



The impact of fast fashion on sustainability and eco-friendly environment in fashion design world

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Abstract

The purpose of this paper is to open up the discussion on opportunities for radical change in this industry. Although industrial development has moved toward smaller environmental impact, production and consumption have increased to levels where the benefits of technological development are reduced. This study adds to the current knowledge of sustainability in textile and clothing production and consumption. When the textile and clothing industry aims to promote sustainability, the main change factors have been linked to eco-materials and ethical issues in production. At present, however, business models are mainly linked with a large volume of sales and production. Redesign the textile and apparel industry by providing an overview of a number of design strategies that are currently used in niche markets, assessing consumer interest in these strategies, and talking about the opportunities these design approaches present for sustainable development through the creation of new value.

Keywords: Sustainability. Sustainable fashion. Sustainable clothing. Sustainable designs

Introduction

The term "sustainable clothing" refers to "clothing which incorporates one or more aspects of social and environmental sustainability, such as Fair Trade manufacturing or fabric containing organically-grown raw material". [1] However, the way in which consumers care for and discard of their clothing also has an impact on the environment. [1-3]

According to Fletcher (2008), up to 82% of the energy consumption associated with an item of clothing is attributable to its post-purchase laundering, while a third of UK consumers' clothing ends up in landfills. Despite this, even those who are committed to purchasing sustainable clothing are unaware of the sustainability issues in clothing care.

The purpose of this article is to: (i) identify the issues that need to be resolved and the associated barriers for sustainable clothing; and (ii) propose interventions to encourage more sustainable consumer behavior in the purchase, care, and disposal of clothing. Unlike previous consumer

research, this article contributes to the literature by utilizing the experience of expert researchers, consultants, and practitioners from the clothing industry. The article draws on ideas from both commercial and social marketing, applying marketing techniques for both social as well as commercial ends to achieve behavior change. [4] As the world moves toward achieving sustainability in all spheres, environmental care has become critical. Industrial progress has negatively impacted the environment through air, water, and land pollution, creating an ecosystem imbalance that has sparked interest in environmental science and its implications for society and the economy.

Additionally, there has been a rethinking of everything related to the design process, from concept to final product, with the idea of product design evolving to adapt to the environment and work in a way that will not harm it, such as (recycling reuse alternative energy-use of environmentally friendly materials use of modern technologies that do not harm the environment).

Consumers have become more conscious of these issues. must safeguard both the environment

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and oneself from the materials' negative environmental consequences. Though there is general agreement in the design community that sustainability is an important topic to explore, little has been studied about the apparel design in the use phase. As environmental problems become more widely recognized, so does consumer awareness of sustainability.

Consumers are seeking out environmentally friendly clothing, and producers are investigating ways to reduce their impact on the environment. During the design process, merchandisers and designers have placed equal emphasis on a product's functional, aesthetic, and economic. [5]

In response to growing consumer concern about the environmental effects of the apparel industry, many businesses have implemented sustainable practices. For example, companies like Patagonia, Levi Strauss & Co., Coop Switzerland, Marks & Spencer, Nike, and Noir use organic cotton. Manufacturers are also offering fabrics made from recycled or regenerated fibres. Metrex's "eco2 cotton," a fabric made from apparel yardage waste, is one such example. In some segments of the apparel industry, sustainable practices are expanding. At the same time, there is a dearth of information regarding the breadth and potential of design, and very few examples of fashion and textile designers addressing issues of cleanliness, hygiene, and the environmental effects of laundering their products. Use is a critical area of innovation in sustainable fashion.

What is sustainability?

Sustainability is a way of using resources that could continue forever. A sustain-able activity is able to be sustained without running out of resources or causing harm. [6-8]

If something is unsustainable, it means it's using up resources faster than they're being replaced. Eventually the resources will run out and the activity won't be able to carry on.

