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Principles of Slow Fashion Application in Clothing Collection Creation

Agnė Antanavičiūtė and Vaida Dobilaitė
Department of Materials Engineering, Kaunas University of Technology, Kaunas, Lithuania

Corresponding author:
A. Antanavičiūtė, Department of Materials Engineering, Kaunas University of Technology, Studentų St. 56. Kaunas, Lithuania
E-mail: agne.antanaviciute@ktu.edu

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Today we can clearly see the damage which is caused by fast fashion production and mass consumption. Therefore, a relevant issue is how to reduce consumption, waste, and threat to the environment and human health. Research into the slow fashion designers' approach towards eco-friendly and slow fashion products shows that it is necessary to spread ideas of slow fashion widely and teach users about ecologically friendly clothing. Therefore, this paper analyses theoretical and practical slow fashion principles applied by slow fashion designers; according to this, the collection 'Just Share' was created. The aim of the collection is to spread ideas of slow fashion and adapt them in specific technical projects dealing with the problems of use and production waste minimisation and creating sustainable, easily recyclable, environmentally friendly garments. Products for reducing consumption are developed based on the idea of sharing clothing. Therefore, garments are one size and suitable for different types of figures of men and women. Clothing design is inspired by folding, so models have various pleats, which allow minimal transformation of the garment giving the product its individuality and extending time of wearing. Models are designed with a minimal amount of accessories and minimum division lines, maintaining the uniformity of materials and uncomplicated sewing technology. In this way, timeworn garments can be easily remade. Original constructions of models are based on the 'zero waste' principle. This method reduces waste generation. So this research was prepared using the principles of slow fashion, which has a potential to reduce excessive consumption and stop growth of textile waste.

Keywords: *textile waste, slow fashion, clothing, zero waste*.

1 Introduction

Fast fashion has formed an artificial consuming need (Chick and Micklethwaite, 2011). It has increased damage to surrounding environment, clothing industry employees and consumers themselves. Though we can barely see this slowly accumulating damage caused by fast fashion apparel now, the continuing rise in natural and human resources waste will change the situation to critical (Morais *et al.*, 2011). Textile industry uses enormous amounts of water. This causes harm to the global water system (Oller *et al.*, 2010). Fast fashion has always attracted consumers, because a lot of goods are colourful. Due to high manufacturing speed and low producing costs, goods are coloured with non-

ecological paint. The manufacturing process disposes of huge amounts of wastewater, which contains chemically active paint, aerosols, chrome, high biochemical and chemical oxygen concentration. According to latest statistics, wastewater in China has already reached 390 million m^3. It includes 51% of industry wastewater. This number increases by 1% each year (Zongping *et al.*, 2011). Discharge of wastewater polluted with sediment, oil and grease depletes dissolved oxygen in natural ecosystems. Oxygen reduction increases water pollution. Wastewater with dissolved paint and other chemicals increases the turbidity of water and slows down photosynthesis (Josep, 2007). Textile paint released to environment during washing is particularly resistant to sunlight, heat, oxygen and is not degradable (Noroozi *et al.*, 2007). Experiments have shown that traditional wastewater treatment methods are not effective because of chemical stability of pollutants (Aguedach *et al.*, 2005).

Clothing industry uses not only a high amount of water, but fuel too for manufacturing and transportation needs. Global damage to the nature is increased by fast fashion marketing, commercials and fashion magazines. They provide 9 to 12 new collections each year (Zonatti and Barukque-Ramos, 2011). This influences the consumers' wish to renew themselves and spend more. The lifetime of clothes is often reduced to one season instead of the average clothing lifetime, which is 3 years (Zonatti and Barukque-Ramos, 2011). Unsorted textile trash goes to scrap heaps. In this way, trash reaches consumer environment and affects their health. Today in Lithuania the largest amount of waste is textile waste. According to the Regional Waste Management Centre, about 716 tons of textile waste were removed to landfills in 2012 only. Special containers of textile were placed only in Vilnius, Kaunas, Klaipėda, Neringa and Trakai. Valuable waste discharged in these containers is later sorted and selected for re-use: to produce mattresses and other products, or to be exported to poorer countries.

