Proactive Fashion Design and New Green Business Thinking

Kirsi Niinimäki
Aalto University, School of Arts, Design and Architecture,
Design Research, NODUS, Sustainable Design
• Products configure consumer needs and use patterns; hence, design can be said to be “practice-oriented”, creating certain everyday practices and consumption behaviour (Shove et al. 2007, 134–136).

• Current industrial design and mass-manufacturing systems stimulate consumerism and the production of disposable products (Walker 2007, 51).

• To create a new, sustainable balance between design, manufacturing and consumption, alternative ways to create products and doing business are required to drive more sustainable consumption behaviour.
FUTURE ORIENTED VALUE

SUSTAINABLE CONSUMPTION

FAR-SIGHTED PRODUCTS

SUSTAINABLE DESIGN

Niinimäki
2011
Innovative fashion

Garment constructions

New business models

Sustainable design
According to Manzini (1994) it is not enough to redesign existing products and make eco-efficiency improvements in manufacturing processes if aiming to reach a more sustainable future.

The focus should rather be on people’s consumption behavior, and a new radicalism is needed to stimulate a drastic change in consumption patterns.
Four approaches to the development of sustainable design

1. Repair
2. Refine
3. Redesign: Where we are, especially in the use of new technologies and materials to reduce the environmental impact of products
4. Rethink: Next shift, requires a radical change in mindset, and it can offer breakthroughs for new lifestyles, the ways of living and doing things, as well as approaches to fulfill consumer needs. This approach needs strategic innovations that lead to new business models

The current emphasis is on “...repair modifications to existing products, with some movement towards increasing the eco-efficiency of existing products – the refine approach.” Tischner and Charter (2001, 127)

Currently, changes to existing products are mainly made on the operational level, but new solutions should also offer value through sustainability and reduce the environmental impact of products and consumption in total.
Steps for sustainable design
1) Reduce
2) Reuse
3) Redesign
4) Recycle

Aging gracefully, aesthetically
“Upcycling is the practice of taking something that is disposable and transforming it into something of greater use and value.”

Globe Hope
Kierrätystystehdas 2009
MUJI

RE-USED YARN CAMISOLE

SIZE

UK 12
EUR 40

£12.00

MADE IN JAPAN
• Producers try to maximise their profit by increasing the production
• Production volumes are huge and some of the manufactured clothing do not get into market at all
• Producers try to keep up the brand value; only some of the unsold clothing end up in sales
Challenges in Sustainable Clothing Consumpton

• The use time of clothing
• Identifies levels in person-product attachment
• Attributes for product satisfaction, which is a possibility to extend the use time of the product
• Find alternatives ways to fulfill consumers vanity needs in appearance in a more sustainable and less materialistic ways.
• Mass manufacturing of clothing in cheap Asian countries has ended up in situation where cheap product prices lead consumers to impulse purchases and unsustainable consumption behavior: overconsumption, very short use time of products and premature disposal of the product.

• Accordingly the environmental impact of this industry is every increasing and simultaneously the textile waste is more than ever filling the landfills.
Clothing Consumption

• Currently clothing is far cheaper compared to household incomes than a few decades ago.
• Textile and clothing prices have fallen
• and currently the consumer possesses more and more cheap garments and low quality textiles.
• COMMENTS?
Consumption

• Consumption is increasing because of the cheap products’ prizes
• 100 years ago most of the household incomes were spent to food. 15% of the income went to clothes.
• Now we spend about 13,2 % to food and 3,4 % to clothes. (year 2001)

(Ahlqvist, Ruotsalainen, Sauli & Siikanen 1994, 98; Tilastokeskus a 2007)
Rebound effect

• During the last 25 years industrial development has achieved environmental improvements and has moved towards a smaller environmental impact. However, at the same time production as well as consumption has increased by the same levels, which erodes the environmental benefits of the technological advances: i.e. the rebound effect (Throne-Holst et al. 2007).

• Efficient production brings down product prices and increases consumption
• Consumers possess increasing amounts of short-lifetime clothes, which have been bought without deep consideration and used only a few times before being disposed of.

• In the UK the amount of clothing and textile waste is 2.35 million tons per year, from which three-fourths goes to landfills where it causes methane emissions to air and pollution to groundwater through toxic chemicals. (Fletcher 2008)

• Because of the low quality of textiles the use time of garments has shortened and recycling is no longer profitable: more waste to landfills
Textile waste

• 17kg/person in Finland
• 24 kg in Sweden
• 32 kg in USA
Clothing Consumption

• The average piece of clothing stays in the wardrobe for 3 years and 5 months.
• The consumer has worn it actively for only 44 days during that time (Uitdenbogerd et al. 1998 cited by Fletcher 2008).
Planned Obsolescence

• The present system in industry is based on fast cycles of fashion trends that aim to continuously produce new consumer needs and desires.

