

USING THE CONCEPT OF TRANSFORMATIVE GARMENTS TO CREATE SUSTAINABLE FASHION DESIGNS FOR WOMEN

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Abstract

Improved product design which applies sustainability criteria – Design for Sustainability (D4S) – is one of most useful instruments available to enterprises and governments to deal with growing global concerns about environmental problems. D4S includes the more limited concept of Ecodesign or Design for the Environment. In many developed economics D4S is closely linked to wider concepts such as sustainable product-service systems innovations and other life cycle based efforts. In developing economics a lack of awareness remains a stumbling block.

Design for sustainability, as opposed to sustainable design, refers to design that fosters more sustainable behaviors in users. The broader focus needs to shift to fashion design that supports more sustainable lifestyles among consumers.

While the concepts of recycling and using organic materials are quite familiar in fashion, designers are seeking to broaden the definition of what constitutes sustainable fashion by exploring ideas such as "ethic + aesthetic= sustainable design", " Zero-waste fashion", " less- but better", " reduce, revalue, and rethink"...etc. Through these ideas, fashion designers can change consumer's behavior and improve sustainability.

The paper explores the concept of transformative garments: "Promote and produce interesting and significant pieces from the simplest fabrics and materials" which allow consumers to wear various styles with one garment. The transformative garments use modularized interface which give consumers a chance to create their own styles. Garments that can be transformed and satisfy various consumers needs and wants are expected to prevent overconsumption of garments.

It is about starting to think different and be aware and just try to do better through creating fashion designs for women to confirm some concepts of customers: "Buy one item", "change it as you want", and "wear it in various styles".

Key words: Design for sustainability (D4S), transformative garments, fashion design



كلية الفنون التطبيقية

المؤتمر الدولي الثاني لكلية الفنون التطبيقية

التصميم بين الابتكارية والإستدامة

Design between Innovation and Sustainability



جامعة طرابلس

1- Introduction:

Human society needs to aspire to an integration of its material, spiritual and ecological elements. Current technologies, processes and means tend to separate these facets rather than connect them. Nature uses the sun's energy to create interdependent systems in which complexity and diversity imply sustainability. In contrast, industrialized society extracts energy for systems designed to reduce natural complexity. The challenge for humanity is to develop human design processes which enable us to remain in the natural context. Almost every phase of the design, manufacturing, and construction processes requires reconsideration. Linear systems of thought or short-term programs which justify ignorant, indifferent, or arrogant means are not farsighted enough to serve the future of the interaction between humanity and nature. We must employ both current knowledge and ancient wisdom in our efforts to conceive and realize the physical transformation, care and maintenance of the Earth, so that the concept of sustainability has been introduced to combine concern for the well-being of the planet with continued growth and human development. Though there is much debate as to what the word actually suggests, we can put forth the definition offered by the World Commission on Environment and Development: "Meeting the needs of the present without compromising the ability of future generations to meet their own needs." In its original context, this definition was stated solely from the human point of view. In order to embrace the idea of a global ecology with intrinsic value, the meaning must be expanded to allow all parts of nature to meet their own needs now and in the future.

Designing for sustainability requires awareness of the full short and long-term consequences of any transformation of the environment. Sustainable design is the conception and realization of environmentally sensitive and responsible expression as a part of the evolving matrix of nature. Design for sustainability is being integrated into academic and applied programs around the world, as its value and importance become more apparent. Sustainable fashion, also called eco fashion, is a part of the growing design philosophy and trend of sustainability, the goal of which is to create a system which can be supported indefinitely in terms of environmentalism and social responsibility. Sustainable fashion is a part of the larger trend of sustainable design where a product is created and produced with consideration to the environmental and social impact it may have throughout its total life span. Designers say that they are trying to incorporate sustainable practices into modern clothing. There are some organizations working to increase opportunities for sustainable designers. The National Association of Sustainable Fashion Designers is one of those organizations. Its purpose is to assist entrepreneurs with growing fashion related businesses that create social change and respect the environment. Sustainable Designers provides specialized triple bottom line education, training, and access to tools and industry resources that advance creative, innovative and high impact businesses.

Within D4S the focus is on product and market innovation. Process innovation is often more linked to cleaner production and management innovation to environmental management systems.

