*, UK.

ruby.sood@nift.ac.in

Textiles Crafts and Co-Creation as a Strategy for Sustainable Design Pedagogy

Usha Narasimhan and Shinju Mahajan

Abstract

Crafts are unique expressions of specific communities, using materials and craftsmanship that are local to the communities. India has a plethora of craft expressions, and many of these are textile crafts. The distinctive aspect of these textile crafts is their ability to match the fashion goals of consumers while contributing to sustainability. The consumption practices of people have a great impact on the planet, and within this, the impact of fashion consumption practices is greater than many others. One of the key aspects of sustainable fashion studies is finding a way to bridge fashion consumption with sustainable goals. Individuals derive pleasure from fashion, which emanates from its symbolic, emotional, visual, and wearability factors in their everyday experience. It is from this element of experience, derived from the use aspect of consumption, that fashion has the opportunity to meet sustainability. Craft products are known to be authentic and culturally meaningful, which makes them significant within sustainable practices, giving them the potential to inspire sustainable consumption. This article provides an insight into how textile crafts and co-creation can be an approach for sustainable design pedagogy, impacting sustainable practices, giving a new visual vocabulary to fashion, and helping attain environmental goals. The study attempts to develop a strategy for sustainable design pedagogy that employs the process of co-creation. The research is grounded in urban India, with Delhi and the craft clusters of Banaras, Uttar Pradesh, and Barmer, Rajasthan, as the main sites for the field study. It uses the rich craft heritage of Uttar Pradesh and Rajasthan to present the concept of co-design, which integrates crafts with the design process and has the potential to influence markets sensitive to craft traditions and sustainable fashion. The case study approach is employed to explore the use of textile crafts in creating sustainable fashion and its impact on sensitizing future designers to the relevance of crafts in times of environmental crisis.

Key Words: Sustainable design pedagogy, textile crafts, co-design, slow fashion, fashion consumption practices, prosumers

Introduction

Fashion has been shown to be an important part of both modern and postmodern studies. One example is how fashion has changed from being seen as an expensive show of wealth and status by the elite to being seen as something that everyone can enjoy in the 21st century. Technology, markets, industry, and economic structures have all made fashion a part of the ordinary and the everyday. Fashion studies include works from various scholars who have focused on its multifarious aspects even as they try to understand and define this ephemeral phenomenon. Although there are both rapid and slow changes in fashion, dress scholars have not yet identified or studied the slower ones.

Fashion is seen as a highly unsustainable industry, and this is further emphasized by the predominance of fast fashion, which has been accused of driving up consumption levels at low and competitive prices and a resultant increase in apparel waste through the high purchase-use turnover. This also brings into focus the production processes, which are further associated with sustainability issues. The rising demand for fast fashion not only requires cheap labor; it also requires cheap materials and cheap processing of the materials, which together raise questions about sustainability.

The production of fashion clothing is only one part of the sustainability debate, with the other part being the consumption of fashion clothing. While consumption of all commodities shows similar problematic issues, what calls for greater condemnation of fashion consumption, as against perhaps the latest gadget, results from fashion being considered trivial and thus fashion consumption being decadent and superfluous, with its environmental impact being higher than that of other commodities.

Production of fashion[1] is not just about the production of clothing but involves its consumption as well, making consumption practices an integral part of fashion production. Consumption involves two parts: purchase and use. While fast fashion can be identified more from the perspective of purchase, fashion consumption is more than ‘purchase’; it’s also ‘use’. It is in the use of fashion in the everyday lives of consumers that one can find the possibility of sustainability and the use of sustainable design strategies emerging within the boundaries of fashion consumption.

Sustainability and fashion

Gordon and Hill (2014) have defined sustainability as an ecological system designed to maintain balance within the environment between what is taken and what can be renewed. Sustainable fashion is also defined as ‘fashion production that

is environmentally and/or ethically conscious' (ibid.). Sustainable has also been used interchangeably with green, eco, ethical, and organic and has been subject to interpretations by practitioners and scholars as there is no standard definition.

The existing literature on fashion and sustainability comes mainly from the domains of management, business, corporate social responsibility, and practice-based studies on crafts. Perhaps the most dominant of all the sustainability issues linked to fashion involve those related to the environment arising from clothing production and consumption practices. These include the stress on the natural resources of land, water, and air arising from cotton production, the processes of dyeing and printing, the use of cheap materials that are non-biodegradable, the making of clothes in countries far away from consumers due to the desire for cheap labor, resulting in transportation costs, and the resulting carbon footprints. All of this is directly linked to excessive consumption of fast fashion, leading to landfills that are running out and bringing fashion into the limelight of environmental and sustainability debates.

The questions then arise as to how one can align fashion with sustainable practices, even as fashion maintains its role in identity formation through experimentation and communication.

Textile crafts as a strategy for sustainable design

Fletcher (2015) talks of the need for fashion to identify with the issues of sustainability that both promote and encourage urban consumer aspirations towards these issues, even as fashion connects to them emotionally to inspire and aspire. For fashion consumers looking for unique styles and desirous of an individualistic image, slow fashion[2] strategies provide them with opportunities for curating fashions and fashioning exclusive looks that inspire and connect with them. These consumers aspiring for timeless and sophisticated clothing also desire to be trendy and up-to-date.

Slow fashion connects consumers with the making of the apparel, the stories, the materials, and the makers, with cultural values influencing their purchase decisions. The clothing that is categorized as slow fashion includes enduring styles and pieces that are classic and versatile. It also increases the perceived value, which has a positive impact on both the purchase and use decisions of consumers (Jung and Jin, 2016, p. 540). Thus, slow fashion provides consumers the opportunity to rethink their relationship with clothing while combining the production practices of brands and designers with consumption habits that include both purchase (shopping) and use.

Domingos, Vale, and Faria (2022), in their literature review analysis of slow fashion consumer decision-making, identified five key concepts of consumer behavior. These include consumer motivation to purchase and use, which comes from unique and exclusive styles; values that align with the use of local materials and artisans and authenticity; concerns that include provenance, fair trade, and livelihoods; style concerns where consumers think of the versatility, reuse, and recycling; and the self-image of being exclusive, stylish, and responsible consumers who care about the local.

With design focusing on systems and strategies to address sustainability issues, craft practices can be viewed as a strategic approach offering opportunities that can make fashion align with sustainable values. Crafts are being looked at 'as a resilient response to the increasing demand for flexible, customized, and redistributed manufacturing, reconnecting communities to their local material culture and reaching global markets' (Mazzarella, Escobar-Tello and Mitchell, 2016, p.1). Textile crafts are those human-centered economic activities that give form and meaning to local materials made by hand and make small and flexible batches of clothing that have cultural and social significance (ibid.).

Crafts, especially textile crafts, have a greater chance of impacting the use value of consumption among fashion consumers and creating a positive emotional attachment to the product, leading to its extended life through extended wear and thus syncing consumption with sustainability. The narratives of origin, heritage, and the making of the product by hand, thus making it special, contribute to the emotional attachment of the consumer, along with the added knowledge that their purchase has helped others with livelihood generation. Thus, craft, on the one hand, has the potential to be a bridge between the contemporary and traditional, and on the other, it can provide solutions to issues of sustainability using slow fashion strategies.

This study focuses on how textile crafts have been used as part of sustainable design pedagogy to create and curate fashion by student designers, which meet consumer choices and thus attain sustainable goals. The study uses the fashion practices of consumers as a resource in the ideation and co-creation process by the student designers as they developed their design ideas. The study looks at sustainability from a production perspective.

Methodology

As fashion educationists and researchers, the authors have been involved with the Indian fashion industry, developing an understanding of the industry and how design

has the potential to bring about change. Being associated with the institute's initiatives in the crafts sector provided further opportunities to understand traditional crafts and the materials and processes involved through collaborative projects involving students and artisans. These collaborations and interactions led to an understanding of how design can address the issues of sustainability in fashion.

The research employs the case study approach using cases that were practice-based student projects, which bring forth the use of co-design and co-creation with artisans. It pushes for sustainable consumption and focuses on producing clothing that consumers can curate based on their personal fashion preferences.

The case studies are a component of the mega project that the National Institute of Fashion Technology (NIFT) has been working on with various textile craft clusters under the direction of the Ministry of Textiles. Students, mentored by faculty, work with artisans in India by first documenting and understanding the crafts and processes. Next, they co-create with the artisans, developing new ideas and designs in contemporary design language. Three cases have been examined where new designs were developed by student groups along with artisans in Banaras, Uttar Pradesh, and Barmer, Rajasthan.

The three projects selected have used craft techniques in the creative process, addressing sustainable ideas using slow fashion strategies. All three projects involved cluster visits, where students interacted with the artisans and co-created the range with them. The cluster visit was for a period of 10–12 days, during which the designs were discussed with the artisans and reworked where needed based on mutual discussions and input from the artisans. In the project done in *Banaras*, students developed the material in the cluster and designed and created the garments on campus. In the other two Barmer projects, students and the cluster's artisans jointly created the fabric and the clothing, with the final finishing done on campus. Further, the project from the Banaras cluster was done with two students who were part of the larger group that did the apparel collection in the Barmer cluster, which provided a longitudinal application of the pedagogy for using crafts as a sustainable design strategy.

The brief for these projects was to develop designs for urban consumers in India that can be used in many ways, keeping the slow fashion movement in perspective while showcasing the selected textile crafts using contemporary fashion language. The students had to ideate designs that would give agency to the consumers to create their own styles, thus making them a part of the fashion production process through their fashion practices.

While Mazzarella, Escobar-Tello and Mitchell (2016) presented the four pillars of environmental, economic, social, and cultural sustainability, there are numerous directions that design for and with textile craft practices can take. This research focuses on the creation of versatile garments, co-design, and realigning consumption practices with sustainable goals, thus shifting the focus on the production of fashion to achieve sustainable consumption.

