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Applique work in the Era of Sustainable Fashion: Upcycling, Zero-Waste Practices and Craft Ecology

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Abstract

The potential of traditional textile processes to address environmental and sociocultural issues is being re-examined in the current era of sustainable fashion. With a focus on upcycling, zero-waste design techniques, and craft ecology, this study examines appliqué work as an important craft practice within sustainable fashion. The creative reuse of textile waste, surplus textiles, and discarded clothing is made possible by appliqué, which is typically employed for decorative and practical purposes. This prolongs material life cycles and lessens the impact on landfills. Using patch-based construction, surface ornamentation, and modular design methods, the study looks at how designers and craftspeople incorporate appliqué techniques to reduce fabric waste. Additionally, the study places appliqué within the framework of craft ecology, emphasising the interconnectedness of ethical labour practices, cultural legacy, local craftsmanship, and ecologically conscious production processes. Appliqué becomes an ecological and aesthetic activity by connecting historic knowledge with modern sustainable design concepts. The study emphasises how important appliqué labour is for maintaining artisan livelihoods, encouraging responsible consumerism in the global fashion sector, and developing circular fashion models.

Keywords: Appliqué work, Sustainable fashion, Upcycling, Zero-waste design, Craft ecology, Textile waste management, Circular fashion.

1. Introduction

The environmental impact of fashion has inspired academics and professionals in the field to look for alternative design approaches that prioritise environmental stewardship, cultural continuity, and resource efficiency. The method of layering fabric pieces onto a foundation cloth to produce ornamental or structural structures, known as appliqué work, has reappeared as a craft with sustainable promise in this context. Appliqué, which has historically been linked to local textiles and handcrafted ornamentation, now overlaps with modern objectives of upcycling and zero-waste fashion. This analysis examines how appliqué bridges craft traditions with ecological imperatives by serving as both a sustainable activity and a creative design strategy.

Despite being one of the most polluting businesses, the textile sector is an important part of the consumer products industry. The amount of textile waste produced is directly correlated with production volume; increased output leads to more trash. Because the production of clothing generates large volumes of textile waste that frequently wind up in landfills, this business has a huge negative impact on the environment. Additionally, the use of textiles adds to the production of waste. To fight the problem, a few sustainable solutions- 4R ideas like reuse, reduce, recycle and rebuy need to be used (Subramanian Senthilkannan Muthu, 2016). Upcycling is thought to be the most effective creative design option that contributes to the conservation of natural resources by lowering textile waste. Upcycling products not only minimises the need for new products but also helps conserve energy and natural resources, which lowers greenhouse gas emissions. Increasing the product's lifespan will also extend the materials' lifespan, allowing for a decrease in the need for new raw materials. Upcycling is thought to be the most successful of all the sustainable alternatives, offering consumers an alternate method of consumption and entrepreneurs an alternative method of producing.

Many publications on upcycling have been published since 1990, but there is still a little amount of literature on the subject overall, and no thorough review has been done as of yet. Known as the forerunners of industrial upcycling, Braungart and McDonough

have assisted a number of businesses in beginning to use circular materials, or cradle-to-cradle technology, so that the industries may operate more sustainably. They have stated that the initial design process is crucial for upcycling in the future since it makes it easier to deconstruct and replicate the product. Upcycling is one of those circular sustainable solutions where the regular need for fresh resources is avoided, according to Szaky's article.

A survey indicates that most upcycling books released between 2008 and 2014 fall under the category of "craft and hobbies." Because of the scarcity of resources, upcycling is more popular in developing nations. Furthermore, wealthy nations have started to concentrate more on upcycling from a business perspective in recent years. The term "trashion" (a combination of "trash" and "fashion") was created in 2004 to describe upcycled clothing, jewellery, bags, and other fashion items (Trashion, Wikipedia). These items are made at home using recycled, discarded, discovered, and repurposed materials. Originally employed for couture fashion, trashion is now limited to wearable clothing due to the growing popularity of recycling and upcycling. These days, the term is frequently used in creative circles to refer to any wearable item or decoration that is created entirely or partially from recycled materials, such as worn and reconditioned clothing.