Problem statements:

In order to engage with problems arising from the issues outlined above, we have set out to examine the following:

- 1- How could we benefit from sustainability concept- transformative garments- in creating sustainable fashion designs for women?
- 2- How could we achieve harmony between innovation and sustainability in creating fashion designs for women?

The aims of the research:

- 1- Creating sustainable fashion designs for women using the concept of transformative garments.
- 2- Achieving harmony between innovation and sustainability in creating fashion designs for women.

The research approach:

The research follows the experimental approach.

2- Review of literature:

2-1- Design for sustainability (D4S):

In the 1990s, concepts such as Ecodesign and green product design were introduced as strategies companies could employ to reduce the environmental impacts associated with their production processes. These strategies also served to bolster a company's position and competitive edge in a market where more and more emphasis was being placed on environmental stewardship. In 1997, UNEP published "Ecodesign: A Promising Approach to Sustainable Production and Consumption" which was one of the first manuals of its kind and helped lay the foundation for widespread adoption of Ecodesign concepts. This publication introduced the fundamental concepts of Ecodesign to policy makers, programme officers, and project specialists. The manual has been instrumental in the development of many other documents and sector specific publications on the topic.

In the last ten years, the global threats of climate change have pushed environmental concerns to the forefront of political agendas around the world. In response to these concerns, many nations have taken up the urgent call to 'act now.' These countries have established policies designed to mitigate the deleterious effects of climate change by reducing greenhouse gas emissions, shifting energy supply to include a larger portion of renewable energy resources, and increasing energy efficiency.

While much emphasis is currently placed on climate change, other environmental issues and concerns are looming on the horizon. These include the availability of potable fresh water, increased deforestation, reduced biodiversity and the destruction of ecosystems. Reversing these trends requires dramatic changes in consumption and production at the process, product, service, and system levels.

To keep pace with the rapidly changing industrial setting, many environmental movements have expanded their scope to include social and economic concerns.

This combination of environmental, social, and economic priorities is referred to as 'sustainability.' Like many other environmental concepts, Ecodesign has evolved to include both the social and profit elements of production and is now referred to as sustainable product design. The concept of 'Design for Sustainability' (D4S) requires that the design process and resulting product take into account not only environmental concerns but social and economic concerns as well. The D4S criteria are referred to as the three pillars of sustainability - people, profit and planet. D4S goes beyond how to

make a 'green' product and embraces how to meet consumer needs in a more sustainable way. (1/3,4)¹

DfS is an approach that aims at developing products, systems and services that address particular human needs through practices that build harmony with nature and its inhabitants by efficient resource usage resulting in a product. When design embraces sustainability it should fit the following criteria:

- (a) **Responsible:** redefines goals around needs, social or eco equity and justice;
- (b) **Synergistic:** creates positive synergies; involves different elements to create systems change;
- (c) **Contextual:** re-evaluating design conventions and concepts towards social transformation;
- (d) **Holistic:** takes a lifecycle view to ensure low impact, low cost multifunctional outcomes;
- (e) **Empowering:** fosters human potential, self reliance and ecological understanding in appropriate ways;
- (f) **Restorative:** Integrates the social and natural world; recultivates a sense of wonder;
- (g) **Eco-efficient:** proactively aims to increase the economy of energy, materials and costs;
- (h) **Creative:** represents a new paradigm that transcends traditional boundaries of discipline thinking; to 'leapfrog'; and
- (i) **Visionary:** focuses on visions and outcomes and conceives of appropriate methods, tools, processes to deliver them.

The established link between sustainability and design sets a clear direction to talking about Hannover principles. These are aimed to serve as a guide to designers to aid their design activities to embrace sustainability issues. These principles are among the important reflectors of DfS and bring to perspective the fact that humanity and the environment co-exist. This is essential in that design can then stand to the challenge of addressing human needs relevant to the changes present and forecasted in the environment. The principles are listed as follows:

- (a) Insist on rights of humanity and nature to co-exist;
- (b) Recognize interdependence;
- (c) Respect relationships between spirit and matter;
- (d) Accept responsibility for the consequences of design;
- (e) Create safe objects of long-term value;
- (f) Eliminate the concept of waste;
- (g) Rely on natural energy flows;
- (h) Understand the limitations of design; and
- (i) Seek constant improvement by the sharing of knowledge.