Results

The use of traditional textiles and crafts has provided creative freedom to producers and consumers to imbue fashion objects with value. The use of locally sourced materials, craftsmanship, and skills, in combination with western silhouettes and styles, is finding takers among local consumers and in global markets. This cultural cross-pollination has meshed local flavors with global fashions, managing to adapt and morph them to find space in the wardrobes of urban Indian consumers, providing fashions that can be used in multiple ways and in multiple spaces.

The first case showcases the design ideas of student designers using the woven textiles of *Banaras,* keeping the urban middle-class consumer in mind. These were designed for the bridge market and are affordable to aspirational consumers.

The designs developed use traditional textiles to create contemporary western silhouettes, as seen in Figures 1 and 2. The Banaras silk sari is a staple in many homes across north India and is handed down from mother to daughter to granddaughter. These ideas can be used for repurposing these traditional saris using western silhouettes, thus extending their life. Figures 3 and 4 present the traditional sari styled with blouses that are contemporary. These give ideas on how to style the *sari* in different ways, thus curating multiple looks for the consumer. The *sari* in Figure 4 has been wrapped over a petticoat that has a lace edge visible below the *sari* length, giving a peekaboo effect and creating interesting fashion imagery for a traditional garment. Students researched consumer fashion practices and looked at how consumers created their styles by speaking to consumers and looking through their Instagram and other social media posts (with permission) to understand how they curated their looks. This helped them with their own design process and develop ideas where consumers could be a part of designing their looks.

Figure 1

Figure 2

Figure 3

Figure 4

Figures 1 to 4: Design collection using Banaras brocade

Source: NIFT Banaras Cluster Intervention 2016 – Abhinav and Aastha

The second instance is a project that students at a cluster in Barmer, Rajasthan, completed using the Ajrakh craft. As seen in Figures 5 and 6, they created clothing using Ajrakh fabrics with the intention of exploring the base fabrics and utilizing the patchwork technique that the artisans frequently used to create bed linen. The use of running stitch, generally seen in the traditional *Dohar,* a type of bedcover or quilt, has been used as a value addition in an innovative way. The collection was created keeping in mind the concept of slow fashion, where consumers could use a few quality garments in myriad ways, creating multiple styles and outfits, as seen in Figures 7 to 16.

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figures 5 to 16: Design collection using Ajrakh textiles with multiple styling options
Source: NIFT Barmer Cluster Intervention – Ajrakh craft 2017 – Abhinav, Aastha, Vishuddhi, Kajal and Shambhavi

These versatile garments, as seen in both the first and second cases, offer consumers the potential to curate their own styles and build upon their fashion practices that they use to develop their image as being fashionable or being in fashion[3]. Once again, students, at the start of the project, looked at how consumers curated their everyday looks, which aided them in the design process as they developed their ideas for designing versatile garments.

The third case is a project that students at the Barmer cluster in Rajasthan completed using the block print technique. They designed home furnishings (table and bed linen, as seen in Figures 17 and 18) using block-printed fabrics co-created by the students and the artisans, where the idea was to develop a versatile range of products that consumers can use in multiple ways, thus creating their own design stories. Here too, students did their initial research to understand how consumers curated their spaces to project their self-image and used this initial research in the design ideation.

Figure 17

Figure 18

Figures 17 and 18: Home textile block printed collection
Source: NIFT Barmer Cluster Intervention – Block Printing craft 2019 – Panya, Sudhiksha, Shipika, Surabhi, Shivangi and Ritika

In all three cases, the students ideated designs where consumers are co-opted into the production process as p*rosumers*. This is a strategy used by designers for the slow fashion movement and has the potential to disrupt the fashion practices of consumers by aligning them with sustainable consumption goals. The students co-created with artisans, providing market intelligence, and together they ideated the fabrics by reworking colors and motifs as per urban consumer preferences. The products, being versatile and adaptable, co-opt the consumers as producers of fashion, giving them the agency to curate their own looks and design stories. This allows the consumer to create new styles and new meanings through the use factor of consumption with fewer textile products and clothes.

Discussion

Kate Fletcher (2015, p.20) states, '... when we broaden the agenda for fashion beyond production and consumption of new clothes, goals for fashion and sustainability cease to be described merely in functional terms and, I suggest, emerge instead as a set of practices animated by concern for others'. Fletcher uses the words of Gary Snyder (1990) to elaborate on 'practice' as 'a deliberate, sustained, and conscious effort to be more finely tuned to ourselves and to the way the actual existing world is' (ibid.). Thus, Fletcher brings in relational fashion systems that contrast with consumerist fashions and are 'rooted in the experience and reality of the world and its contexts; they are relational' (ibid.). Within these relational fashion systems, Indian handloom and textile crafts find their expression and capture the consumer's mind space as sustainable and eco-friendly. The designs made by students using handlooms and other handmade textile crafts have the potential to disrupt fast fashion. This is because the designers can use these skills to make fashion items that can be worn in different ways and give those items new meanings. These crafts also provide the capacity for disruption within the fashion practices of the consumer through the process of associating new meanings to the fashion object from its use factor and the consumer's ability 'to 'put together' or 'assemble' the fashionable look, i.e., 'assemblage' (Woodward, 2015, p.8), creating new visual fashion vocabulary.

As the student designers learned the use of slow fashion as a sustainable strategy through these projects, they also understood their own roles as tastemakers and change agents, catering to the consumers' need to be exclusive and aiding them in curating and developing their personal styles by creating clothing that was versatile, timeless, used local traditions, generated livelihoods, and was sustainable. As one of them quoted.

"*My design philosophy when creating garments is that I need to make separates that one can add to their existing wardrobes without being overwhelmed by the stress of buying the whole look for it to make sense. It makes much more sense for someone to start with a smaller unit addition rather than buying the whole range (this is keeping in mind that no two people have the same spending capacity).*"

And this, he felt, matched very well with the slow-fashion brief for the project.

This could also be seen in the different ways the student designers stylized their ranges (as seen in the pictures of the *Banaras*, *Ajrakh,* and block-print cluster projects). The styles ideated by the students also fit the key concepts of slow fashion consumer behavior identified by Domingos, Vale and Faria (2022), making this a good pedagogical frame for slow fashion design briefs using textile crafts that can impact consumption practices. The students also learned how to co-create with artisans in a synergic and collaborative mode. As one of the groups expressed,

"It started with unlearning all the secondary information we had gathered. Ajrakh as a craft is a complex one, more of a time-intensive craft, which needs to be understood properly. With that also came the responsibility to respect the customs and norms followed by the artisans. We understood the meanings of each motif and the formats for using them. Without that information, we probably would have made misinformed decisions."

While technology has been a great driver for the democratization of fashion in India, at the same time, traditional Indian crafts and textiles too have been an equal contributor to fashion production. In fact, the designers who create fashion have been at the forefront of the usage of these traditional materials and craft occupations, thus creating a taste among consumers for these innovations. At the same time, consumers are able to relate to these crafts through their narratives of origin and processes, inspiring them in their use practices. As Fletcher (2015, p.24) states, 'when the fashion products generated are in active use, the sustainability potential of a more broadly defined fashion economy will be released'.

Conclusion

Textile crafts find resonance among consumers and their fashion practices. McIntyre (2010) argues that markets evolve in response to evolving economies, leading to the evolution of consumption patterns. Craft-based fashions sync with sustainable concepts that the discerning consumers of urban markets aspire for. This has been seen in the markets of Delhi through the presence of craft-based brands such as Anokhi, Fab India,

Good Earth, Bandhej, Taneira, and India Circus that also have a global audience. They have also made a foray into mass brands, viz., Jaypore, Tjori, Suta, etc., thus catering to this emerging segment that values the handmade.

Designing and producing versatile clothing using indigenous craft traditions, natural and sustainable materials, and sustainable processes, and creating fashions that can be used in multiple ways, contribute to the slow fashion movement. The use of design in framing a sustainable roadmap using the multiple craft traditions of India and across the world provides a working template that connects these native crafts with a global fashion audience. Combining these traditional textile crafts with fashion generates conscientious consumption instead of conspicuous consumption, even as it opens up many wonderful opportunities for the artisans and the producers. Through these processes, design students can connect with an aware market that is concerned with consuming in ways that are sustainable. They can also act as tastemakers as they curate styles using a few versatile garments for consumers who are interested in slow fashion.

Fashion consumers place importance on design, place of origin, and narratives in their everyday fashions. For the urban Indian consumer, her experience and interaction with the fashion object matter in her everyday clothing practices (Narasimhan, 2019; 2022), and 'sustainability' is something that 'emerges from' everyday practices'(Woodward, 2015, p. 132). Fashion objects that are craft-based connect consumers through the narratives of the crafts and the making of the fashion object. They also give these consumers an opportunity to experiment and develop their fashion quotient as they experience and interact with the object. These are aspects that design students can leverage both in product ideation and communication.

Acknowledgement

The projects taken as case studies in the article were sponsored by DC (Handlooms) and DC (Handicrafts) as part of the Craft Cluster Initiative of NIFT. The authors, who mentored the projects, acknowledge the Leather Design students Abhinav, Aastha, Vishuddhi, Kajal and Shambhavi (batch of 2014-2018) and Panya, Sudhiksha, Shipika, Surabhi, Shivangi and Ritika (batch of 2016-2020) for sharing their documented work that was part of their Craft Based Design Project.

Notes

1. Yuniya Kawamura separates clothing from fashion, and more explicitly, she separates clothing production from fashion production as she argues, Fashion is produced

as a belief and an ideology. People wear clothing believing that they are wearing fashion… Clothing production involves the actual manufacture of garments. The ideology of fashion needs to be sustained so that consumers return to purchase clothing labeled as 'fashion' (Kawamura 2005).