• Product life cycles are shortening, and companies must substitute their products at an increasing pace. A study by Procter and Gamble shows how the life cycle of consumer products dropped by 50% between 1992 and 2002. (Vaitheeswaran 2007)
Respondents’ estimation of the shortest use time of their garments

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 month</td>
<td>10.3</td>
<td>21.8</td>
</tr>
<tr>
<td>1-2 months</td>
<td>12.1</td>
<td>9.2</td>
</tr>
<tr>
<td>3-6 months</td>
<td>25.9</td>
<td>30.3</td>
</tr>
<tr>
<td>7 months-1 year</td>
<td>25.9</td>
<td>28.2</td>
</tr>
<tr>
<td>1-2 years</td>
<td>22.4</td>
<td>13.4</td>
</tr>
<tr>
<td>2-3 years</td>
<td>3.4</td>
<td>4.9</td>
</tr>
<tr>
<td>3-4 years</td>
<td>0</td>
<td>1.4</td>
</tr>
</tbody>
</table>
• What kind of garment you have used for very short time (pick one example)
• What kind of garment you have used for very long time
• Products are disposed of, not only because of the low quality (causing a short use time), but also because new trends and fashion make products look out of fashion.

• Consumers are actively seeking novelty and at the same time evaluating their appearance and the product world in a social context.

• The increase in waste streams can thus be understood as failed person-product relationships in the context of sustainable development (Chapman 2009: 20).
Respondents’ estimation of the shortest use time of their garments

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 month</td>
<td>10.3</td>
<td>21.8</td>
</tr>
<tr>
<td>1-2 months</td>
<td>12.1</td>
<td>9.2</td>
</tr>
<tr>
<td>3-6 months</td>
<td>25.9</td>
<td>30.3</td>
</tr>
<tr>
<td>7months-1 year</td>
<td>25.9</td>
<td>28.2</td>
</tr>
<tr>
<td>1-2 years</td>
<td>22.4</td>
<td>13.4</td>
</tr>
<tr>
<td>2-3 years</td>
<td>3.4</td>
<td>4.9</td>
</tr>
<tr>
<td>3-4 years</td>
<td>0</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Environmental interest

• The consumers’ interest in environmental issues affects the life span of garments:

• 84% of those consumers whose environmental interest is high reported using garments for more than five years while only 14% reported using some garment less than one month.

• Of the respondents with lower environmental interest, 59% reported using some garment for over five years and 22% said that they have used some garment for less than one month.
Environmental interest

• While evaluating their latest garment purchasing, rather many of respondents admitted to have done the decision in impulse; 24% of all respondents.

• 19% of respondents with higher environmental interest said that their latest garment purchase had been impulse shopping, compared to 31% of respondents with a lower environmental interest.
Impulse purchasing

- Some respondents commented that they had bought a cheap garment with low quality on impulse, which they had not even expected to last for a long time.
- Less consideration is used for cheap garments during purchasing.
Impulse purchasing

• impulse shopping had resulted in the wrong purchase decision rather often.
• Consumers noticed that the garment did not fit in a satisfying way, the colour was strange or wrong, the material felt uncomfortable in use, or that the garment did not fit into the existing wardrobe.
• These kinds of garments purchased in error may not be used at all.
Product satisfaction

• The set of attributes through which consumers evaluate products is limited and therefore possible to define.

• Some attributes are determinants leading to satisfaction whereas other attributes are related to dissatisfaction.

• A good performance according to attributes important to the consumer is the best route to ensuring product satisfaction. (Swan and Combs 1976.)
Product Satisfaction

**Quality aspects** (experienced in use)

- Good fit (size and cut)
- Durable materials
- Durability
  A) in use
  B) while laundering (stability in fit, material, colour)
- High quality in manufacturing (sewing work)
Product Satisfaction

Functional aspects

• Suitability in use
• Use experience
• Easy maintenance
Product Satisfaction

Aesthetic aspects

- Beauty
- Style
- Colour
- Fit
- Tactile feeling (material and fit)
• Fulfilling instrumental performance expectations in clothing (i.e. the quality experienced in the use phase) alone does not result in satisfaction.
• Expectations in expressive performance (aesthetic dimensions) also must be met in order to develop a sense of deep satisfaction. Expressive dimensions in clothing connect to a person’s psychological response to the product (the emotional experience).
• Yet these dimensions in satisfaction are not enough. Consumer’s personal factors, values and e.g. environmental interest influence the evaluation frame of reference.
• First laundering seems to be the critical stage while respondents are experiencing the quality of the product.
Design for Sustainable Consumption