Several scholars have outlined the several crucial elements for producing recycled goods. Innovative upcycled products require key components such as environment, design, and self-expression value (H. Y. Kim & Kim, 2018), design and story (Gould, 2014), nostalgia and sentimentality combined to create memorable products (Stewart, 2014), efficiency, creativity, intuition, and innovation (Pereira, 2017), and rethinking through creativity and innovation (ÇİNİ, 2019). Due to the restricted quantity of fabric, the upcycling design process is very different from standard design approaches. The designer should be more confident in the design and construction technique and should be aware of the quantity and quality of fabric. According to DeLong et al. (2016), sustainable design necessitates a creative attitude, aesthetic awareness, inventive vision, and competence in addition to the standard design process. To raise awareness among students, upcycling themes should be incorporated into design education through both theory and practice. Upcycling is closely associated with irreplaceability, which is correlated with product maintenance and expected longevity. When there is an emotional connection, an upcycled product is predicted to last longer than the typical estimated lifespan of mass-produced goods. A product's longevity rises with increased care if more people are attached to it (Kyungeun Sung et al., 2015). Individuals who upcycle usually have an emotional relationship to their clothes, a strong interest in sustainable fashion, and a concern for the environment. (Janigo et al., 2017).

Upcycling has a few obstacles that must be overcome. There are very few factories that are willing and able to work with waste fabrics and used clothing. Because it is challenging to separate the blended fibres, there is insufficient sorting; as a result, the quality and characteristics of the upcycled products can fluctuate depending on how they are used (Vats, 2015).

Fig.1 Upcycling concept
(Source:https://www.paulsrubbish.com.au/5-benefits-of upcycling/)

Acceptance of recycled goods is crucial to boosting production, even though they are still seen as a niche. Although there has been a rise in awareness of sustainability since the COVID-19 pandemic, its practicality remains low. Younger age groups are more knowledgeable in upcycling, according to research by Shim et al. (2018). Although older people are not familiar with the term "upcycling," they are already engaging in it without realising it. Younger people are often drawn to quick and inexpensive things because they lack the funds for recycled goods (Thorstensson, 2011). The cost of buying upcycled goods has always been a concern. People are drawn to upcycling because of its distinctiveness and the unique backstory of the product, but they reject it because of the cost (Koch, 2019). Because upcycled products are expensive, time-consuming, and need care, attention, and ingenuity, they are not being used. Some people steer clear of upcycled clothing because of fit flaws, design dissatisfaction, or problems with the garment's overall functioning and design. Customers think that in order to increase acceptance, upcycled products must be stylish, reasonably priced, and well labelled. Social media and websites are favoured promotional tactics since they are thought to be more successful for upcycling (Han S., 2021).

1.1. Upcycling's Past:

Tracking upcycling in the past is really challenging. In a technical sense, the origins of upcycling may be traced back to the earliest humans, when both upcycling and reuse were commonplace. Recycling and upcycling have always been done by individuals at home. Upcycling is not a novel idea; in the past, it was a way to control materials, cut expenses, and save labour. It has been seen for thousands of years as a personal practice of turning trash or used goods into higher-quality or more valuable things.

Kintsugi, also known as Kintsukuroi, was a 15th-century Japanese craft in which craftspeople used precious metals as adhesive to fix shattered pottery. A shattered pot was meticulously repaired instead than thrown away, creating an upcycled item that became a distinctive, revitalised relic. Approximately 3000 years ago, the Greeks and Egyptians in the Eastern Mediterranean region would shape imported ships to suit their preferences.

Reuse and recycling were widespread practices prior to the Industrial Revolution, according to Szaky. The famous green curtain dress that Scarlett O'Hara wore in Gone with the Wind in

1939 became a famous example of upcycling. The gorgeous garment was made from the green drapes from her house. With a few minor changes, Vivien Leigh's original design was used in a number of films. The garment, which was created by Walter Plunkett, was used once more in the movie Bedlam, where its bell-shaped design was changed to an A-line.

The terms "upcycling" and "recycling" were first used by Thornton Kay, citing Reiner Pilz, in a 1994 article that appeared in SalvoNEWS. According to Kay, he refers to recycling as "downcycling" because the product is completely destroyed and replaced with a new one; he stressed that what is required is upcycling, which is the process of transforming old products into something more valuable.