2. The term Slow Fashion was coined by Kate Fletcher and was derived from the slow food movement. It is the opposite of fast fashion and came about as a response to the fast fashion industry. It can be defined as a way to "identify sustainable fashion solutions, based on the repositioning of strategies of design, production, consumption, use, and reuse, which are emerging alongside the global fashion system and are posing a potential challenge to it." (Clark, 2008).

3. The concept of 'fashionable' has the connotation of being 'in fashion'. This means wearing clothing that is currently *la mode* and having the knowledge, competence, or taste to choose the right outfit. This means having the ability to 'put together' or 'assemble' the fashionable look—or what is known as 'assemblage'. In this, the wearer mixes different items that may have been acquired new or previously purchased (Woodward, 2015).

4. An interesting way to disrupt fast fashion is by adopting a slow approach to production and consumption and by embracing new ethical and aesthetic values at a systemic level (Mazzarella, Escobar-Tello and Mitchell, 2016).

References

Clark, H., 2008. SLOW + FASHION—an Oxymoron—or a Promise for the Future…?, *Fashion Theory*, [e-journal] 12(4), pp.427-446. 10.2752/175174108X346922.

Domingos, M., Vale, V.T. and Faria, S., 2022. Slow Fashion Consumer Behavior: A Literature Review, *Sustainability*, [e-journal] 14(5). https://doi.org/10.3390/su14052860.

Fletcher, K., 2015. Other Fashion Systems. In: Fletcher, K. and Tham, M. ed. 2015, *Routledge Handbook of Sustainability and Fashion*, London: Routledge. pp.15-24.

Gordon, J.F., and Hill, C., 2014. *Sustainable Fashion: Past, present, and future*. [e-book] London, United Kingdom: Bloomsbury. Available at: < https://www.bloomsbury.com/in/sustainable-fashion-9780857851864/> [Accessed 12 May 2023]

Kawamura, Y., 2005. *Fashion-ology: An Introduction to Fashion Studies.* Oxford: Berg.

Jung, S. and Jin, B., 2016. Sustainable development of Slow Fashion businesses: Customer value approach. *Sustainability*, [e-journal] 8(6). https://doi.org/10.3390/su8060540.

Mazzarella, F., Escobar-Tello, C. and Mitchell, V., 2016. Moving Textile Artisans' Communities towards a Sustainable Future – A Theoretical Framework. In *Proceedings of DRS 2016, Design*

Research Society 50th Anniversary Conference, Brighton, UK, 27–30 June 2016, available at: <https://hdl.handle.net/2134/20761> [Accessed 2023]

McIntyre, M. H., 2010. *Consuming craft: The contemporary craft market in a changing economy*. London: Crafts Council.

Narasimhan, U., 2019, *Fashion and Everyday Life: Popular Culture and Identity amongst the Urban Middle Class*, Ph.D., Jamia Milia Islamia.

Narasimhan, U., 2022. Fashioning Identity – A Study from Urban India, In: Foltyn, J., and Petican, L. ed. 2021, *Fashion: Culture, Commerce, Craft and Identity*. Leiden: Brill Publication, pp.349-360.

Woodward, S., 2015. 'Accidentally Sustainable? Ethnographic approaches to clothing practices'. In: Fletcher, K. and Tham, M. ed. 2014, The *Routledge Handbook of Sustainability and Fashion*. London: Routledge. pp.131-138.

About the authors

Usha Narasimhan teaches design research, design methods, and pattern design at the National Institute of Fashion Technology (NIFT) in New Delhi. She is a professor with the Department of Leather Design and is currently serving as the Chairperson for the Leather Design Program at NIFT. Having a wide industry experience with the Indian fashion sector, she has steered and handled various industry and governmental projects in the areas of design, crafts, and fashion, as well as in developing curriculum and assessment rubrics for governmental agencies. She completed her Ph.D. in Sociology from Jamia Millia Islamia, New Delhi, in the field of fashion and everyday life in urban India. She has published chapters in books and presented papers at various conferences on fashion using a sociological and cultural lens. Her research interests include fashion practices, fashion representation in media, identity, and popular culture.

usha.narasimhan@nift.ac.in

Shinju Mahajan is a Professor in the department of Leather Design and the Head of Academic Affairs at NIFT. She has a PhD in design and specializes in leather and product development. She has work experience of over 27 years, and in her teaching experience of 25 years, she has expertise in product development in lifestyle and leather accessories. She has rich industry experience and has steered various industry projects related to product innovation and value addition. She has also handled projects related to curriculum development and evaluation of programs for government agencies, projects related to traditional crafts in India, and uniform design. As an academician, Dr. Mahajan has guided many undergraduate and postgraduate students in design and management. She has various publications to her name in the areas of product design, scientific footwear design, and Indian traditional crafts in national and international journals.

shinju.mahajan@nift.ac.in

Sustainability in Fashion and Textiles Education: A Classroom Project Approach

Ruby Kashyap Sood and Anu Sharma

Abstract

In the 21st century, sustainable development has become the focus area for businesses and industries, especially the fashion and textile industry, which is largely responsible for causing harm to the planet and eco-system. The fast fashion business model has fostered overconsumption habits, leading to a huge amount of waste generation, thus impacting the environment, health, and well-being of people. Therefore, it is imperative for the fashion industry to plan sustainable business strategies that regenerate the environment, support ethical practices, and yet support economic growth.

Sustainable development can be achieved only through the efforts of designers, manufacturers, retailers, organizations, academia, and government, and by building consumer awareness. Fashion institutes nurturing professionals for the industry should take up the responsibility to integrate sustainability into their curriculum and impart training to develop competent individuals who can drive effective sustainable models in the industry. UNESCO's Education for Sustainable Development (ESD) for 2030 endeavors to empower individuals to make informed decisions and collectively change society and protect the planet. To inculcate an effective understanding of sustainability, the pedagogical approach in ESD entails interactive, engaging, and experiential training for learners.

This research examines a case study where a real-time project was integrated into the Surface Design Project module for third-year textile design students. The objective was to impart understanding of sustainability through project-based learning with continuous feedback from the industry. The pedagogy and subject deliverables were restructured based on the education for sustainable development (ESD) framework. Through this study, the researchers assessed the impact of the project on students' understanding and application of sustainable practices to achieve surface designs. Following completion of the project, an assessment was conducted by subject faculty and the industry sponsor, and a structured questionnaire was distributed to the students

to solicit their feedback. The findings demonstrate the relevance of an industry-linked classroom project that significantly enhanced the students' learning and experience in the domain of sustainable design.

Keywords: Sustainability, classroom project, pedagogy, industry collaboration, experiential learning

Introduction

The fashion industry is one of the most significant industries in the world, with a noteworthy contribution to the global economy. According to Statista (2021), the total consumer spending on apparel and footwear globally is estimated to reach 2,571,939.42 million USD by 2025. The ever-growing textile and apparel industry is mainly blamed for causing ecological disturbance due to excessive use of resources, chemicals, and mounting landfills. Preuit and Yan (2017) state overconsumption of clothing as a major concern, which drives businesses to manufacture more and more products, thus pushing consumers to purchase new items and discard older clothes while they are still wearable. The growing population and increasing pressure on Earth and its natural resources are serious concerns that require immediate attention towards sustainability.

Sustainable fashion is a widely used term in today's world, gaining the attention of all stakeholders, including industry, governments, academia, and consumers. Though there are several conversations revolving around fashion sustainability, there is limited conceptual understanding; therefore, terms like eco-friendly, green fashion, organic, biodegradable, or zero-waste fashion are used interchangeably. The term 'sustainability' is used in the context of both environmental and social concerns; thus, sustainable fashion encompasses ethical fashion as well as eco-fashion (Payne, 2018).

Shen and Sethi (2021) are of the view that over the years there has been a lot of discussion about making the fashion industry sustainable, but sadly, sustainability efforts have declined. The fashion industry has a commercial approach that entails quick design solutions to cater to the market, thus making it challenging for designers to reflect on the environmental impact and ethical sourcing while designing products (Smal, 2014). Mora, Rocamora and Volonte (2014) explain the difficulty of making fashion sustainable due to the complex textile supply chain from farming to retail, where each step contributes to damage to the environment or the health and wellbeing of the workers. The biggest challenge for the fashion industry would be to balance sustainable fashion production with consumer preference for a wider range of affordable products (Gong, 2014).

According to trend forecaster Geraldine Wharry, as cited in the BOF & Mckinsey 2022 report, there exists a wide spectrum of consumption patterns, ranging from rising ultra-fast fashion consumption to the conscious consumer. However, she predicts a change in the future where mindful consumers may try to connect their purchases with their impact on society, while others might make an effort to recycle and reuse their possessions. To bring about a change, sustainability needs to be an integral part of fashion education in order to train environmental thinkers, socially responsible professionals, and conscious consumers. According to Armstrong and LeHew (2013), there is a huge responsibility on education to respond in order to prepare 'sustainability-minded change agents' who will lead the way to develop and evolve strategies for green fashion. Morrish (2017) elucidates the urgent need to educate learners and prepare them to adapt and embrace change within their practice, responding to social, economic, cultural, political, and environmental factors. A study by Onur (2020) affirms that design education can be an important means to develop an ethical fashion structure when its values and principles are reinforced by responsible and conscious individuals.