• The challenge in extending product lifetimes is in achieving continuing satisfaction with the product also in the emotional level.
• Therefore it is essential to study long- and short-term use of products to identify those attributes and elements which enables the long-term use of products.
• On the other hand it is most valuable to define those determinants which lead to short-term use of garments to avoid these in design process.
Design for Sustainable Consumption

• Emotional durable design aims for deeper understanding of consumer experiences and moreover it aims for satisfying use experiences.
• It is important to offer good product performance in those attributes that are important to the consumer and which enables the long-term use of product.
• A deep emotional satisfaction is one way to postpone product disposal and thus extend the product’s life span.
Emotional Design

- User-centered, better product satisfaction, extending product lifetime
- Deep product experiences, deep product attachments, no disposing

Product attachment = Emotionally engaged experiences a user has with a product:

- **Enjoyment**
- **Memories** to persons, places and events
- Support of self-identity
- Life vision
- Utility
- Reliability
- Market value

- Unique design, emotional bonding with design, part-taking to design process, co-creation (modular structure), discursive attachment, enjoyable use, continuing product satisfaction, new experiences to come
Figure 8 Framework for sustainable product relationships, empathic knowledge and the field of design

Niinimäki, Koskinen 2011
### Have we forgotten consumers?

<table>
<thead>
<tr>
<th></th>
<th>Age under 35</th>
<th>Age over 45</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ‘Made in Finland’ aspect in clothes is important to me</td>
<td>40</td>
<td>60</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>It is important to me that textile production has a small environmental impact</td>
<td>71</td>
<td>65</td>
<td>70</td>
<td>63</td>
</tr>
<tr>
<td>I want to know about the production and environmental impact of the clothes I am purchasing</td>
<td>61</td>
<td>43</td>
<td>57</td>
<td>38</td>
</tr>
<tr>
<td>I am worried about the ethicality of the clothing production</td>
<td>64</td>
<td>45</td>
<td>64</td>
<td>40</td>
</tr>
<tr>
<td>I am worried about the environmental impact of clothing production</td>
<td>71</td>
<td>55</td>
<td>77</td>
<td>50</td>
</tr>
</tbody>
</table>

Niinimäki, Hassi 2011
• What brand you are wearing?
• Where is it made in?
• Do you know how it is manufactured?
• Do you know the values behind the product or company?
Increasing Product’s Life

• Life time guarantee
• Durability
• Product satisfaction, person-product attachments
• Product + services
• Price?
Fulfilling Consumers’ Changing Needs

• How we can offer change to consumers in a more sustainable way?
• In this level only better product quality and durability are not enough.
• PSS, Product-Service Systems
• Upgrading, modifying and lending services,
• Clothing clubs, change stocks
Fulfilling Consumers’ Changing Needs

• Creating these kinds of services creates possibilities to dematerialize the satisfaction of consumer’s wants and in fact they are opportunities to dematerialize the consumption.
• The company NOMO Jeans offers computer-assisted made-to-measure jeans by using a 3D scanner (http://nomojeans.com). Jeans are made individually according to each customer’s measurements. The customer can also choose the cut, colour, effects and details of his/her jeans.
Emotional Design

• Fulfilling more deeply customers needs

• Can we place the customers individual needs, emotions and memories in the centre of design process
• Designer Anna Ruohonen creates long lasting and high quality fashion (http://annaruohonen.com).
• She has created a timeless collection called Black Classic, where the designs are permanent but it is possible to order them in seasonal colours.
• Garments are manufactured only according to orders and according to each consumer’s individual measurements.
• This strategy helps to avoid overproduction. Moreover the good fit of the clothing helps ensure deeper garment satisfaction.
Anna Ruohonen Statement

• MISSION: Long lasting Design
• STRATEGY: Production on demand
• INVESTEMENT: Respecting the client
• RESULT: Intentional simplicity from uncompromising design
• The company Beibamboo offers children’s wear made of high quality and environmental friendly bamboo material (http://www.beibamboo-shop.com).

• It is a rental service, from where children’s wear can be rented and used for as long as it fits the child.

• The clothing is then simply returned to the company by post and a new order for larger clothes placed.

• Between each user the clothes are professionally cleaned, disinfected and treated for stains.

• Combining a renting service with eco-products maximises the environmental benefits of this approach.
http://www.beibamboo-shop.com

order on-line
www.beibamboo.com

1€
/item/week

guaranteed hygienic

home delivery
Small design business + locality + eco

• Recently the trend in local production has moved towards small design companies, whose interest lies in ecological thinking and who use the benefits of global eco-material production and sell their product effectively through networks and online.