There is no doubt whatsoever that the principles challenge design to respond to the above problem of climate change alluded to. Combining these principles with DfS strategies provide a sound recipe for design for sustainability. If climate change is really an issue, then designers should design for 'need' and not for 'greed'. (2/813, 815)

2-1-1- Products and sustainability:

Sustainable product design, including the more limited concept of Ecodesign, is one globally recognized way companies work to improve efficiencies, product quality and

¹ (The first number refer to the reference/the second number refer to page's numbers in the reference)

market opportunities (local and export) while simultaneously improving environmental performance. In many developed economies, because of a high level of awareness about the potential of efficiency and environmental concerns, D4S efforts are linked to wider concepts such as product-service mixes, systems innovation and other life cycle-based efforts. In developing economies, more immediate technical support is needed to introduce the D4S concept. Many organizations have developed tools and approaches to help companies (and those who work with companies) rethink how to design and produce products to improve profits and competitiveness and to reduce environmental impacts at the same time. As a result, and based on experience gained, Ecodesign evolved to encompass broader issues such as the social component of sustainability and the need to develop new ways to meet consumer needs in a less resource intensive way. D4S goes beyond how to make a 'green' product - the concept now embraces how best to meet consumer needs – social, economic and environmental - on a systematic level. (1/21)

2-1-2- Products and innovation:

Product innovation is directly linked to sustainability: both are oriented towards change and the future. Sustainability is concerned with the well-being of the future. Product innovation is concerned with creating new products and services that generate value only if they fit in this future. Innovation is a broad concept that is used in many different contexts. As a result, there are many definitions of innovation. One useful definition is: "the commercial or industrial application of something new— a new product, process or method of production; a new market or source of supply; a new form of commercial, business or financial organization". Most definitions of innovation emphasize 'newness' and 'successfulness'. (1/22,29)

2-2- Sustainable fashion:

Sustainable fashion considers both the social and environmental impacts of a garment through every aspect of its life. Sustainable fashion uses lifecycle analysis to investigate both social and environmental issues throughout the entire Ecofashion Lexicon: ethical; environmental; green; fair trade; organic; recycled; provenance and sustainability. Sustainable fashion has married social issues and environmental concerns in order to create socially responsible design strategies. The relationship between design and sustainability within the fashion industry is investigated through five key product lifecycle phases: material, production, transportation, use and disposal. Fashion design has the power to not only change the ways in which the fashion and textile sector currently manufacture garments from an environmental standpoint, but also to affect social change. (3/11)

Categorizing fashion designers based on their design intentions has effectively highlighted how the postmodern designer has shifted away from function, only to focus on the aesthetic. Socially responsible design, however, requires designers to marry such concepts, in order to create designs that meet the aesthetic expectations of the industry without negatively impacting society or the environment. (3/3)

2-2-1- Sustainable fashion's concepts:

The philosophical and analytic framework of sustainable fashion draws on and connects with different fields and concepts. When we think about sustainable fashion, our thinking gravitates toward environmental issues and green design, but the present research explores some of economic concepts that facilitate in positive changes in and the progression of sustainability:

2-2-1-1- 'Ethics + Aesthetics = Sustainable Fashion':

The aim of "Ethics + Aesthetics" is to further establish sustainable practices and fair labor within the fashion industry. While the concepts of recycling and using organic materials are quite familiar in fashion, this concept is seeking to broaden the definition of what constitutes sustainable fashion by exploring ideas such as modularity, minimalism, and memory.

2-2-1-2- Reduce, Revalue, and Rethink:

"Reduce" examines minimalist and innovative designs, "Revalue" focuses on the sentimental value of a piece and the attachment the wearer has to the garment. This theme manifests in the form of upcycling and handcrafting, and "Rethink" looks at the life cycle of a garment and the pace at which the fashion industry turns clothes over from season to season. (4)

2-2-1-3- Zero-waste fashion:

Zero-waste fashion design (fashion creation without fabric waste) has only emerged in recent years as part of the latest wave of "sustainable fashion." It is evident, however, that garments have been designed and made with little or no waste for centuries. (5)

2-2-1-4- Transformative garments:

Transformative garments allow customers to wear various styles with one garment. The transformative garments use modularized interface which give customers a chance to create their own styles, use the dress for a longer period, wear it in various situations, reuse old clothing (6). Transformative garments come in several flavors, almost completely low tech. Here is a short list of existing garments and/or fashions that fit within the "transformables" label.