This situation caused by fast fashion manufacturing and consuming can be sorted out with an alternative - slow fashion. Slow fashion is opposite to fast fashion, which has been formed by fashion industry globalisation, profit optimisation and massive production growth. Slow fashion combines ecology, ethnic and 'green' movements. Slow fashion can be interpreted as sustainable fashion. The purpose is human health friendly, fair environmental, economical, and social system development. Many well-known designers like Marks&Spencer, Esprit, H&M, Stella McCartney, Issey Miyake, Katherine Hamnett and others have already applied slow fashion principles and ecological style in their work (Bot-Budeanu *et al.*, 2011).

The aim of this article is to analyse slow fashion principles and apply them on slow fashion philosophy-based apparel collection.

2 Materials and methods

This article presents the created collection 'Just Share' according to the theoretical and practical slow fashion principles.

Firstly, in order to create a sustainable clothing collection, it is essential to know what slow fashion principles are. Therefore, literature analysis and review was planned. This analysis allows us to define slow fashion principles, possibilities to apply them for apparel production and practical usage in clothing collection.

Secondly, it was found out how these principles were applied by designers in their ecology-based collections. In order to find out the designers' approach towards slow fashion principles, a variety of research methods, which are divided into quantitative and qualitative, can be applied. The research methodology selected is a type of quantitative research methodology, i.e. a survey. The survey method investigates social and individual consciousness like needs, interests, views, and opinions. Survey is a data collection technique, where respondents answer questions in writing (form) or verbally (the interviewer). In this research, designers were interviewed verbally. An interview is a conversation between 2 or more people where questions are asked by the interviewer to elicit facts or statements from the interviewee. Thus, a form consisting of 4 open questions related to slow fashion application, environment friendly products and sales realisation was designed (Table 1). This form was used as an interview questionnaire. It was scheduled to interview at least 5 Lithuanian designers who develop slow fashion philosophy in their work. Then the slow fashion principles were defined, and the collection 'Just Share' was designed according to them. The collection was created as follows: an overview of slow fashion design and slow fashion principles was performed; a source for collection inspiration was defined; ideas were generated, selected and purified; then, a collection design was created; and constructions of models and materials were selected in accordance with the requirements of slow fashion principles.

Table 1. Questions for designers.

Number	Question
1.	What are the creative principles in your slow fashion collections, eco-friendly products development?
2.	Is there a need to create products based on slow fashion philosophy?
3.	What are the new trends prevailing in clothing consumption nowadays?
4.	How do you realise slow fashion collections and eco-friendly products?

3 Results and discussion

3.1 Analysis of theoretical and practical slow fashion principles

After literature analysis, it was defined that slow fashion collection models are characterised as high quality, authentic, long lasting and comfort. The production process has to be environmental and human friendly. The creation, design, constructing and manufacturing resource demand should be minimised. The textile waste between templates has to be reduced to zero. In the creative stage, it is necessary to sustain the availability to adapt the models for a few seasons. Fast fashion trends should be ignored. Models should be original and timeless in design, which you can modify and wear in a few ways. It should provide an opportunity to even share the garment with someone, despite age or body size. Collection models have to be one size and suitable for different people. Raw materials and ads have to be natural, ecologically raised and processed.

The interview analysis revealed the situation in Lithuania. According to designers, slow fashion is only starting its first steps here. Ecological garments are sold in small quantities, usually on the Internet, or are created on individual orders. The designers were asked what principles they used when creating slow fashion collections. They enumerated the basics and interpretations of slow fashion ideas. Designer Vitalis Čepkauskas mentioned rejection of one day trends, vision forward, and looking at inner self. Jonas Linen mentioned disobedience of models to fast fashion requirements, ecological raw materials, and reduction in template waste. Neringa Rūkė indicated product relationship with nature, a wide view angle, and one-size garment development. Jovita Strobeikaitė suggested promoting wise consuming, responsible fashion and looking after environment. Agnė Deveikytė mentioned handcraft, promotion of individuality, application and usage of old techniques.