The idea of sustainability is used in a few different ways. You'll sometimes hear about something being financially sustainable or socially sustainable. But this article will focus on environmental sustainability [9]

Sustainability

Sustainability is a comprehensive term that encompasses not just environmental difficulties but also social and economic issues. It is a way of thinking about how to prevent the depletion of resources and safeguard the environment in order to preserve the world and natural systems and meet consumer requirements. [10-15]

The environment and sustainability

Most environmental issues, such as overfishing and air pollution, result from the unsustainability of the use of natural resources, and solutions to these issues help us transition to more sustainable practices. Sustainability is one of the most crucial ideas when it comes to environmental protection. [13, 16-32]

Sustainable Fashion

Fashion products are defined as goods that satisfy the needs and desires of target consumers while combining qualities, dressability, appearance, and price. These products are produced through a series of steps that start with the raw material and end with the final consumer, who can influence the system to become unsustainable despite the fact that they guarantee employment opportunities for various sectors of the economy. Slow fashion, eco-fashion, and ethical fashion are some of the practices and movements that have emerged over time to reduce the negative effects of the textile and clothing industry. [24, 33]

The use of organic raw materials—those produced without the use of pesticides and fertilizers—is presented as eco-fashion. This concept is thought to be crucial for sustainable practices in the apparel industry because textile raw materials have a number of negative effects, including: "climate change; adverse effects on water and its cycles; chemical pollution; loss of biodiversity; excessive or inappropriate use of non-renewable resources; creation of waste"; and others. [34]

Additionally, scientific research is conducted in relation to textile raw materials in order to find solutions that minimize these negative effects. Environmental, social, and ethical issues arise, leading to the creation of materials that are deemed low-impact, biodegradable, and recyclable. [35]

Consequently, the importance of using textile fibers in clothing production is underscored, as the effects of their production are highly detrimental to the environment. The idea of ethical fashion shows concern for social and environmental issues, aiming to protect consumers' health and well-being as well as workers employed along the manufacturing chain. [36] Therefore, it seeks to minimize negative effects on the environment and maximize positive effects on society as a whole, concentrating on reducing poverty and fostering a sustainable lifestyle.

Rodrigues and Fabri state that ethical fashion must persuade consumers to gain a global understanding of the clothing industry's supply chain, which "can cause great social, environmental, economic, cultural, ecological, educational, and spiritual transformative effects."

As a result, it is noted that the idea of ethical fashion prioritizes lessening adverse effects on the environment by boosting the advantages to society as a whole and to nature, which supports sustainable lifestyles. In this way, it aids in the shift in the consumer's perception of the entire productive chain, from the procurement of raw materials to the use and disposal of clothing products. As a result, more sustainable production processes that respect the environment, the professionals involved, and local production value production to occur in a slower and controlled way, valuing the region's manpower and material resources. The slow fashion movement in its fashion sector represents a perception of sustainability based on values and goals that want to change the structure of production of fashion articles, as well as a reduction in the volume of goods produced.[24, 37]

Salient Features of Sustainable Fashion

All of the systems and processes that are engaged in fashion should be taken into account in order to comprehend the sustainability component of the industry. Fashion design is a vital profession that bridges the gap between people and the environment by including all relevant elements. The fashion business is also quite active and has an international reach. The interaction between processes, the life cycle of the product, the persons in the system, the global influence, the significance of attitudes and outcomes, and the value of wholesome solutions should all be considered when examining sustainability in the fashion industry. Sustainable fashion emerged in the late 1980s as a response to the environmental crisis, spearheaded by companies, which promoted ethical fashion. Trends are processes of change that initiate the development of by-products. These processes may result in new products or serve as prophets of some change and adoption. This trend gained popularity after being predicted in 2007 by Helen Job, editor of the World Global Sourcing Network (WGSN), an American trend forecasting service. Her analysis of the trend was based on ecocities, consumer products, technology, and architecture. The trend has grown exponentially and is influencing a wide range of issues, including food, architecture, home products, climate change, and people looking to lead healthy lifestyles. Sustainability and the Fashion Industry

The World Green School Network (WGSN) asserts that it is critical to examine the trends in sustainable fashion consumption because they show how sound design innovation can address the social and environmental challenges posed by fashion consumption; how designers are thinking beyond the product's boundaries to create new processes, services, and systems; how ethical production

practices are integrated with underlying concepts in fashion; how the impact of products at the end of their life cycle is evaluated and plays a significant role in promoting sustainable fashion consumption; and how transparency in production methods and education has created opportunities to influence consumer attitudes.