In his 1998 book **Upsizing: The Road to Zero Emissions - More Jobs, More Income, and No Pollution**, businessman Gunter Pauli—often referred to as the Steve Jobs of Sustainability—used the phrase. He identified the 3R factor—Reuse, Reduce, and Recycle—for use in industries and taking actions toward a more responsible nature in his book. He contends that we should concentrate on making better use of the resources that have already been created rather than waiting on the Earth to produce more. By doing this, we will not only produce 20 times more material demands, but we will also create enormous jobs by increasing the productivity of industries and machinery. The book Upsizing: The Path to Zero Emissions - More Jobs, More Income, and No Pollution was renamed Upcycling in 1999. In their 2002 book **Cradle to Cradle: Remaking the Way We Make Things**, William McDonough and Michael Braungart expanded on this idea. They described how industries can apply the Cradle-to-Cradle Design concept. Instead of using the cradle-to-grave model, they suggested that the 3Rs—Reduce, Reuse, Recycle—follow the cradle-to-cradle method. Although upcycling is popular in wealthy countries, poorer countries have an even larger need for it, according to Belinda Smith of Reuters in 2009. Architect David Hertz bought the surviving Boeing 747 components in 2011 and converted them into a home called 747 Wing House.

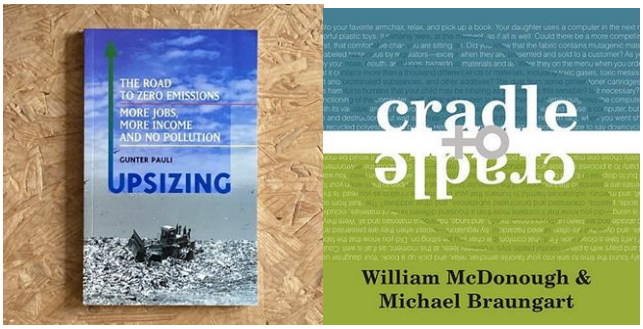

Fig.2 Textbooks for Upcycling
(Source: Amazon.in)

Because it saves money, it has become a common piece of art in many sectors in the 20th and 21st centuries. Additionally, upcycling is growing in popularity as people become more conscious of environmental issues. Upcycling became very popular on websites like Pinterest and Etsy after the 2008 financial crisis. From about 7,900 in January 2010 to almost 30,000 a year later, the quantity of products marked "Upcycled" increased by 275%. For sustainability, 2019 was a noteworthy year (DIY Vinci Team). Recycled plastic has been used in the fashion lines of companies including Adidas, Rothy's shoes, Kevin Murphy's packaging, Patagonia, and Ecoalf.

Recycling and upcycling have become major phenomena in recent years. Although they frequently lack long-term sustainability perspectives, certain studies in the industrial sector have concentrated on integrating energy requirements to assess performance in recycling operations. The necessity of including social, economic, and ecological aspects into the development of sustainability assessment procedures has been highlighted by additional study. Additionally, ethical production is a crucial component of sustainability. However, upcycling is still regarded as a niche sector today.

1.2. Advantages of Upcycling

The social advantages of sustainability are rarely discussed in the literature that is currently available, despite the fact that the economic and environmental advantages have been highlighted in numerous publications. Three sustainability pillars are used to explain the advantages of upcycling:

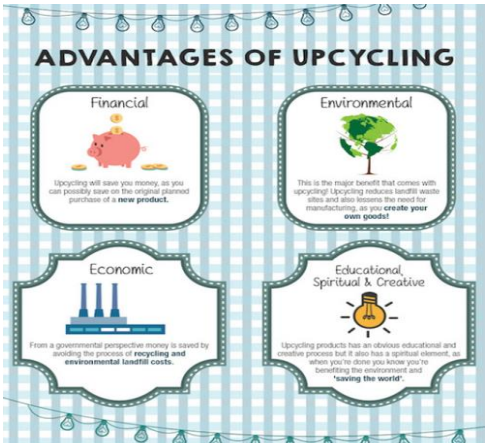

Fig.3 Advantages of Upcycling
(Source: https://inhabitat.com/infographic-how-upcycling-turns-trash-into-treasure/)

1.2.1. Economic

Cost reductions, chances for buyers and entrepreneurs, and the development of new revenue streams are among the financial advantages. Additionally, it enhances livelihood through sustainable income-generating activities and generates employment, particularly for women and young people.

