



FLUX: Design Education in a Changing World

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HOW GREEN IS YOUR WARDROBE?

Can South Africa be green enough to ensure environmental and economic sustainability in eco-friendly apparel?

Abstract

Introduction:

The objective of this paper is to probe answers to the question: Can *green apparel* (apparel that can be classified as environmentally friendly) be economically sustainable in South Africa? The concept of eco apparel should be more than just supplying current fashion needs and trends. For most producers and consumers of eco apparel products, the philosophy of going green is the need to preserve the environment.

What differentiates a *green product* from a *not-green (or not so green)* product? One needs to establish if the South African consumer is indeed interested in the rationale of *going green* and would therefore select *green apparel products* as a preferred choice. This paper investigates whether the concept of *going green* has to do with a sense of social responsibility and the associated prerequisite for protecting the environment, or whether consumers base choice on what's new and trendy.

Another issue to consider is whether South African consumers are largely "light" green consumers, that is, those who are interested in the cause but who do not want to actively get involved, or whether they are largely "dark" green consumers. The latter are consumers who actively want to save the forest and find fashion the means to accomplishing the goal. Where the light green consumer might only view *green apparel* as a passing fashion phase, the dark green consumer could possibly ensure economic sustainability in producing *green apparel* products. The paper will ascertain what *green apparel* entails and to what extent design and manufacturing processes contribute to the provision of apparel products with *green status*. Lastly, what fashion design education should do to encourage/enable students to develop apparel products by taking environmental consciousness into consideration.

Conclusion:

The study will need to establish if the above could lead to establishing a possible future and sustainable trend in the *green apparel product* category. Would the *green effect* be able to find sufficient market share in South Africa or would it disappear before the actual benefits of *being green* can be felt?

Key Words:

Eco apparel products, environmentally friendly, economic sustainability.

This paper is a discussion of eco-design and eco-apparel and the environmental and economic sustainability thereof in South Africa. In this paper the word *apparel* refers to items that are worn; in other words *clothing* (apparel = clothing). The word *apparel* is most commonly associated with high volume production of clothing items that are sold to the general consumer in retail outlets. The word fashion is generally associated with apparel/clothing, but could also include other aspects that form part of current lifestyles and trends in other design disciplines; i.e. interior design. Most design curricula dealing with apparel/clothing is referred to as fashion design, therefore in this paper the word fashion specifically refers to current trends in clothing/apparel.

The objective of the paper is to develop a discourse on environmental issues relating to apparel (eco-apparel) in South Africa and the input these *green* issues will have on the subsequent development of fashion design curricula.

Introduction: Going green or not?

Being green isn't just something we need to do at home OR at work; it's something we need to do at home AND at work in every aspect of our life."
(World Business Council for Sustainable Development [WBCSD], 2007: 1)

In an article in Time magazine earlier this year (The global warming survival guide), 51 suggestions were given which the average consumer could do to slow global warming – a guide to some ideas that had a *feel good factor* (Kluger, 2007: 51 – 71). Of these, the following directly relate to apparel and in all of these design is evident:

- No 7: *Hang up a clothes line* - 60% of energy associated with a piece of clothing is spent in laundering it.
- No 8: *Give life to your old fleece* - The Patagonia model of recycling¹.
- No 11: *Take another look at vintage clothing* – starting a “swap-club”
- No 29: Remove the tie – more efficient dressing?

A few were indirectly related to apparel and the design thereof:

- No 24: *Just say no to plastic bags* - don't we all take our products home in a plastic bag?
- No 26: *Plant a bamboo fence*²
- No 30: *Shut off your computer* – efficiency in the workplace
- No 32: *Kill the lights at quitting time* – efficiency in the workplace
- No 35: *End the paper chase* – recycling paper and using recycled paper in the workplace.
- No 37: *Think outside the packaging* – why use packaging at all

Practical and do-able suggestions for the consumer at large; but will these 51 suggestions be sufficient to protect the environment? Most of them seem fairly superficial and for the average young and trendy consumer definitely not connected to current fashion trends.

The concept of eco-apparel/green apparel as it will be referred to in this document, can best be explained in the following eco-value circle (refer to figure 1).

¹ The Patagonia concept is further discussed in *Green thinking – cradle-to-cradle*.

² Bamboo fibres and their use in knit fabrics is an exciting new development in eco-textiles