According to reports, the main findings of the investigation are as follows: disassembly, cradle to grave of goods and services, ethical production for design, consumer education, and design longevity. Sustainable design aims to improve product performance while reducing negative effects on the environment, consumer health, and comfort. Its goals include minimizing waste, generating healthy and productive environments, and consuming less nonrenewable resource consumption. Adopting a sustainable design philosophy necessitates decisions at every stage of the design process to reduce negative effects on the environment and consumers without compromising on the important fundamentals. Principles like minimum energy consumption, use of natural materials, selection of eco-friendly production processes, conservation of water, and optimization of operational and maintenance procedures are essential when going for sustainable designs. Using the intelligence of natural systems, such as the cycle of nutrients or solar energy, designers can create designs that promote the coexistence of trade and nature. This is an integrated approach that affects all stages of the product life cycle, which includes design, construction, operation, and postconsumption. [38]

Fashion consumption is typically driven by the need to conform and to stand out. To stand out, a person wears clothing that expresses his own style and originality in the context of social connections. In the second scenario, fashion is all about customers' acceptance of style, therefore young people would purchase to demonstrate their adherence to the newest trends.

To encourage sustainable consumption, the culture of consumption needs to be examined from various angles. The relationship between the person and the product, which was dominated by increased production and consumption, is another significant aspect that has been overlooked. The designer's role is to reach the consumer and create a sense of belonging with the garment in order to minimize consumption. These include consumption for care, consumption for utilization of services, and consumption for nonconsumption. Since clothing consumption has expanded significantly over the past ten years, there should also be a dramatic shift in the thoughts of designers and producers to focus on creating sustainable fashion rather than constantly shifting trends to increase profit. The volume of textiles being disposed of in landfills and burned is enormous, and the main factor driving

waste management system intensification is rising demand. Nonetheless, the present trend has brought attention to how the industry and consumer habits are changing in favor of a more sustainable strategy. [39]

Dimensions of sustainability in fashion

Traditionally, models of sustainability encompassed three dimensions: environmental, social, and economic. Concerning sustainable fashion design, this circle could be expanded to include aesthetic and cultural dimensions as well. This was formerly thought to be limited to the societal aspect and corporate social responsibility through the provision of community services or providing a return from profits for the benefit of charitable organizations and bodies for the community. However, after the increase in environmental problems and public awareness of them and the trend towards environmental design entered the picture.[18]

Environmental dimension

Using materials that protect and preserve the environment, such as organic cotton and other materials that guarantee proper manufacturing and high-quality materials; using alternatives to animal furs and skins with skins and furs made to maintain environmental balance and protect animals; Despite the clothing industry's reputation as one of the most polluting, it should strive to strike a balance between the rate of production and the rate of consumption; one of the issues that has recently surfaced is fast fashion, which depends on the production of large quantities of clothing that resemble high-quality brands but at the cheapest and lowest quality, which is why the price is reduced; these garments also have a very short lifespan and harm the environment.

The second dimension is societal

- Being aware of and involved in environmental societal issues
- Having a social responsibility towards the development of the environment and society and making contributions thereto
- Helping to propagate environmental values and associated customs and traditions.

Aesthetic dimension

Modernity and sustainability strive for long-term survival, whereas fashion continually seeks change. For a product to reconcile these two opposing goals, it must exhibit a level of aesthetic qualities that prolong its lifespan.

Cultural aspect

Culture has a significant influence on consumer choices and path toward sustainability, which is something that designers need to consider, along with the variations in people's consumption habits.