1.2.2 Environmental

Reducing the amount of garbage and abandoned items sent to landfills, minimising solid waste, conserving landfill space, using fewer raw materials, consuming less energy, lowering greenhouse gas emissions, and lowering pollution are all examples of environmental benefits. The majority of consumers are aware of

how their actions affect the environment and are taking the appropriate steps to protect it.

1.2.3. Social

Poverty relief in poor nations, educational and training opportunities, psychological well-being, and sociocultural benefits resulting from individual upcycling activities are examples of social benefits. The true impact of social benefits is hard to measure**.** Upcycled clothing is growing in popularity in the modern fashion business. Instead of a linear economy, or manufacture-use-dispose, the fashion industry should embrace the circular economy, which incorporates product and material repair, regeneration, and reuse. Because it can save more energy than industrial upcycling, upcycling done at home is more environmentally beneficial. The lack of consumer education and awareness is one of the main causes of the circular economy's poor acceptance. The market is still in its infancy despite several studies being conducted to uncover answers and develop cutting-edge products and technology from garbage.

Rapid trend shifts occasionally have an impact on the growth of the fashion industry and help give rise to the ready-to-wear idea in the fast-fashion sector. The idea results in more accessible, reasonably priced clothing that can be produced quickly and in large quantities. The fast-fashion industry's growth creates new problems for the fashion industry because it produces large quantities of goods and continuously markets them to consumers. This leads to a large number of products being thrown away, which eventually turns into non-biodegradable waste and causes environmental issues like pollution.

Indonesia produced 2.3 million tonnes of textile waste in 2021, or 12% of household waste, according to Arifin Rudiyanto, Deputy for Maritime Affairs and Natural Resources, Ministry of National Development Planning (PPN)/National Development Planning Agency (BAPPENAS). (reported at 23:29 on March 9, 2022, from kompas.com).

The findings of a study by Nidia and Suhartini (2020) titled "Impact of Fast Fashion and The Role of Designers in Creating Sustainable Fashion" support this assertion. According to them, fast fashion is a business strategy that provides inexpensive, stylish apparel as a consequence of cooperation between manufacturers, suppliers, and customers, whose turnover is rapidly shifting to meet and dominate the fashion industry. More disposition has been encouraged by the fast fashion sector's faster growth than any other fashion industry. While synthetic materials cannot degrade, the fashion industry contributes to the waste textiles that wind up in landfills.

This occurrence prompts the government to keep searching for ways to lessen environmental issues brought on by the fashion industry. For instance, the Republic of Indonesia's Minister of Environment and Forestry issued a regulation about Waste Water Quality Standards and the idea of circular fashion, which is an invitation from BAPPENAS in cooperation with the Danish royal government in an attempt to explain a circular economy to the Indonesian people. Circular fashion involves resource management in addition to trash management. Instead of using natural raw materials for production, materials that have been processed can be recycled to save money and resources when they are combined.

1.3 The Textile Industry's Waste Production

Waste is a material that we unintentionally create even when we don't want to. From the manufacturing process to the consumer end, it has a big economic influence. In a similar vein, manufacturers, such as those who produce textiles or apparel, use the term "waste" extensively in their operations. Waste is enormous when manufacturing volume is high. Textile waste can arise in a number of textile manufacturing processes, including spinning, weaving, dyeing, finishing, clothing manufacturing, and even at the consumer level. Researchers, producers, apparel companies, and organisations are currently working together to develop practical strategies for managing and reducing textile waste. In addition, some garment companies and groups are attempting to recycle and upcycle textile waste. Industrial waste and consumer garbage are the two categories of waste found in the textile and apparel sectors. [1]

Pre-consumption waste from the clothing production process was one of the industrial wastes that got less attention, according to Rissanen and McQuillan (2016). While an estimated 400 billion meters of textile material were used in the creation of clothing in 2015, each item that undergoes the pattern cutting process produces an average of 15% textile waste. Since 2008, the textile and fashion industries have adopted the Zero Waste concept, which maximises the availability and character of materials with less than 15% pre-production waste in the garment manufacturing process.