The principles disclosed by Lithuanian designers have proved that slow fashion is already here and expanding. According to the established principles of slow fashion and their interpretation in various ways, the collection ‘Just Share’ was created (Figure 1).

Table 2. The main principles of slow fashion.

The main slow fashion principles of literature review	The main slow fashion principles of interview	The main slow fashion principles adapted to collection ‘Just Share’
High quality	Individuality, originality	Natural fabrics
Authentic	Handcraft	One size garments
Long lasting	Responsibility	Zero waste
Comfort	Minimal waste of fabrics	Local recourses
Minimal or zero waste	One size garments	Easy remake
Natural, ecological, local materials.	Ecological materials	Originality

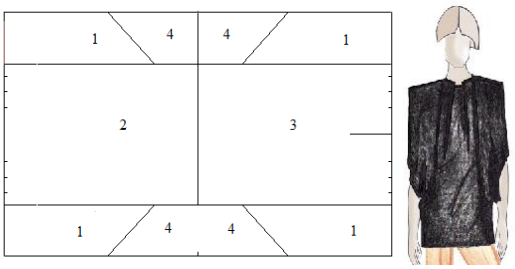
Figure 1. Models of collection ‘Just Share’.

3.2 The design of collection ‘Just Share’

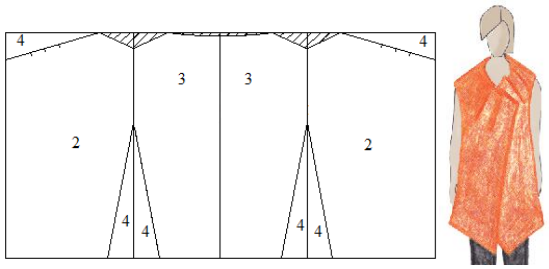
The main art idea of this collection was to produce clothes with their own personality, living their own life, copying the cycle of nature, i.e. birth, growth, maturity, aging, renewal, wane, and death. In the aging stage, they can be used for another purpose or passed on to future generations. This collection was made by applying slow fashion principles. At first, ecological material was chosen. It was 100% linen fabric and a small amount of garment addition, which are 100% recyclable. This stands for the slow fashion principle: designers have to try to ensure the nature of all raw materials, energy consumption, and innocuous production. This means only safe raw materials will be used, energy will not be wasted, and no harmful particles will be excluded. It requires choosing natural, ecological, certified fibre and other raw materials and refusing usage of harmful treatment of raw materials. Development requires local resources, like local raw materials. Design ideas should be inspired by culture, history, and local symbols and reveal authentic traits.

Pure linen fabric was chosen for collection models as a Lithuanian symbol. Another important principle is to ensure that models are produced with minimal material waste. It is better to avoid producing waste, instead of disinfecting and utilising waste after it was made. To achieve this purpose, models were designed with the zero waste principle.

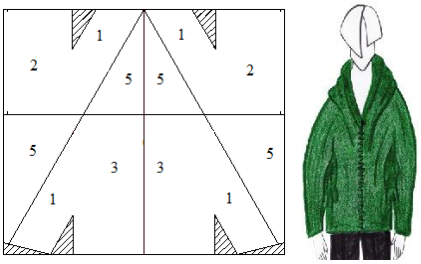
The clothing production details were stuck together like a puzzle without template waste. These models were inspired by origami. A large rectangular fabric is divided in strict geometrical forms and bent in many different ways. These models were made using all of the fabric (Figure 2). Large details and minimal division was chosen in order to use the fabric again. Models can be easily dismantled and used for another product.



Fabric length 95 cm, width 150 cm



Fabric length 70 cm, width 140 cm



Fabric length 105 cm, width 120 cm

Figure 2. Constructions of 3 collection models created following zero waste principles. Marking: 1 – sleeve, 2 – front, 3 – back, 4 – hem, 5 – hood.