The economic dimension

businesses must protect workers from industrial pollutants, pay them fairly, and provide them with high-quality products that meet consumer demand and turn a profit. This ongoing economic process is made possible by businesses fulfilling these obligations.

Technological transformation

The quick replacement of industrial societies' antiquated, dirty, inefficient, and inadequate technology with new, cleaner, more capable technology that can minimize environmental pollution. [40]

Sustainable Development Goals

The Sustainable Development Goals, or SDGs, are an international initiative to eradicate poverty and safeguard the environment by 2030 and to guarantee peace and prosperity for all people. They are often referred to as the Global Goals. Since their adoption, The Sustainable Development Goals (SDGs) are based on the achievements of the Millennium Sustainable Development Goals (MDGs), which seek to eradicate all types of poverty.

The new goals are distinctive in that they require all developing nations to As it recognizes that strategies to end poverty must go hand in hand with strategies that build economic growth and address a number of needs including education, health, social protection, and job creation, at the same time in addressing climate change and environmental protection, the rich and middle-class should work to promote well-being while protecting the universe. The Sustainable Development Goals (SDGs) are financed in seventeen goals, and although they are not legally enforceable, governments are expected to take the lead in achieving them through ownership and national frameworks.

Eradication of poverty; complete hunger; health and well-being; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation, and infrastructure; reduction of inequality; sustainable cities and communities; action on climate change; life below the water; life on land; peace, justice, and strong institutions; partnerships to achieve goals

Features of sustainable development

Sustainable development is characterized by a number of factors, which we can list here:

- Long-term, since the time dimension serves as the foundation in addition to the quantitative and qualitative dimensions;
- Remember that future generations have a right to natural resources.
- Prioritize meeting each person's fundamental needs.
- Ensure that the biosphere and everything within it is preserved in its natural state.
- One of its primary objectives is development and the human element, with a particular focus on impoverished populations.
- the champion of maintaining social diversity and the distinctiveness of each society's culture, religion, and urban environment
- Its foundation is worldwide integration and coordination in resource use, as well as control over the relationship between wealthy and developing nations.
- sustainable development's pillars and elements.

The fashion industry is moving toward sustainability for a number of reasons, including

Consumers are becoming more aware of the concept of sustainability

- Laws and regulations that require businesses to adhere to environmental standards;
- Issues with stored fashion that becomes waste that harms the environment, which has prompted us to consider recycling;
- Competitive performance between businesses and public preference for brands, which is now associated with the sustainability of the brand;
- The current global trend towards environmental design that preserves the balance of the environment, which is considered sustainable fashion and is part of this system and is also known as environmental fashion. A new concept provided the basis for adhering to the ethical element of fashion, which calls on fashion brands to uphold the rights of industry workers and the natural equilibrium in the preservation of animal welfare.[33]

Clothes worldwide

People have been wearing various kinds of clothing for thousands of years. Western clothing styles are popular in many parts of the world today, but people's tastes in clothing vary greatly, particularly among rural populations. [41]

Clothes variety

can be attributed to four main factors:

- Multipurpose clothing;
- Diversity of raw materials;
- Various techniques for producing clothing
- Diversity of clothing customs and traditions.[29]

Sustainable Design Strategies Clothing

Researchers in the field of clothing have developed several systems that propose sustainable clothing strategies with the aim of guiding designers towards practices used to make their products green. The sustainability of clothing is under tremendous pressure due to extremely short product life cycles and constantly changing fashion trends that necessitate new product lines. As a result, decisions made during new product development processes significantly affect the sustainability and longevity of products. To help designers include eco-friendly techniques into their designs, clothing researchers have created a number of systems that offer sustainable clothing strategies. The "eco-design strategy" or "life cycle design strategies" is one of these systems.