The textile industry has taken a number of steps to lessen its detrimental effects on the environment in order to address the problem. One of these strategies is textile recycling, which is the replication and reuse of fibres from textile waste. Upcycling textiles is another example of a sustainable practice. Due to the concerning amount of greenhouse gases (GHG) in the environment, the quick depletion of natural resources like water and petroleum products, and the increasing levels of industrial effluents, every production activity, particularly the textile industry, has been assessed for sustainability.

According to research by the Environmental Protection Agency, India generates between 80,000 and 85,000 tonnes of willow trash per year, which clearly requires both landfill removal and appropriate treatment. A "make-use-and-throw" mentality is being adopted by the wealthy section of society in this setting, which leads to both large-scale manufacture and pressure to discard old clothing. As a result, sustainability researchers are talking about upcycling, recycling, and responsible consumption of waste or unneeded resources. By refurbishing them with minimal processing and value-adding processes, it is possible to recycle such used clothing.

Fig.4 Textile waste production
(Source: https://evreka.co/blog/tackling-textile-waste-challenges-and-opportunities/)

1.3 About Applique Craft

In India, appliqué craft is a thriving textile heritage that blends artistic expression with practicality. Appliqué, which comes from the French phrase Appliquér, which means "to apply," is the process of sewing shaped bits of cloth onto a foundation material, frequently utilising contrasting and colourful materials. India has been practicing this trade for ages, and each region has contributed its own unique style. For example, the Pipili appliqué art of Odisha, called Chandua, is utilised in holy occasions, such as Lord Jagannath's Rath Yatra, and has complex designs and colourful patterns (Saha, 2014). Mirror work and striking geometric designs are common in Gujarati Kathwa appliqué, which reflects the vibrant culture of the area (Bhatia, 2013). Uttar Pradesh is renowned for its exquisite Phool Patti ka Kaam, a tradition based on Mughal aesthetics in which flowery designs are painstakingly sewn onto fine muslin fabric. Appliqué, which was first created as a useful way to fix or repurpose old textiles, has blossomed into a decorative art form that is still popular today, fusing traditional aesthetics with contemporary uses. Additionally, it contributes significantly to the sustainable livelihoods and cultural heritage preservation of artisan groups, especially women (Gillow & Sentance, 2001).

Fig.5 Applique Craft
(Source: https://carolscreativeworkshops.net/2013/05/15/indian-applique/)

2.0 Literature Review

2.1 Eco-Friendly Style

Reducing textile waste, increasing product longevity, and encouraging circularity are key components of the sustainable fashion discourse (Fletcher & Grose, 2012; Niinimäki, 2020). Strategies like circular design, zero-waste patterning, and upcycling have become more well-known as approaches to lessen adverse environmental externalities.

The term "sustainable fashion" is taken from the word "sustainable" and encompasses principles that we can use to maintain the ecosystem (Amalia, 2022). According to Kaikobad (2015), eco-friendliness, natural disaster reduction, ecological balance, lifestyle development, and fashion itself are all included in sustainable fashion. It consists of three elements—environmental, social, and economic—as well as two more—aesthetic and cultural—that are related to the ethics or culture of expanding resources or labourers in a respectable manner (Kozlowksi & Bardecki, 2019). We can infer that these five factors—environmental, social, cultural, economic, aesthetic, and cultural—must be taken into consideration when creating sustainable fashion. In addition, its sustainability features must be taken into consideration.

Furthermore, sustainable fashion seeks to unite all stakeholders involved in the fashion business in order to modify and enhance production and consumption practices.

Fashion designers, manufacturers, distributors, and customers are the targeted parties (Kulsum, 2020). According to Shafie et al. (2021), sustainable fashion has a number of benefits, such as reducing environmental pollution by using a production method that produces scarcity and doesn't harm the environment. Another way to incorporate sustainable fashion is to recycle fashion things into new models or shapes. Because sustainably made clothing is long-lasting and of high quality, buyers can save money on new clothing purchases. It is clear that without consumer, producer, and distributor support and collaboration, sustainable fashion will not succeed.