Education for Sustainable Development (ESD), conceived by UNESCO, addresses global challenges like global warming, decreasing biodiversity, rampant use of resources, and inequality. The collective action of humans has modified the planet's ecosystems, leading to severe consequences. ESD endeavors to provide learners with knowledge, skills, and values to make informed choices and decisions and nurture the planet for a better future. The ESD framework encourages the integration of sustainability issues into all types of learning through project-based, interactive, and learner-centric pedagogy. The objective is to empower learners to be responsible for the present and future generations for a dynamic 'societal transformation', thus building a more sustainable planet (UNESCO, 2020). Previous studies indicate the integration of the ESD framework in the fashion and textiles curriculum for effective learning and application of sustainable practices. A case study conducted by Armstrong and LeHew (2013) describes the holistic application of ESD in an apparel product development course that enhanced the students' learning experience. Lim (2020) presents another case study on practice-based learning through a zero-waste fashion design module conducted with Fashion Design students of Birmingham City University that augmented students' understanding about sustainable fashion and manufacturing.

Project Implementation

The classroom project was undertaken as part of the Surface Design Project subject with third-year students of the Textile Design Department at the National Institute of Fashion Technology (NIFT), New Delhi. This project was sponsored by the Centre of Excellence for Khadi[1] under the aegis of Khadi and Village Industries Commission,

Ministry of MSME, in association with NIFT. The project brief entailed an in-depth study of Khadi as a material, an understanding of sustainable practices, and following the same to develop creative surfaces on Khadi for designing home and apparel collections. Prior to the project, students were aware of the value-addition on fabric and equipped with surface ornamentation skills, including embroidery, resist-dyeing, printing styles and methods, and different fabric manipulation techniques.

Methodology

The main objective of the study was to assess the students' learning and application of sustainable practices to attain the deliverables of the design project. The central research question revolved around students' experience during the implementation of the project and the impact of a real-time sustainable design project on the overall learning outcomes. To conduct the research, a qualitative case study approach was most appropriate in order to conduct an in-depth, detailed analysis of a group of students within a realistic situation. The sample included a total of 39 third-year Textile Design students: 17 Textile Design students with a specialization in apparel and fashion accessories and 22 Textile Design students with a specialization in home and spaces. The key learning outcomes envisaged were an understanding of Khadi as a material and the application of sustainable design concepts for design developments.

The pedagogical framework followed is depicted in Figure 1. The project started with an introduction to the project brief and a session by the CoEK design team on Khadi as a sustainable fabric and the sustainable approaches followed by the Center. The entire class was divided into smaller groups (5 to 6 students per group) to conduct a market survey on Khadi fabrics and products through e-commerce platforms and physical stores run by KVIC in Delhi and NCR. The second assignment entailed a study of apparel and home textile brands that practice and apply sustainable design methods to their end products.

As part of the project brief, CoEK had assigned three India-centric themes to the class. The students were divided into three groups to brainstorm on the theme and develop research boards. This was followed by the development of the inspiration board, technique and trim board, look board, and client board by each student. Further, based on the design direction, creative surfaces were developed using sustainable methods and techniques.

To gauge the students' experience and understanding of sustainable design and practices post-project, a structured questionnaire comprising closed-ended and open-ended questions was developed. The link to the questionnaire prepared on Google Forms was shared with all 39 students who participated in the project. The close-ended questions

were measured using a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Questions related to students' learning about sustainability and their views about the project experience and outcomes were incorporated to analyze the impact of the industry-linked classroom project. The personal information, including student names, was not asked for in the questionnaire in order to illicit an honest response from the students. Further, students were also informed regarding maintaining confidentiality about their identities and comments.

The study employed a mixed-methods approach combining quantitative and qualitative data analysis. The close-ended responses obtained from the questionnaire were analyzed using descriptive statistics, and the open-ended questions were analyzed using content and narrative analysis. Both quantitative and qualitative data were interpreted to conclude the findings. According to Chandrasekaran and Al-Ameri (2016), assessment of a project is the method of reviewing, interpreting, and making judgments about students' learning. The researchers also took into consideration the evaluation of students' design developments and feedback from the client (CoEK) following the completion of the project.

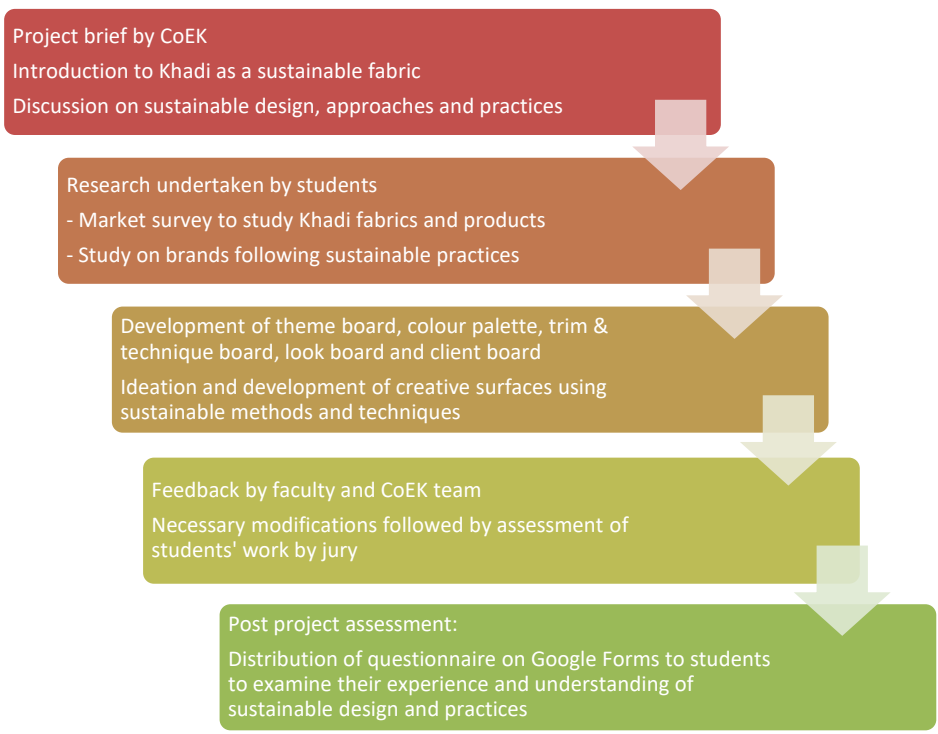

Figure 1: Framework of the industry-linked project and assessment

Results

The following findings are based on the student responses obtained from the questionnaire. Responses were received from 32 students. The questionnaire was structured to assess the students' understanding of sustainability and practical application to achieve value addition on Khadi. The questions were also framed to ascertain the impact of a live industry-linked project in comparison to other hypothetical design projects. The close-ended questions were formulated as statements that were measured using a 5-point Likert-type scale.

To gauge their understanding of sustainability, students were asked if they were aware of sustainable design and its approaches prior to the project. It was observed that 46.9 percent of students strongly agreed, and 37.5 percent were in agreement that they were aware of sustainable fashion concepts even before the project was introduced (Figure 2). The finding indicates that the majority of the students were familiar with the concepts and principles of sustainable design.

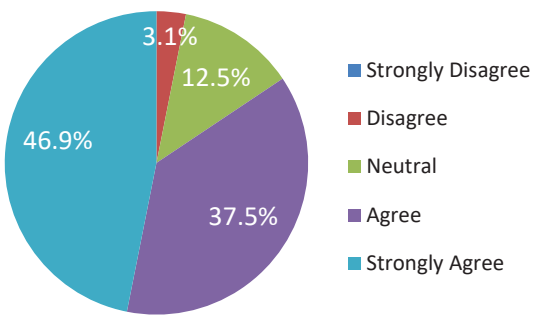

Figure 2: Response to 'I was aware about sustainable design and its approaches even before the project was introduced'

The respondents were asked if the classroom project increased their knowledge and understanding of sustainable design and practices. 46.9 percent of the class strongly agreed that the classroom project enhanced their knowledge regarding sustainable practices, and 37.5 percent of the respondents agreed with the statement (Figure 3). It can be observed that for most of the students, the classroom project provided an opportunity to broaden their perspective on the subject of sustainability.

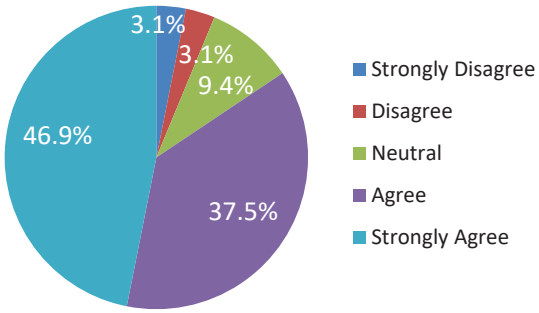

Figure 3: Response to 'The classroom project enhanced my learning about sustainable design and practices'

One of the learning outcomes of the project was to develop an understanding of Khadi as a fabric and its relevance as a sustainable material of national importance. It was noticed that 65.6 percent of the respondents strongly agreed, and 25 percent concurred with the statement that their knowledge about the Khadi fabric had expanded while doing the classroom project (Figure 4). The data demonstrates that the classroom project served as a catalyst to provide deeper insights and appreciation for the traditional Khadi fabric to the students.

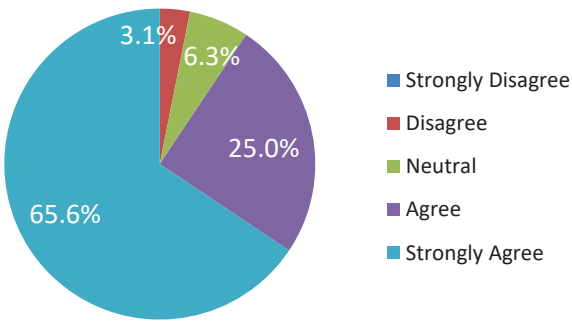

Figure 4: Response to 'The project increased my knowledge about Khadi fabric'

It was important to determine if the project helped students use sustainable methods for designing and developing the surface swatches. Figure 5 depicts that half of the class strongly agreed, and another 28.1 percent were in consensus that the classroom project assisted them in employing sustainable processes for designing creative textile surfaces. The findings reveal the significance of the hands-on project that assisted students to learn and imbibe different techniques for sustainable development of value-added Khadi samples.