This wheel was created using the third and third principles of environmental design, using eight main eco-design strategies: creating a new concept, choosing low-impact materials, minimizing resource use, enhancing manufacturing processes, enhancing the distribution system, minimizing environmental impact during use, enhancing the product's life of consumption, and enhancing the end-of-life system. All of these strategies aim to lessen the environmental impact of product development, some of which are connected to the level of product components and others to the production system. Additionally, Sandy Bulk has created a set of guidelines for a sustainable clothing designer that cover the entire clothing lifecycle (including use and disposal), including waste reuse, recycling, and recycling into higher-value products; additionally, the guidelines cover the use of ecological materials, uniform materials (the use of one material for the production of clothing from threads, buttons, zippers, etc.); use of new technologies; and designing multifunctional clothing.[42]

Slow fashion/sustainable fashion strategy

The principles of slow fashion in apparel production are: "using natural materials, reducing the uniformity of materials used in clothing production, which means the use of only one type of complementary or auxiliary materials such as threads, buttons, springs. Other, the use of modern technology compatible with sustainability, the

preparation and production of long-term clothing, the design of multifunctional clothing, the design of clothing that achieves luxury." [16]

The role of the designer in sustainable fashion

Creating clothing that is both functional and aesthetically pleasing requires the designer to balance the needs of the consumer with modern technical and technological specifications. This means that while developing a design concept for clothing, the designer must choose materials, colors, and implementation techniques that meet sustainability requirements. The designer also needs to have a deep cognitive awareness of the use of materials that do not harm the environment and the purity that results from the production and implementation of its designs as clothes. This concept of sustainable clothing is shared among designers and is known as recycling

Creating designs with the idea of sustainability in mind, according to the "reducing raw materials in the production of clothes" strategy in the following ways

- Using natural materials for construction lines to execute the design "Basic materials" in terms of design.
- The use of decorative lines in the design through the use of simple materials that are also decorative.
- Reducing the amount of raw materials used to create the design and turning them into clothing
- The application of sustainable knitting techniques, both fundamental and ornamental.

The ready-made designs range from traditional outfits for women who are highly typical in the production to unique outfits with a wide range of materials, colors, and modifications for ladies' "practical, events, and home" attire. [43]

Sustainable fashion should consider the stages of design and manufacturing, logistics, sales, use and disposal, implementation of strategies that increase the product's useful life, ensure that it can be modified, and determine whether the raw material can be recycled. Sustainable strategies for

the development of clothing products will be presented, and these will then be related to the methodology of the product. The goal of implementing innovative strategies in the apparel industry is to minimize the use of resources, and the selection of processes and raw materials with low impact, improve production and distribution techniques methods, as well as the shelf life of the product. We highlight open design, co-construction, customization, recycling, and modules Design and discuss each of these tactics, among others, in order to establish a stronger emotional tie between the manufacturer and the user and thus emphasize the effect on the growth in the usable life of the products [3]

Summary

In order to raise global awareness of the detrimental effects of the apparel industry on the social, environmental, and economic spheres, promoting sustainability in the sector has emerged as more of a necessity than a luxury. The research intends to emphasize the importance of design in this process. By using sustainable design techniques to increase the competitiveness of eco-friendly apparel products in the Egyptian market, the goal is Reducing the detrimental effects that industry had on the environment, society, and economy, and a survey form was created. The findings demonstrated that adopting the research's sustainable design techniques for clothes can superior consumerism by lessening the likelihood of rejecting suggested ideas and improving the circumstances A true understanding of sustainability helps determine the importance and effectiveness of sustainable design that achieves reduced resource consumption. Sustainable design has become a global goal sought by global clothing companies, and it is spreading to meet the demands of the markets. The competitiveness of these products among the target market segments. The application of sustainability in clothing design requires studying the economic, environmental, and social dimensions. Because sustainability is global, it must be prioritized by Egypt's ready-made garment industry.