• Muru in Finland uses Indian eco-cotton, which is dyed in Germany using an ecologically-friendly process, and the design, industrial knitting of the material and sewing work is then done in Finland in small scale processes. This design-centered way of producing small collections by combining imported eco-materials and local production with online selling is popular among young designers. (Niinimäki, Hassi 2011)
Muru
Design activism

**Welcome to Lastwear.com**

Lastwear is the world's first open source clothing company. We make strange, wonderful and durable clothing and accessories. We weave stories, fight corporate colonialism and believe that sustainability is the new grand narrative.

- Pay-What-You-Like campaign

*Lastwear* is a revolution in clothing manufacture. For one thing the company licenses all its creative materials under a Creative Commons license, but now – following a successful [Kickstarter campaign] – they are going to release all their production patterns for download so anyone can sew their own versions of the garments. 2007
Open source

DIY Dress Design:
Clever Color-Your-Own Clothing

DIY Dress-Up Ideas:
5 Sexy Ways to Upcycle Old Clothing
• Company Patagonia not only takes back its own products, old garments to be recycled into new fibre material, but also it is ready to repair broken ones.

• Consumer can send a broken garment to the factory to be repaired. Furthermore the company co-operates with local tailors, which offer they services to fix the broken Patagonia garment.

• In this way Patagonia combines local sustainable strategy to extend the use time of the product into global closed loop system.

• Transparency in production
Close loop production

Returnity

is the latest innovation from Backhausen: the world's first fabric made from flame-retardant Trevira CS. Thanks to a special environmentally friendly chemical optimisation process developed by Backhausen, the legendary Trevira CS is now cradle-to-cradle.
Modular structure

- A modular structure allows quick disassembly and reassembly of modules
- In terms of clothing, this would mean detachable parts or own selection
- Upgrade the product or to personalize the product through modifications; e.g. some pieces of the clothing can be changed or the consumer can select the details according to his favorite colors or materials
- Garments with a modular structure could also possibly need less laundering, if the clothes are designed with this aim. The parts of the garment that become soiled more easily can be detachable and thus easy to remove and wash separately. (Fletcher 2008)
Slow/Fast

• The fast fashion concept is more appropriate for consumers who need to follow trends closely and build a personal identity with external fashion symbols; hence the product lifespan is short.

• To be able to meet the needs of this customer group in a more sustainable way, the product has to be optimized for its real lifetime, the impact of the maintenance phase has to be minimized (e.g. no or minimum laundering during the use phase), and the materials must have a low environmental impact and be recyclable or biodegradable.

• Fast fashion could be used only for a couple of months and then returned to an effective recycling system or to an exchange network or stocks e.g. operating through the internet. (Niinimäki 2009a, Fletcher 2008)
Van Nes (2003) proposes the following design strategies for products’ longevity:

- design for reliability and robustness
- design for upgradability
- design for repair and maintenance
- design for product attachment
- and design for variability
Challenges for Economical Systems

• Service approach offers new business opportunities. In the systems based on service thinking products are investments and accordingly they are aimed for long-term use and they must be durable.

• Services that aim for product life extension offer new business opportunities both at local (e.g. renting, upgrading) and the global level (e.g. mass-manufacturing, online exchange stocks, and do-it-yourself concepts).
Challenges for Economical Systems

• Widening the producers’ responsibility in the clothing sector offers possibilities to change radically the current industrial manufacturing system and the economical thinking behind of it.

• If manufactures’ have the responsibility to take back product “old product becomes a source of potential value in the manufacture of new product” and industry is guided towards close loop and cradle to cradle thinking (Peattie 2010: 249).
Challenges for Economical Systems

• If the product can’t be recycled, it is economically wise to extend the use time of the product while disposal means extra costs for the company.

• EU law 2016
• It is possible to slow consumption and increase the longevity of products by design strategies related to intrinsic product durability and deep product satisfaction.

• Furthermore through services there is an opportunity to extend the enjoyable use of the product. The PSS (Product Service System) thinking can postpone the psychological obsolescence of garments by offering new experiences to the consumer in a more sustainable way.
Radical systemic change

• Green taxation
• Change in ownership
• Consuming less, higher prices, extended product lifespan
• Change in behaviour, needs, values
• Smaller volume of products and production
• Change in product attachments
• Distinction between short-life products and eternal products
• Ageing gracefully
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 positive sustainable future scenario.
Values, Ethics, Moral?

• The increasing consumption, short-lived products, the growing waste problem, the environmental impact of increased industrial production and the social and ethical problems of industry in Asian countries
• The current market economy is based on maximisation of industrial outputs and average (or low) quality
• On based on what values we design, manufacture, consume and make profit?
• Where are the biggest problems or barriers in sustainable development?
• Biggest barriers for sustainable fashion?
• Opportunities for sustainable fashion?
• What a designer can do?
New balance?

Design – manufacturing – consumption

Green business

• Value thinking, what kind of and whos values are embedded in design
• There isn’t value free design
Create PSS to extend the use time of clothing