The collection is also based on the isolation and purification process. Additional details have to be easily removed from the garment without damaging the fabric. For recycling, models necessarily have to be without other elements of different materials, plastic, metal, etc. The collection was designed with the same materials in each model. It is a perfect example how to apply slow fashion principles in production. This principle requires using fewer different kinds of materials and minimising different components. Additional component features should not change during product care, usage or the recycling process. Based on slow fashion philosophy, the 'just in time' term is universal, the product is not following fashion trends or mass style, and it is timeless.

Slow fashion pursues the principle of meeting the need and cutting the excess already in the designing process. The customer's garment has to be favourite, suitable and most comfortable. It has to fulfil customer's needs. This will help to reduce amounts of thrown away clothes. Therefore, collection models are one size. The customer can easily wear this model with the body size of XS or M. It will be comfortable despite figure dimensions. Then, the product is suitable for a wide range of people; it can be shared, exchanged, or passed on. This kind of clothing usage reduces the demand and manufacturing waste as well. This collection was prepared using the principles of slow fashion, which has a potential to reduce excessive consumption and stop growth of textile waste.

4 Conclusions

The main principles of slow fashion, which help to reduce pollution in the environment, are to create durable products and use environmentally friendly materials in order to create a product which can reduce consumption in various ways.

The zero waste principle reduces textile waste and allows for more creativity in the design process.

In the collection development process, it is quite difficult to consider all the product life cycle stages and follow the 'end-of-life design' solutions, but the predetermined performance of processing, sorting, and reusing possibilities could reduce environmental pollution.

Products can become more original and friendlier to the environment if they are created according to local raw materials and resources, crafts, handiwork, local culture and history.

One of the easiest ways to reduce consumption, is to offer one size clothes, change them, and pass on to future generations.

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Lėtosios mados principų taikymas kuriant rūbų kolekciją

Agnė Antanavičiūtė, Vaida Dobilaitė
Medžiagų inžinerijos katedra, Kauno technologijos universitetas, Kaunas, Lietuva

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Įsibėgėjus greitosios mados gamybai ir vartojimui bei išryškėjus jų keliamos žalos padariniams, aktualus klausimas – kaip sumažinti vartojimą, atliekas, grėsmę gamtai ir žmonių sveikatai. Atlikus lėtosios mados kūrėjų požiūrio į ekologiškus gaminius ir lėtąją madą tyrimus, išsiaiškinta, kad reikalinga kuo plačiau skleisti lėtosios mados idėjas ir gilinti vartotojų žinias apie ekologiškus aprangos gaminius. Todėl tyrime išanalizuoti teoriniai ir dizainerių taikomi lėtosios mados kūrimo principai, kurias remiantis sukurta lėtosios mados kolekcija „Just Share“, skirta skleisti lėtosios mados idėjas, jas pritaikant ir įgyvendinant konkrečiuose techniniuose projektuose, sprendžiant vartojimo ir gamybos atliekų mažinimo problemas bei kuriant tvarius, lengvai perdirbamus, aplinkai draugiškus gaminius. Gaminiai skirti vartojimo mažinimui, plėtojant keitimosi drabužiais idėją, todėl projektuojami vieno dydžio principu, tinkami įvairaus figūros tipo ir pilnumo vyrams ir moterims. Gaminių konstrukcijos įkvėptos lankstymo, todėl modeliuose formuojamos įvairios klostės ir atlenkimai, leidžiantys minimalų drabužio transformavimą, kuris individualizuoja drabužį taip prailgindamas jo dėvėjimo laiką. Naudojamas minimalus kiekis furnitūros, o modeliai projektuojami naudojant kuo mažiau skaidymų, išlaikant medžiagų vienodumą bei nesudėtingą siuvimo technologiją. Taip siekiama, kad nebenaudojamas drabužis senėjimo fazėje galėtų būti lengvai išardytas ir persiūtas į kitą gaminį. Originalios konstrukcijos sudarytos remiantis nulinių atliekų (angl. zero waste) projektavimo principu – sumažinant gamybos atliekas. Taigi sukurtas projektas yra svarbus, tolesniems moksliniams tyrimams lėtosios mados srityje vystyti.