By creating high-quality, comfortable clothing, sustainable fashion also provides consumers with convenience. Additionally, it improves the welfare of the community if business owners regularly uphold the rights of their employees, reducing stress and improving their well-being. According to Kozlowksi and Bardecki (2019), this is the implementation of the sustainable fashion aspect, namely the so aspect. Upcycling is a sustainable fashion process that includes the following three methods (Suhartini et al., 2017):

1. Modifying the model (upcycling clothes by altering the model).
2. Combining (upcycling by combining two garments).
3. Adding additional ornaments or materials (upcycling by adding ornaments or materials).

These three methods have distinct roles and procedures, which also lead to distinct product forms. These three methods are used in this study to create goods with various looks.

The same methods used in general design, such as sketching, developing a mood board, or doing technical drawing, are used in fashion upcycling. But when it comes to fashion upcycling, the design needs to make reference to the materials that are readily available and satisfy the requirements for upcycling items. The rapid pace of production of fast fashion has led to significant sustainability issues. It is important to note that just 1% of clothing is recycled into new apparel, and the industry is thought to be responsible for 10% of global carbon emissions, according to the Ellen MacArthur Foundation (2017). Large volumes of water and energy are used in the creation of clothing, which also significantly relies on synthetic fibres that are not biodegradable. Since then, the post-consumer garbage it produces has overflowed landfills and gradually broken down, releasing hazardous chemical finishes and colours into the environment (Niinimäki et al., 2020). Fashion's existing linear structure, from which half of the garment is eventually land-filled, is problematic for ecological balance and resource management, even though these issues are receiving some attention. As a result, sustainable fashion design has emerged as a crucial field for innovation, emphasising concerns about environmental sensitivity, ethical work practices, waste reduction, and material efficacy (Gwilt, 2014).

2.2 Appliqué as a Craft Technique

Appliqué's multicultural heritage, which includes African patchwork, Indian Kantha, and European quilting, demonstrates both craft diversity and narrative depth (Barnard, 2013). Reused textiles are associated with design adaptability and material storytelling, and they have cultural and environmental relevance, according to recent studies (Clarke, 2018).

2.3 Upcycling and Zero-Waste Techniques

The technique of turning pre-existing textile resources into more valuable products is known as upcycling (Mundler & Lemaire, 2017). Appliqué encourages upcycling and follows zero-waste design principles, which aim to eliminate off-cut rubbish, by reassembling scraps into new compositions (Shen et al., 2015). Techniques like modular patchwork and integrated surface design help save waste.

2.4 Craft Ecology and Sustainable Development

Craft ecology views craftsmanship as a component of socio-ecological systems, where ecological awareness and cultural resilience combine to produce long-lasting outcomes (Clammer, 2017). Craft ecology emphasises artisan labour, ethical production, and the transmission of communal knowledge in the fashion industry.

2.5 Evolution of the Fashion Cycle

The fashion cycle refers to the ongoing rise and fall of fashion items (Jarnow & Dickerson, 1997). Fashion companies have historically been at the forefront of this seasonal and trend-driven process, creating collections that quickly find their way into mass-market retailers. However, this lifetime has been hastened by fast fashion, resulting in products with shorter lifespans and an unprecedented amount of trash and consumption (Cachon & Swinney, 2011). There is a lot of cheap clothing that is usually thrown out in a matter of days because the current system places more emphasis on quantity than quality. As a result, the corporation now prioritises market oversaturation and disposability over artisanship and permanence.

3.0 Discussion

3.1 Upcycling and Appliqué

By turning textile leftovers into expressive surfaces, appliqué helps designers make the most of waste while lowering the demand for raw materials. Case studies demonstrate how upcycled appliqué clothing appeals to ethical buyers who respect sustainability and authenticity (Black, 2019). The biggest obstacle to upcycling's wider inclusion into the fashion cycle is still scale. Upcycling is difficult to scale up industrially due to its haphazard character (Henninger, Alevizou, & Oates, 2016). Due to its specialised design and non-automated manner of outstripping the flaws, the procedure is primarily human and time-consuming. Therefore, the majority of repurposed apparel initiatives are now limited to the artisanal or boutique level. Furthermore, standardisation is difficult because samples and designs of upcycled materials are frequently varied, making it difficult to assure quality, fit integrity, and design conformance (Janigo and Wu, 2015). These limitations act as deterrents to increasing commercial markets and businesses. These could include collaborative sourcing approaches that enable the pooling of post-consumer textiles and cluster-scale production, or modular design systems and digital customisation apps (de la Motte & Bendell, 2022).