2-2-1-4-1- Reversible garments:

Reversible garments have been around for hundreds of years. The basic idea is that the inner surface of the garment is as finished as is the outer surface, but with a different design or pattern or use of color in fabric choice, so that the garment will usually have a dramatically different appearance whether it is worn rightside out or wrongside out. Ensuring reversible requires careful design and not all designs lend themselves to this process – in general, garments must be composed of a single layer to permit reversibility.

2-2-1-4-2- Folding/tying transformations:

A second type of transformable garment is the garment that can be folded and/or tied in different ways. The Indian Sari is a perfect example of such a garment – it is simply a long rectangle of cloth, usually silk, that may be folded and tied in many different ways. A company with a similar approach to transformable fashion is Jolier – their garments are marketed not only as multi-function but also as size-independent. Another recent example of a transformable of this type is the cotton top made by Ann Demeulemeester.

2-2-1-4-3- Snaps and buttons:

The use of snaps and buttons to allow for multiple uses of garments has also been around for a long time. One contemporary designer who uses snaps and hooks as well as zippers to create transformable designs is Masaaki Sato.

2-2-1-4-4- Strings and elastics:

The conversion of a skirt into a top has long been possible if the skirt uses an elastic or drawstring at the waist. A recent example includes the efforts of the ethical fashion group The New Jocks – this group focuses on fair trade practices, but in addition their

collections include garments that convert a fold-down belt made from stretch fabric into a tube top, and a drawstring skirt that converts to a top by unsnapping fabric at the sides to form armholes.

2-2-1-4-5- Zipped transformations:

A certain number of garments with zipped transformations have been showcased over recent years, of which the most commercialized variant are the pants that can be converted into shorts by unzipping the pant legs. Some designers have incorporated zipped sections that can permit certain forms of transformation – a good example is the American architect and fashion designer Wen Guo, who uses zippers in the lower part of a mid-length dress to add or remove flare in a contrasting color from the base color used in the design. In our opinion, zippers are one of the most underused technological innovations of the twentieth century – this despite the high usage of zippers throughout particular types of clothes such as jackets. The problem is that zippers have been almost exclusively used to replace buttons or other fasteners in standard locations on garments (such as at front center or the top of pockets) rather than to explore additional locations and ways of using zippers. This has begun to change in recent years, but the use of zippers for the most part is still highly conventional. Counter examples exist however – one has only to think of the unusual transformable garments developed by designer Rad Hourani.

2-2-1-4-5- Detachable sections or garment elements:

The ability to detach pieces of clothes, although this has been used for generations, has not always been used with great originality. One recent example of a “detachable fashion” is promoted by the company Ch-armz – the idea of wearing sleeves independently of the garment itself. Although not strictly transformative in the same sense as other examples given here, the idea of working with detached sleeves is both original and supports greater flexibility in how clothes are worn. (7)

3- Methods and analysis:

The present research explores sustainability issues in fashion design. It does this from the perspective of design. Here design is used in its broadest sense, not just as stylist or shaper of things (though this too has an important role), but also as a promoter of social change.

The goal is to show that there is a wealth of different ways in which we can go about building long-lasting environmental and social quality through the innovative design, production and use of fashion that go beyond traditional ideas or expectations, so we used the concept of transformative garments (folding/tying transformation) in creating garments for women which give them a chance to create their own styles, use the dress for a longer period, wear it in various situations, reuse old clothing.

The following is an overview of eight innovative pieces of garment for women, which can be folded and/or tied in different ways to form each time a different style:



Piece number (1)



Piece number (1)



Piece number (2)





Piece number (3)



Piece number (4)



Piece number (5)



Piece number (5)



Piece number (6)



Piece number (7)



Piece number (8)

4- Results and discussion:

Fashion designs are much more than the fiber and chemicals needed to make them. They are signs and symbols, expressions of culture, newness and tradition. They link us to time and space and deal with our emotional needs, manifesting us as social beings, as individuals. Thus sustainability issues in fashion are as much about cultural, economic and social phenomena as material and manufacturing ones. They are also about decadence, consumerism, expression and identity.

Transformative garments is one of the sustainable fashion's concepts, which give customers a chance to create their own styles, each piece of it can be worn in multiple different ways; the sum of one product is infinite and only bound by innovation.

5- Conclusion:

- 1- Transformative garments can be used in innovative fashion designs for women.
- 2- Harmony between innovation and sustainability can be achieved in creating fashion designs for women.

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