The participants were asked if the application of sustainable techniques and practices enhanced their creative design process during the project. 37.5 percent of the class strongly agreed and another 37.5 percent agreed with the statement, while 21.9 percent were neutral on the statement (Figure 6). The data reveals that 75 percent of the class was of the view that sustainable methods and practices augmented their creative thinking and design process during the classroom project.

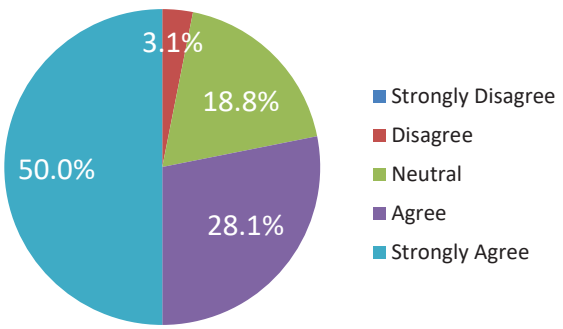

Figure 5: Response to 'The classroom project helped me to use sustainable approach and methods for designing'

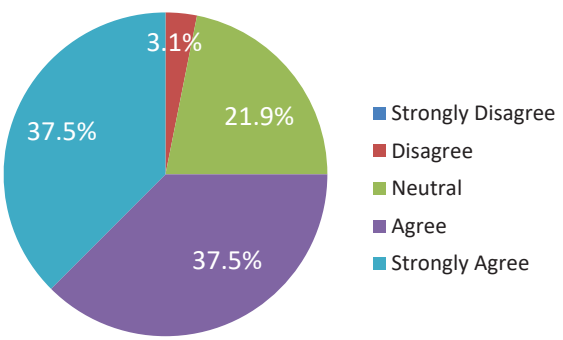

Figure 6: Response to 'Sustainable techniques and practices enhanced my creative thinking and design process'

An important research objective was to ascertain if the design project contributed to inculcating sustainability-driven attitudes, values, and preferences in future designers. 68.8 percent of the class strongly supported the idea of using sustainable design practices in their future projects, and 25 percent supported the idea (Figure 7). Regarding awareness about environmental concerns, 50 percent of the students strongly agreed

and 37.5 percent agreed with the statement, making an overall 87.5 percent of the class concur that they have become more aware of environmental issues pertaining to the fashion industry following the project (Figure 8). In response to the statement 'As a future designer, I would make efforts to make consumers aware regarding responsible buying', 65.6 percent of the class strongly agreed and 28.1 percent of the respondents agreed, thus a total of 93.7 percent were in agreement with the statement (Figure 9). The findings illustrate that the project instilled in students the importance of the environment and social responsibility as professionals in the field of fashion. The project helped pave the way for young designers to create eco-friendly and socially conscious designs and make sustainable choices to prioritize the planet and its people in their future design endeavors.

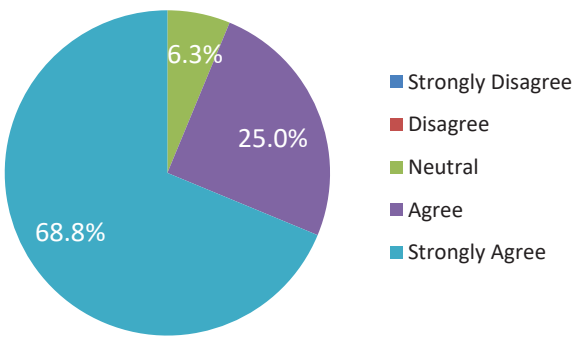

Figure 7: Response to 'I would like to use sustainable design practice in all my future projects'

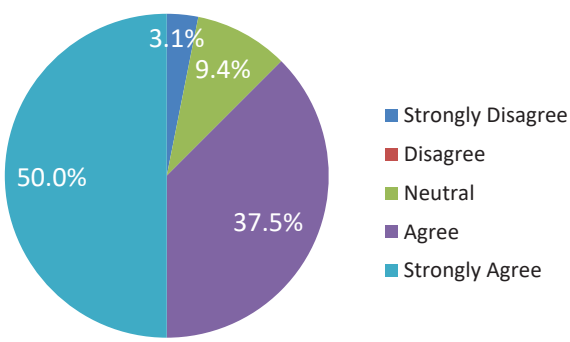

Figure 8: Response to 'Post project, I have become more aware about the environmental issues pertaining to the fashion industry'

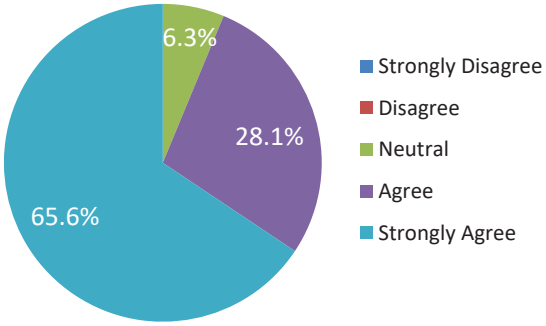

Figure 9: Response to 'As a future designer, I would make efforts to make consumers aware regarding responsible buying'

The study also attempted to examine changes in students' buying behavior post-project. Figure 10 indicates that 43.8 percent of the participants showed a strong inclination to buy Khadi products, and another 37.5 percent showed an interest in purchasing Khadi. Responding to the statement 'Following the project, I am interested in buying sustainable products', 62.5 percent strongly agreed and 28.1 percent agreed to the statement (Figure 11). The data highlights that post-project, the majority of the students developed a greater appreciation for hand-spun and hand-woven fabric and also the importance of making conscious choices as consumers.

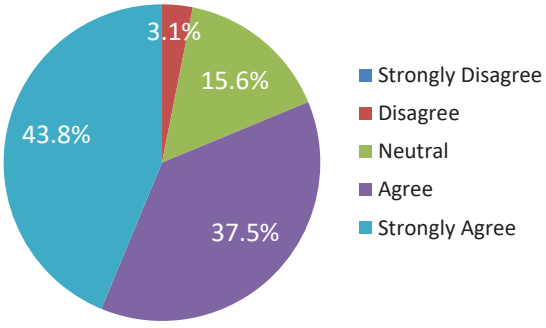

Figure 10: Response to 'I am interested to purchase Khadi products'

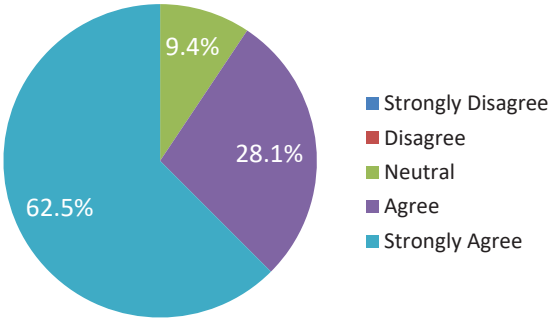

Figure 11: Response to 'Following the project, I am interested to buy sustainable products'

The questionnaire included four open-ended questions to infer students' understanding of sustainable design, learning outcomes, and the overall experience of an industry-linked classroom project. The students were asked about the key sustainable facts learned during the implementation of the project. The students' comments covered sustainable practices and techniques, from raw materials to end products and the product life cycle. Students mentioned the use of natural fibers, natural dyes, biodegradable trims, zero-waste planning, and a focus on reusing and recycling approaches. Some of the students specifically raised the concern of plastic as a non-sustainable material and its replacement with biodegradable materials. One student hinted that 'plastic trims affect the environment to a high extent' while another added 'no use of plastic in the form of buttons'. Two students were of the view that 'sustainable can also be beautiful'.

The response from students conveyed their in-depth understanding of Khadi as a sustainable material that is environmentally friendly and an income generator for India's rural communities. The following are representative comments that display students' understanding:

- "The spinning of Khadi does not use machines or energy and therefore has a low carbon footprint. The manufacturing and production processes make Khadi sustainable."
- "Khadi focuses on labor intensity and the provision of jobs to artisans and weavers."
- "Khadi clusters generate direct income for our rural communities."

The project exposed students to different sustainable brands in their secondary research; as stated by a student, "I got to know about various sustainable brands in the market and how they are using different practices to make eco-friendly products", alongside a snide comment, "The reality of the brands...".

The students were asked to elucidate the sustainable methods and techniques they incorporated to create surfaces for the classroom project. The students indicated the usage of natural materials and trims as well as handcrafted surface embellishment techniques like hand embroidery, tie-dye, block printing, and eco-dyeing. The students also emphasized the utilization of waste fabric scraps to execute appliqué and patchwork. Some of the students mentioned the application of natural dyes like turmeric, tea, and coffee on Khadi to make it completely sustainable. Special care was taken to select materials and trims for value addition that do not cause harm to the environment. Many students indicated 'the'replacement of plastic trims with metal, wooden, or cloth trims'. Figures 12 to 17 represent some of the surface swatches developed by students during the module.