3.2 Using Appliqué for Zero-Waste Patterning

Eliminating textile waste at the pattern level is the goal of zero-waste fashion design. Compared to traditional pattern cutting, appliqué reduces scrap creation by enabling designers to construct clothing from gradually placed fabric pieces. For instance, modular and on-demand clothing is made from waste materials using digital fabrication tools like laser cutters and 3D printers, as well as AI-based design software from the AI sustainable design platform and zero waste garment building techniques (Palomo Lovinski & Hahn, 2020). Additionally, one of the solutions that could help with greater traceability and transparency about the sourcing of recycled parts is block chain and digital product passports (Niessen & Bocken, 2021). fashion labels. Upcycling is being developed by some fashion businesses as a product-service system where the service is interwoven with the product. This disrupts the designer-wearer gap by having users co-design or co-customize apparel with reused material (Armstrong et al., 2015). These developments are a part of a broader trend toward adaptable and participative models that value sustainability and personalisation.

3.3 Craft Ecology: Ethical and Social Aspects

Appliqué combats industrial homogenisation by integrating human agency into fashion items. In addition to providing prospects for employment, cooperative projects with craftspeople protect cultural heritage. Appliqué is therefore positioned by craft ecology as a socio-environmental intervention rather than just a design tactic.

According to Sofiana (2015), when designing a product, we should take its aesthetics into account. Design elements are the most fundamental components of a design. On the other hand, design principles describe how design parts are arranged to create a visually appealing whole (Sumaryati, 2013). Therefore, it is essential to pay attention to how design concepts and elements are arranged in order to produce goods that are appealing and have great aesthetic value. The following three elements make up aesthetics, according to Djelantik (1999:17):

a. Shape, composition, or structure that is visible and thus noticeable to the eyes and hearing is referred to as form or visual.

b. The weight or content of an idea, concept, or message that viewers wish to communicate is related to its tone.

c. Presentation or display is the act of showing artwork to art fans.

3.4 Challenges and Limitations

Appliqué has difficulties with market acceptance and scalability despite its advantages. For craft-based sustainable fashion to be more widely accepted, consumer education is still required, as labour intensity may raise production prices.

Product acceptance and market performance are significantly influenced by consumers' perceptions of upcycled clothing. According to Joung and Park-Poaps (2013), upcycled fashion is affected by quality, cleanliness, aesthetics, and practical utility rather than environmental concerns. Upcycling-derived products are linked to the DIY culture stereotype and the second-hand market, which does not guarantee that a product would have the same value in the mainstream market (Hur, Cassidy, Niinimäki, 2013). On the other hand, the research also indicates that branded upcycled clothing has the potential to appeal to younger age groups and more environmentally conscious consumers if it is paired with a story of authenticity, craftsmanship, and uniqueness (Pedersen & Netter, 2015). However, people claim to have a more environmentally conscious and sustainable mindset. In actuality, this behaviour does not correspond to such mindset with many sustainable items (you may debate with corporations). The "attitude-behavior gap" is the name given to this disparity (McNeill and Moore, 2015).

4.0 Case Examples in Practice

Although specific industry cases vary geographically and economically, notable implementations include:

- Artisan Collectives in South Asia using appliqué to upcycle sari waste into new garments and accessories.

Fig.6 Indian Labels using upcycling for redefining sustainability

(Source: LifestyleAsia.com)

- Design Schools integrating appliqué in zero-waste curricula to teach sustainable pattern-making.
- Eco-fashion Labels that leverage appliqué to create unique surface aesthetics from reclaimed textiles.

Fig.7 Eco-Fashion Labels

5.0 Conclusion

Appliqué work emerges as a multidimensional practice within sustainable fashion, offering aesthetic innovation while responding to environmental and social imperatives. Its capacity to transform textile waste into meaningful design aligns with upcycling and zero-waste goals, and its embeddedness in craft ecology highlights the importance of cultural and artisan contributions. Future research should explore quantitative sustainability assessments, consumer perception, and scalable production models for appliqué-based design.

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