Fashion design				
Design	Production	Distribution	Usesinclude	CycleofProduct Life
Design to minimize the impact of materials and stages. Design to create an emotional connection to the product. .Design to create a luxurious look. .Design to standardize thematerials used.	•Designed to bedur. •Designed to make the best use of available materials and resources. •Designed to ensure ethical production and equitable business practices able	•Design for necessity •Design to minimize movement •Design for recycling and reusing packaging • Design for the involvement of non-governmental organizations	Designed for adaptation. Designed for modularity . .Designed to reduce the impact of care . Designed for operation . .Designed for repair Product/ service system design	Reusable Design. -detachable design. .recycling/upgrading design. .recycling design. . closed-loop system design.

A sample questionnaire with suggested methods for achieving sustainability in design

Survey Questions	Linkage	Design methods that have been suggested
-Design components attain equilibrium. -The design components are all the same. -The colors chosen work well with the design. -The design blends well with the market's cultural norms.	Form	-Designed to elicit a strong emotional response from users. -Create with modularity in mind.
- in fashion. The style follows current trends A certain culture is indicated by design. The design respects the community's customs and culture.	Setting	Plan with needs in mind
-The product's shape fits the customer's body. -The design's general shape is distinguished by its originality. -Customizing the design to the customer's customs and culture -An appropriate design that can be used throughout the year -The requirement for identity association is satisfied by design.	-Employ -Need to -A Mindful Approach to Planning - connectedness	-The product's shape fits the customer's body. -The design's general shape is distinguished by its originality. -Customizing the design to the customer's customs and culture -An appropriate design that can be used throughout the year -The requirement for identity association is satisfied by design.
The methods employed are appropriate for design -raw materials wasted during the production of high-end design -The substance is appropriate for design.-	Curriculum	-Design to lessen the influence of the stages and materials -Create designs that maximize the utilization of resources and materials. -Create a long-lasting design

Given the growing awareness of the detrimental effects of the apparel industry on the environment, society, and economy, sustainable fashion recognizes that sustainability encompasses more than just preserving or being inspired by nature; it involves many different aspects. When fashion achieves sustainability, it prioritizes the preservation of the environment and society. It also offers the benefit of direct communication between the advertiser and the recipient. most significant factors that businesses prioritize and visually

convey due to their powerful influence on aesthetics, education, and public awareness The issue of sustainability is presented in a variety of fields, including design, the environment, and partnerships that strive to survive are those that recognize this responsibility and accomplish various aspects of sustainability that protect the environment and society. There are many ways to visually represent sustainability in the fashion industry, and innovation is what drives public attention and awareness. Arab brands are actively

moving toward sustainability Businesses that are already pursuing sustainability are looking for fresh approaches to engage with the public in order to prese

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تأثير الموضة السريعة على الاستدامة الصديقة للبيئة في عالم تصميم الأزياء

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المستخلص:

والغرض من هذه الورقة هو فتح باب النقاش حول فرص التغيير الجذري في هذه الصناعة. وعلى الرغم من أن التنمية الصناعية قد تحركت نحو تأثير بيئي أقل، إلا أن الإنتاج والاستهلاك ارتفعا إلى مستويات تنخفض فيها فوائد التطور التكنولوجي. تضيف هذه الدراسة إلى المعرفة الحالية حول الاستدامة في إنتاج واستهلاك المنسوجات والملابس. عندما تهدف صناعة النسيج والملابس إلى تعزيز الاستدامة، فقد تم ربط عوامل التغيير الرئيسية بالمواد البيئية والقضايا الأخلاقية في الإنتاج. ومع ذلك، في الوقت الحاضر، ترتبط نماذج الأعمال بشكل أساسي بحجم كبير من المبيعات والإنتاج. إعادة تصميم صناعة النسيج والملابس من خلال تقديم لمحة عامة عن عدد من استراتيجيات التصميم المستخدمة حاليًا في الأسواق المتخصصة، وتقييم اهتمام المستهلك بهذه الاستراتيجيات، والحديث عن الفرص التي توفرها مناهج التصميم هذه للتنمية المستدامة من خلال خلق قيمة جديدة.

الكلمات المفتاحية: الاستدامة. الموضة المستدامة. الملابس المستدامة. تصاميم مستدامة