Figure 12: Turmeric dyed swatch with fabric manipulation by Ms. Aishani Debnath

Figure 13: Fabric scraps coiled and applied on surface with hand embroidery by Ms. Anushca Gangwar

Figure 14: Appliqué with fabric scraps and hand embroidery on coffee dyed fabric base by Ms. Mugdha Prashant Kulkarni

Figure 15: Metal rivets attached on ombre dyed fabric by Mr. Shubham Raj

Figure 16: Patchwork with left over fabrics highlighted with block printing and hand embroidery by Ms. Tanvi Jain

Figure 17: Waste yarns and fabric strips couched using hand embroidery on tea dyed fabric by Ms. Tanvi Jain

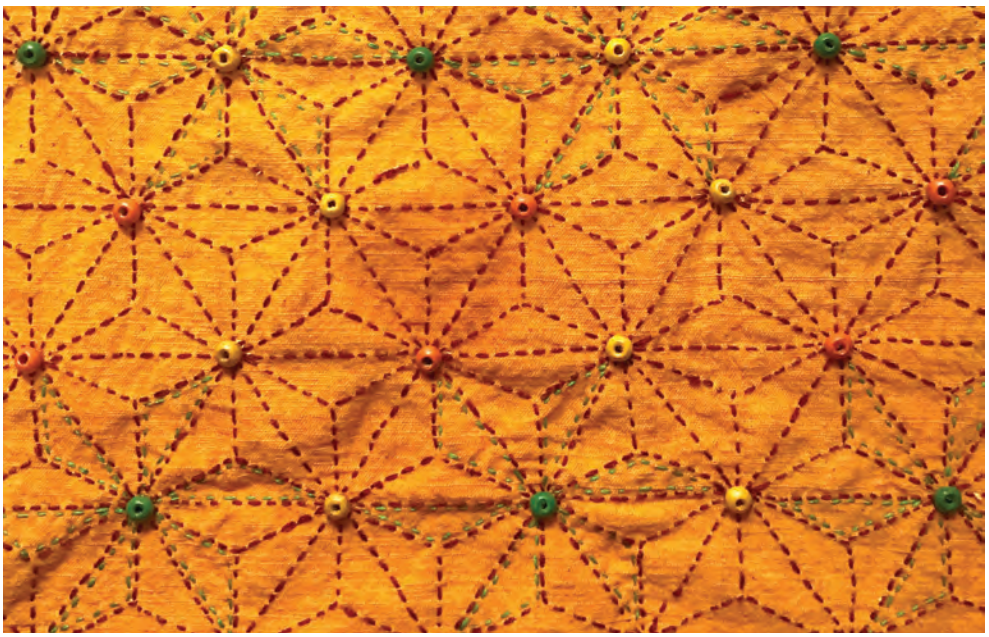

Figure 18: Hand embroidery with wooden beads on turmeric dyed fabric by Ms. Vipra Neema

Constraints are an integral part of any design project. Responding to the constraints experienced during the project, 15.6 percent of the participants faced time management issues. The other limitations stated by students were related to material constraints, keeping in view the sustainable approach that had to be followed for the development of surface swatches. The constraints related to materials are evident from student comments like “avoiding any unsustainable embellishment”, “achieving the desired effect without harming the environment”, “working with fine-quality Khadi, as it was for the first time”, “attaining a minimalistic look on the handmade Khadi” and “challenging to plan sustainable techniques on Khadi”. Few students conveyed issues pertaining to dyeing and color matching as per the color palette given by CoEK for the surface developments.

To obtain students’ perspectives on the project experience, they were asked to share their views on how the industry-linked classroom project was different from other design projects undertaken by them during the course. On the basis of the responses received from the participants, three key learning outcomes emerged. The first learning was the real-time application of sustainable practices in a design project. As mentioned by a student, “This project was completely sustainable in terms of fabric usage, printing, or surface techniques”. Most of the participants felt that the project enhanced their understanding of sustainable design and approaches and challenged their minds to conceptualize environment-friendly innovative ideas. A student states, “The project made me aware that creativity lies in sustainability, and its application can broaden one’s thinking process”.

Secondly, the project increased students’ awareness and knowledge about Khadi fabric. For the majority of students, handling Khadi was a first-time experience. Some of the participants indicated that the project generated interest in Khadi, India’s pride and future flag bearer for sustainable development. Few respondents hinted at an emotional connection with Khadi; as one student added, “It felt like a contribution to craft and nature”.

Thirdly, the students valued the hands-on live project with ongoing feedback from the industry. The following are student comments that demonstrate their experience during the project.

- “This project was one of the most hands-on projects. Each step involved careful planning and implementation. Definitely gave a sense of accomplishment upon completion.”

- "Industry mentors gave feedback on our explorations, which helped us understand the desired outcome."
- "One-on-one conversation with the actual buyer."
- "Designing with a production-friendly approach."

It is deduced that the integration of a real-time industry project in the module enhanced the students' overall learning experience. The CoEK project gave students the opportunity to practice and follow a sustainable approach to achieve the desired outcomes, and in the process, they developed an appreciation for Khadi as a material. The 'learning by doing' approach, coupled with interactive sessions and continuous feedback from the industry, improved student engagement and performance.

Analysis

Design education is an essential means to impart relevant knowledge to young designers and equip them with skills and abilities to handle the challenges of today. With the increasing requirement for sustainability specialists in the industry, integrating sustainability studies into the fashion and textiles curriculum is of utmost importance. Incorporating sustainability into the course is 'a responsible action by the educators' to ensure the employability of students after graduation (Lim, 2020).

The industry-linked classroom project conducted by the researchers was an attempt to strengthen students' understanding of sustainable design through real-time learning. Based on the responses obtained from students, it was determined that the majority of the class was already aware of sustainable design and its approaches before the commencement of the project. However, the classroom project was meaningful and fruitful in many ways. It served as a platform for students to develop a better understanding of sustainable practices followed by home textile and apparel brands. The theoretical understanding of sustainable design was further strengthened due to the practical approach followed to develop sustainable surface swatches. Interactive sessions, consistent feedback, and critique from faculty and industry mentors further enhanced students' learning and led to improvements in their design concepts and implementation. The CoEK project entailed the use of only Khadi fabric. The project increased students' knowledge about Khadi, which was being handled for the first time by most of the students. The constraints of using sustainable techniques and materials in Khadi encouraged students to explore and innovate in a sustainable manner, thus enhancing their creative design ideation process and skills. Working closely with hand-spun and hand-woven Khadi instilled a sense of pride among students as a means to promote India's fabric and artisans.

After the completion of the project, the majority of the class expressed their interest in incorporating sustainable practices into their future projects. Through this project, students became aware of the environmental issues concerning the fashion and textile industries, and based on their learning, they indicated their eagerness to make consumers aware of responsible buying behavior. The project also inspired students to make sustainable consumption choices. The project was a small step to train young minds to be responsible and conscious professionals with the abilities to strategize and design sustainable solutions.

The success of an industry-linked project can be gauged from the students' performance and the approval and acceptance of designs by the sponsor. In this project, the final surface developments (five per student) were submitted to the CoEK office. According to the terms and conditions of the project, CoEK would purchase the twenty best designs. However, the design team selected twenty-nine of the best surfaces. The selected students were conferred with a cash prize (per swatch) and a certificate of appreciation. The remaining surface developments were also acknowledged by the CoEK team, which will be displayed on their knowledge portal with a credit line to the student as the creator of the swatch.

Conclusion

Design for sustainability is a critical input that will assist designers to re-imagine and reframe industry practices, strategically address concerns, and implement sustainable fashion practices. Designers can play a crucial role as change agents in the industry, impacting production and consumption patterns, facilitating awareness among consumers, and influencing their choices.

The study provides a pedagogical framework to integrate sustainable practices into an industry-linked project for focused learning through a hands-on, practical approach. The research emphasizes the relevance of applying sustainable knowledge to design projects to gain a more holistic understanding of the subject. Developing a perception of sustainable fashion is critical, keeping in mind the growing environmental changes. Projects integrating sustainability serve as a platform to inculcate sustainable practices and educate young designers to make conscious decisions while designing, from the selection of raw materials, the process of making, and ethical sourcing to packaging. Such projects play an important role in generating awareness among future design professionals in order to change attitudes, values, and mindsets towards environment-friendly and socially responsible fashion.

The research also points towards the importance of industry collaboration for design projects to strengthen students' understanding of sustainability and its application as a regular design practice. Industry-linked projects help in bridging the gap between academia and industry, as they impart a unique opportunity to students to apply their learning in a real-time situation. Integrating with the industry can help in innovative problem solving that can lead to out-of-the-box thinking and successful ideas to support fashion businesses. Integration of sustainable practices in design projects assists in empowering designers to develop designs responsibly in order to conserve depleting resources, minimize waste, promote fair labor and ethical practices, and curtail the carbon footprint for a healthy planet.

Considering the fashion and textiles industry is a major contributor to global warming and climate change, it is crucial for fashion educators to rethink and restructure their curriculum and pedagogy in order to prepare sustainability-minded young professionals who are equipped to integrate eco-consciousness and ethical practices in the business of fashion.

Acknowledgement

The project was sponsored by the Centre of Excellence for Khadi (CoEK), an establishment set up by Khadi and Village Industries Commission, Ministry of MSME, in association with NIFT. The authors would like to thank Prof. Sudha Dhingra, Director, CoEK, and acknowledge the efforts of Ms. Nargis Zaidi, Head, Apparel, and Ms. Sunanda Dawar, Head, Textiles, for their guidance and feedback on the students' work during the project.

Note

1. The Centre of Excellence for Khadi (CoEK) was conceived by the Ministry of MSME to address the needs of the Khadi and Village Industries Commission (KVIC). The Center aims to build on the patronage of Khadi and develop associations with high-end domestic and international markets. It is a center for experimentation, innovation, and design for Khadi fabrics, apparel, home textiles, and fashion accessories.

References

Armstrong, C.M. and LeHew, M.L.A., 2013. A case study in sustainability and fashion education: adventures on the green. *Journal of Sustainability Education*, 4.

BOF and McKinsey & Company, 2022. *The state of fashion 2022*. [pdf] Available at: <https://www.mckinsey.com/~/media/mckinsey/industries/retail/our%20insights/state%20of%20fashion/2022/the-state-of-fashion-2022.pdf> [Accessed 1 August 2022].

Chandrasekaran, S. and Al-Ameri, R., 2016. Assessing team learning practices in project/design based learning approach. *International Journal of Engineering Pedagogy*, 6(3), pp.24-31.

Gong, M., 2012. *Sustainable fashion design: transformable garments for versatility and longevity*. Masters Thesis. Toronto: Ryerson University.

Lim, H.-W., 2020. An institutional approach to sustainable fashion: a case study of zero waste fashion. In *Circular Economy Symposium*. Huddersfield, 2020. University of Huddersfield.

Mora, E., Rocamora, A. and Volonté, P., 2014. On the issue of sustainability. *International Journal of Fashion Studies*, 1(2), pp.139-47.

Morrish, D., 2017. Sustainable Fashion Tailoring: An approach for creating a heightened emotional attachment to garment apparel at undergraduate level, through pedagogy, story telling, digital technologies and traditional craftsmanship. In Bakker, C. and Mugge, R., eds. *PLATE: Product Lifetimes And The Environment Conference Proceedings*. Amsterdam, 2017. IOS Press.

Onur, D.A., 2020. Integrating circular economy, collaboration and craft practice in fashion design education in developing countries: a case from Turkey. *Fashion Practice*, 12(1), pp.55-77.

Payne, A., 2018. Teaching sustainable fashion through ethics and encounters. *Journal of the Home Economics Institute of Australia*, 25(1), pp.2-9.

Preuit, R. and Yan, R.-N., 2017. Fashion and sustainability: increasing knowledge about slow fashion through an educational module. *International Journal of Environmental & Science Education*, 12(5).

Shen, L. and Sethi, M.H., 2021. Sustainable fashion and young fashion designers: are fashion schools teaching sustainability? *Fibres and Textiles in Eastern Europe*, 29(5).

Smal, D., 2014. Environmentally sustainable fashion: a design-led approach. In Breytenbach, A. and Pope, K., eds. *Design with the Other 90% - Cumulus Johannesburg Conference Proceedings*. Johannesburg, 2014. Greenside Design Center and the University of Johannesburg.

Statista, 2021. *Forecast of the total consumer spending on clothing & footwear in the World from 2010 to 2025*. [Online] Available at: <https://www.statista.com/forecasts/1161735/fashion-consumer-spending-forecast-in-the-world> [Accessed 1 August 2021].

UNESCO, 2020. *Education for sustainable development: a roadmap*. [Online] Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000374802.locale=en> [Accessed 17 August 2022].

About the authors

Ruby Kashyap Sood is a Professor in the Textile Design department, National Institute of Fashion Technology, New Delhi, and Head of the Publication Unit. She has more than two decades of teaching experience. Her areas of specialization include surface design, craft studies and textile art. A Master's in Textiles and Clothing from Delhi University, she has done extensive research on traditional Indian textiles and costumes. Ruby has co-authored books titled 'Celebrating Dreams – Weddings in India' and 'Traditional Indian Textiles'. Her doctoral thesis, titled 'A Study on the Metamorphosis of the Indian 'Choli' Blouse and the Development of a Readymade Sari Blouse', is an extensive body of work on the Indian blouse. She has presented research papers at prestigious conferences and published several articles in reputed journals and periodicals. She is also a member of the Advisory Board of *The Journal of Dress History*, UK.

ruby.sood@nift.ac.in

Anu Sharma is an Associate Professor in the Textile Design department and has more than 17 years of teaching experience as an academician at NIFT Delhi. She did her doctoral research on double cloth using camel hair, titled 'The Double Cloth from Napasar, Rajasthan: An Intervention Study'. Anu is a postgraduate in textile design from NIFT Delhi, with a specialization in home fashion textiles. Her areas of specialization are home products, design fundamentals, weave design, portfolio design, sustainable design, and new product development. She has several publications and presentations in the area of weave design, trends in the handloom sector, textile fabrics, and product innovation in national and international journals and conferences, with two articles published in Scopus-indexed journals.

anu.sharma@nift.ac.in

Profiles of the Members of the Editorial Board

Ruby Kashyap Sood, Editor-in-Chief

Ruby Kashyap Sood is Professor in the Textile Design department, NIFT, New Delhi, and Head of the Publication Unit. She is on the Board of Directors at Apparel Made-up, Home Furnishing Sector Skill Council. Ruby has more than two decades of teaching experience. Her areas of specialization include surface design, craft studies, and textile art. With a Master's in Textiles and Clothing from Delhi University, she has done extensive research on traditional Indian textiles and costumes. Ruby has co-authored books titled 'Celebrating Dreams: Weddings in India' and 'Traditional Indian Textiles'. Her doctoral thesis, titled 'A Study on the Metamorphosis of the Indian 'Choli' Blouse and the Development of a Readymade Sari Blouse', is an extensive body of work on the Indian blouse. She has presented research papers at prestigious conferences and published several articles in reputed journals and periodicals. She is also a member of the Advisory Board of *The Journal of Dress History*, UK.

ruby.sood@nift.ac.in

Deepak Joshi, Associate Editor

Deepak Joshi has a PhD in management and is UGC NET-Management Qualified. He has an FDP from IIM and holds the degree of Master of Fashion Management from NIFT. He has over 15 years of experience in corporate and academic settings. He has previously served in the FDDI, Ministry of Commerce and Industry, Government of India, as Senior Faculty, Retail. His other significant stints include serving Future Group in various roles, such as brand relationship manager, assistant mall manager, and store manager. Currently, he is Assistant Professor at the FMS Department, NIFT Delhi, and the Unit Incharge of the Publication Unit.

deepak.joshi@nift.ac.in

Sudha Dhingra, Advisor

Sudha Dhingra is Professor and Dean at the National Institute of Fashion Technology, New Delhi. She has been teaching for the past three decades at NIFT. Her core competence

lies in the study of crafts and Indian and world textiles. She has co-authored the books for Fashion Studies on 'Understanding Textiles' and 'Traditional Indian Textiles' for CBSE, classes XIth and XIIth. She has also co-edited the book 'Textile Crafts of India' covering the handloom traditions of the North-Eastern Indian States. Prof. Sudha Dhingra is also the Director of the Center of Excellence for Khadi, which is a sponsored project by the Ministry of MSME to support KVIC. The center has been set up at NIFT with the objective of assisting the Khadi Institutions to design, produce, and market high-quality, differentiated Khadi products for the Indian and global markets.

sudha.dhingra@nift.ac.in

Clare McTurk, Member

Clare McTurk is a Principal Lecturer in Fashion Buying, Department Education Lead, and Sustainability Lead at the Manchester Fashion Institute (MFI), Manchester Metropolitan University (MMU). With an MA in Academic Practice and Advance HE Senior Fellow (SFHEA) accreditation, Clare brings industry expertise to her academic role. After a decade in fashion buying for the outdoor clothing industry, she joined MMU in 2005 to lead the Fashion Buying Masters program, teaching buying, merchandising, sustainability, costing, and range planning. Clare's research interests span a broad spectrum, including Made in Britain, fashion business and buying, international fashion sourcing, ethical trade, sustainability, and pedagogy. Clare leads the MFI strategy in Education for Sustainable Development (ESG) and represents the faculty in the Responsible Futures group. Clare has also taught at external institutions like Pearl Academy in Delhi, Jaipur, and Mumbai and held various external examining positions, most recently at the University of South Wales.

c.mcturk@mmu.ac.uk

Jana M Hawley, Member

Jana Hawley, PhD, is Dean of the College of Merchandising, Hospitality, and Tourism at the University of North Texas. Hawley has led a full life as an award-winning teacher, engaged researcher, committed mentor, and servant leader. Dr. Hawley received the 2022 Distinguished Scholar Award from the International Textile and Apparel Association. She has more than 150 scholarly works, received more than $1.5 million in grants, and raised more than $5 million in advancement impact. Hawley earned her

PhD from the University of Missouri and is internationally recognized for her leadership and scholarship in the areas of textile recycling, fashion industry sustainability, and folk artisan entrepreneurship.

jana.hawley@unt.edu

Archana Gandhi, Member

Archana Gandhi is Professor at NIFT and has a PhD from the Faculty of Management Studies, Delhi University. She has been with NIFT, Department of Fashion Technology, Delhi, since 1999, after working with Triburg for 6 years. Her areas of teaching, research, training, and consulting have been apparel merchandising, quality management, product development, and sustainability. She has been involved in mapping key performance indicators for merchandisers and training merchandisers for various apparel organizations. She was a guest faculty member at Colorado State University, USA, in 2009. Apart from publishing numerous research papers in international journals, she has authored a book on apparel merchandising and contributed to two chapters in the book 'Dimensional Corporate Governance: An Inclusive Approach' published by Springer Publication. She has also been regularly reviewing research articles and papers for leading Emerald journals like the International Journal of Clothing Science and Technology, Gender in Management: An International Journal, the Journal of Workplace Learning, etc.

archana.gandhi@nift.ac.in

G. Chiranjeevi Reddy, Member

G. Chiranjeevi Reddy, Chairperson of NIFT's Fashion and Lifestyle Accessories Department, brings 28+ years of expertise spanning teaching, research, and industry practice. He excels in lifestyle accessory design, design pedagogy, curriculum development, and multidisciplinary student assessment. His acclaim extends globally, presenting research at esteemed conferences, including the International Educational Technology Conference in Chicago, Reflections in Hyderabad, the Global Academic Network Conference in Sydney, the 2nd Paris Conference on Education, the Higher Education Reform Conference in Glasgow, the 6th International Conference on Innovation Challenges in Multidisciplinary Research Practices in Singapore, and the Hong Kong International Conference on Education, Psychology, and Society. Chiranjeevi

is committed to personal and soft skills development, conducting workshops at various institutions and organizations. He also shares his expertise and insights through live educational career counseling sessions on television channels, contributing to a wider audience's growth and development.

gudimetla.reddy@nift.ac.in

Kislaya Choudhary, Member

Kislaya Choudhary is Professor with the Department of Textile Design and the present Chairperson of the department. She has a PhD in design and specializes in textile design processes. Her areas of exploration are conventional and digitally printed textiles, computer-aided design, interdisciplinary design research, contemporary craft practices, visual research, and design influence. She has published in the areas of emerging design processes, practices, trends in digital printing, and design education in national and international journals. She has co-authored a book on 'Elements of Textile Design', published by the CBSE Board. Kislaya has initiated design exhibits to communicate ideas across multiple design disciplines. She has consistently worked with the Indian textile industry for social empowerment through design intervention and skill development. She aspires to reinstate, moderate, and innovate creative practices for endorsing meaningful change.

Kislaya.choudhary@nift.ac.in

Purva Khurana, Member

Purva Khurana, Chairperson of the Fashion Design Department at the National Institute of Fashion Technology, holds a Masters Degree in Textiles and Clothing from Delhi University and has done her doctorate on the Ikat craft of India. Her passion for design led her to join NIFT in 1997 in Delhi. She has worked in the industry and has been an academician for more than 25 years. She has been actively involved in organizing fashion shows and various craft cluster studies, besides having executed numerous prestigious projects of design and research with government and non-government organizations. Having done extensive research in the traditional textiles of India, her core specialization lies in value creation through elevating aesthetics, craft-based product development, designing and crafting through sustainable practices, and pattern development for women's wear and kid's wear segments. Purva has contributed to

curriculum development for the Delhi Board. She has presented research papers at national and international seminars, conferences, and apparel magazines.

purva.khurana@nift.ac.in

Raghuram Jayaraman, Member

Raghuram Jayaraman is a profound academician with 22+ years of experience and an equitable amalgam of executive leadership, communication, technology vision, and domain expertise for strategizing the development of the organization with future technology infrastructure and curriculum. He is a research enthusiast with experience in designing and developing technology solutions for the fashion business. Raghuram was the director of a new NIFT campus in Jodhpur and launched flagship programs augmented with state-of-the-art infrastructure. He is known for his consistent and outstanding work on big projects, building teams and people's skills, adapting to environments that change quickly, and solving mission-critical problems by analyzing, finding, and implementing technologies and enterprise systems. He has presented papers at national and international conferences and published research papers, including the first edition of the NIFT Journal of Fashion. He visited the USA, Middle East, Bangladesh, Vietnam, Cambodia, Madagascar, Mauritius, Egypt, and Jordan to strengthen industry, alumni, and institute relationships.

raghuram.jayaraman@nift.ac.in

Rajeev Malik, Member

Rajeev Malik is a Professor and the current Chairperson of Department of Fashion Management Studies at the National Institute of Fashion Technology, India. He is an alumnus of the National Institute of Fashion Technology, where he completed his Master of Fashion Technology. He also has an MBA from the Faculty of Management Studies (FMS), University of Delhi. He completed his PhD in Management from Amity University. Rajeev has vast experience with the fashion industry in different roles and organizations. His rich industry experience, coupled with his academic acumen, enables him to contribute to the body of knowledge in the fashion industry.

rajeev.malik@nift.ac.in

R. Russel Timothy, Member

Russel Timothy is Professor with the Department of Fashion Technology, Chennai. He has a PhD in nanotechnology and physics and specializes in technological application in garment production. His passion for teaching and research in technological innovations brought him to join NIFT in 1997 at NIFT, Bengaluru. He has been an academician for more than 30 years. He specializes in apparel production technology and management, IT applications, e-commerce, the internet of things, and artificial intelligence. He has several publications in national and international journals.

russel.t@nift.ac.in

Shalini Sood Sehgal, Member

Shalini Sood Sehgal has been a Professor at NIFT, New Delhi, for over 25 years and a fashion foresight expert, actively participating in cultural exchanges between countries and industries. She is always interested in society's constantly evolving mindshifts that impact fashion, lifestyle, and design trends. She has consulted the leather industry, successfully creating forecasts for exporters and running a 'Design Center'. She has been a part of various trend forums for brands like Asian Paints and Samsung, as well as for the Ministry of Textiles. Her doctoral thesis explored the area of trend percolation in Indian wear in the country. An avid hiker at heart, she loves to get lost every few months in the folds of the mountains. A budding birder who practices yoga and meditation; dons characters on a theater stage and passionately volunteers for an NGO, 'An Initiative Touch Your Soul, that takes care of the educational and medical needs of 2500 children and their families in the Pauri Garhwal region, covering 337 villages.

shalini.sud@nift.ac.in

Sibichan K Mathew, Member

Sibichan K Mathew is Professor of Fashion Management Studies at the National Institute of Fashion Technology (NIFT), New Delhi, India, and Head of the Research Unit. After the completion of his doctoral degree and master's degrees in Economics and Business Administration, he pursued higher specialized education in Fashion Management from the School of Fashion Management and Design in Amsterdam and customized

training in the area of retail research at the Center for Retail Research in Zoetermeer, Netherlands, and CESCOM in Milan, Italy. He began his career at the University of Delhi. He has held various academic and administrative positions at NIFT. He led the NIFT team in a 3-year India-US collaborating research project with IOWA State University (ISU) funded by USIEF involving multi-educational institutes based in the USA and NIFT. He has been selected by the International Relations Committee of the International Textile and Apparel Association (ITAA), USA, for the 'Janet Else Visiting Scholar/Practitioner Award'.

sibichan.mathew@nift.ac.in

Usha Narasimhan, Member

Usha Narasimhan teaches design research, design methods, and pattern design for fashion and apparel at the National Institute of Fashion Technology in New Delhi with the Leather Design program. A Masters in Fashion Technology from NIFT, she has completed her PhD in Sociology from Jamia Millia Islamia, New Delhi, in the field of fashion and everyday life in urban India. A fashion educator, she specializes in design thinking and practices for apparel, bringing concepts of sustainable and inclusive design practices into her teaching. She has written and presented papers on sustainable practices in fashion and fashion as representation and identity. Her research interests include fashion theory and practices, identity, and popular culture. She currently holds the post of Chairperson, Leather Design.

usha.narasimhan@nift.ac.in

Varsha Gupta, Member

Varsha Gupta is Professor in the Master of Design department at NIFT, New Delhi, with almost 30 years of experience in industry and academia. She was awarded a doctorate by NIFT in 2014 for her research titled 'Recycling of Post-Consumer Textile Waste and Developing a Model for Sustainable Development using System Dynamics'. She completed her MSc in Textiles and Clothing at Lady Irwin College, Delhi University, and has been trained at the Fashion Institute of Technology (FIT), New York. Varsha has been an external expert member on the Programatic Review Panel at Limerick School of Art & Design, Limerick Institute of Technology, Ireland. She has presented papers at

international conferences in London, Leeds, and Brussels, and a video based on her PhD work was screened at the PhD festival in Milan, Italy.

varsha.gupta@nift.ac.in

Vasantha Muthian, Member

Vasantha Muthian has a UG degree in Interior Design and PG degree in Textiles and Clothing from Madras University and received her PhD degree from the Department of Textile Technology, Anna University, Chennai, in 1992. She has 30 years of work experience in teaching and research at reputed institutions. She joined NIFT Chennai in July 2003 and has held several additional charges at the campus level, including Head Office Student Development Activity Coordinator, Center Coordinator of Fashion & Textiles, Textile Design and Foundation Program, Unit In Charge Research Unit, HO, Campus Academic Coordinator, and Chairperson-Textile Design, HO. She has published several research papers in national and international journals and co-authored the CBSE textbook for Fashion Design and Garment Technology. She has presented several trend interpretation seminars to the export home textiles industry, coordinated prestigious handloom projects in Tamil Nadu and Kerala, and conducted diverse skill-upgradation workshops for BPL self-help women groups.

vasantha.muthian@nift.ac.in

Vibhavari Kumar, Member

Vibhavari Kumar is a space designer and design educator based in Bengaluru. Her bachelor's degree is in architecture from the National Institute of Technology. Thiruchirapalli. She did her doctorate from Jain University, Bengaluru, on the topic 'Socio-Cultural Impact of the Bengaluru Metro on People and Spaces'. She is currently Professor and Chairperson, Department of Fashion Communication at NIFT. She has done an intensive study in geometry, integrated the knowledge of diverse fields, and experimented in design teaching. Her research interests include design thinking in an Indian context with respect to spaces. During her PhD, she assisted on an ICSSR project and was involved in writing three chapters for a book. She also worked as a core committee member for the Conference on Contemporary Issues and Trends in Urban Transformation'. She has written and presented papers in national and international forums, the latest being at TU Delft, Netherlands.

vibhavari.kumar@nift.ac.in

Yashodha Kumari V, Member

Yashodha Kumari V is Professor and Chairperson in the department of Knitwear design. She is an MTech and PhD in Textile Technology from Visweswaraya Technological University, Karnataka. She was awarded a doctoral degree in 2018. Her passion for design brought her to join NIFT in 2003 in Bengaluru. She has worked in the industry for more than 4 years and has been an academician for 19 years. Her main areas of teaching and research are textile science, dyeing and printing, textile and garment finishing, resist dyeing and printing techniques, quality assurance, traditional textiles, textile design, material studies, and craft cluster-related subjects.

yashodha.kv@nift.ac.in

www.nift.ac.in

ISSN 2583-5262

NIFT Head Office: NIFT Campus, Hauz Khas, New Delhi - 110 016