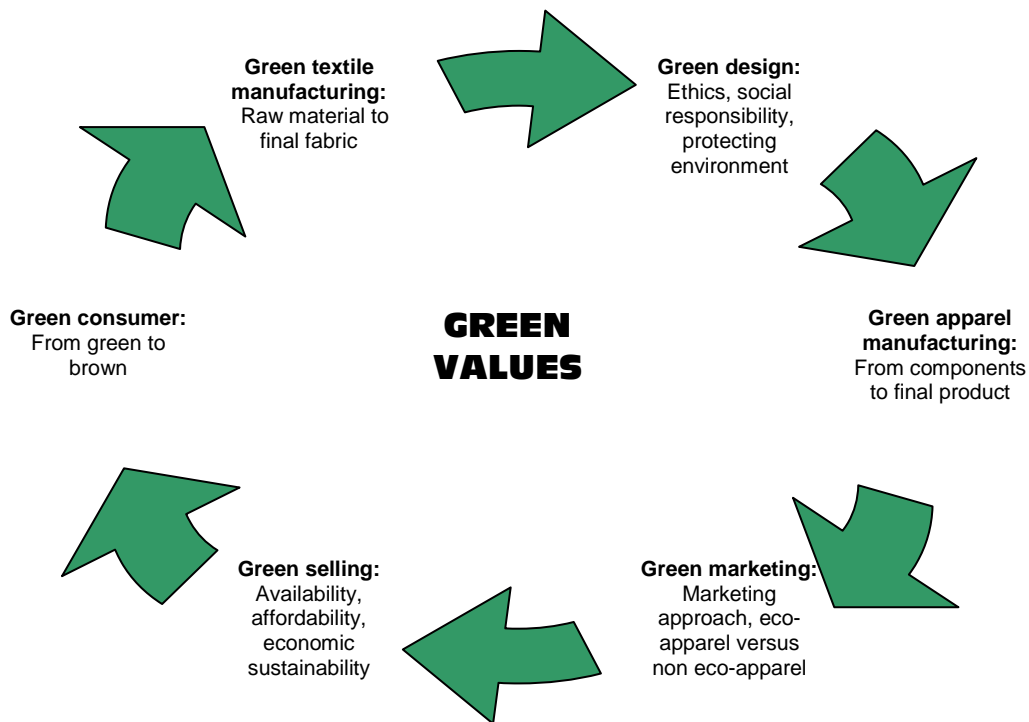


Figure 1: The green value circle

This concept will only have value if a green process is followed through from the production of raw material to identifying and producing for a green consumer. This paper briefly explores the components of the circle from product development (of which design is the beginning) to consumer, in a South African context.

A green model

A proposed three-way model of linking concepts and issues

Environmentally friendly textiles (green textiles) form, for the purposes of this argument, part of the components that are used in the production of eco-apparel.

A model, consisting of three interconnected concepts is proposed in order to assist in clarifying of the “green” concept (refer to figure 2). The model contains the following:

- Green thinking explains the role that design should fulfil in the development of eco-apparel. Design, sometimes referred to as product development, would have a determining effect on the components used in the products, as well as the production processes implemented.
- Green consumer looks at the type of end user that would select a green apparel product.
- Green selling investigates market share and if going green in South Africa is economically viable.

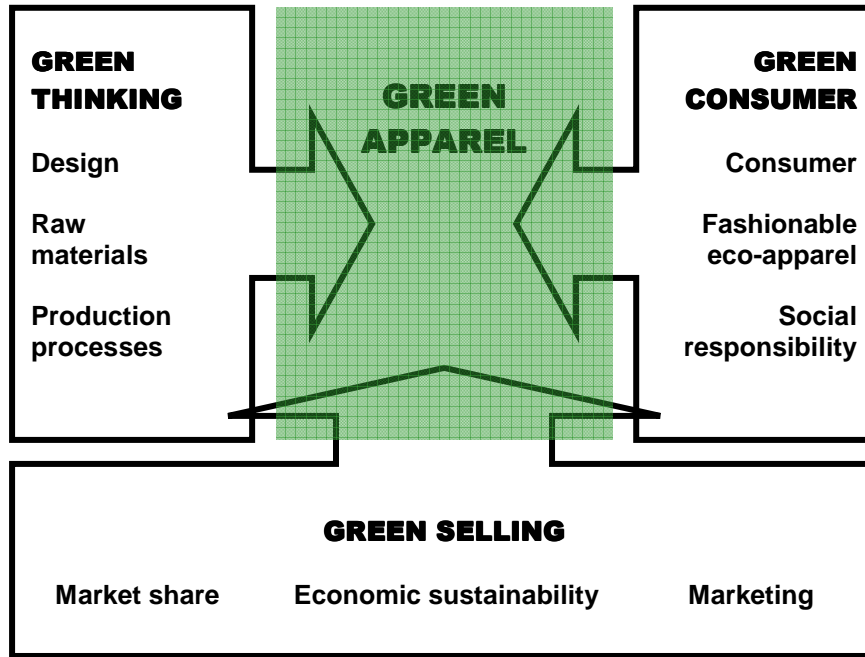


Figure 2: A green model

The underlying assumption here is that these three concepts greatly influence the survival of eco-apparel/green apparel in South Africa. In the text that follows, each of these three concepts will be discussed, and the economic and environmental sustainability of eco-apparel for the South African market probed. To be able to understand the concept of green apparel, one would need to identify how “eco” can be combined with/incorporated into “apparel”.

The bigger picture

Why green?

Green apparel products, products that have been produced taking the environment into consideration, evoke images of free flowing and airy garments, worn by sandal strapped people that have not been able to break away from the 70’s, and whom believe that 100% pure *au naturale* is the only way forward. One of our students recently called this type of consumer the “botanical group”. If these are the only people interested in eco-apparel, then further development in eco-apparel is not necessary – the botanicals will probably grow their own.

Going green is definitely a hot buzzword. Is the approach given in the 51 suggestions sufficient to ensure a greener planet? On the other hand, development of eco-apparel is on the rise, but the products are currently available in a higher price category such as bridge and better³. If eco-apparel is not affordable by the average South African consumer – is it worth all the effort?

Woolworths reported in June that they wish to develop organic cotton farming in South Africa, boosting the sale of organic cotton garments from R30 million currently to R400 million by 2012. At present, the retailer seems to be importing organic cotton from India, as not sufficient development of certified organic cotton is available from Southern Africa. Uganda and Tanzania apparently do grow organic cotton, but these countries do not have the necessary infrastructure to develop the cotton into textiles (Pretoria News, 2007: 14).

³ The *bridge* and *better* price categories as described by Burns & Bryant (2002: 144) is where (in general) the higher priced items, and in particularly leading brands, are placed. This price category forces eco-products into a niche market and excludes a large section of South African buying power.

But, if eco-apparel is a product category that needs further development for reasons relating to protecting the environment, health or creating export opportunities – a lot of work still needs to be done. Is the eco-apparel market share in South Africa big enough to be economically sustainable and would it ultimately lead to growth in environmental sustainability in this country?

The following questions are pertinent:

- Are there enough green consumers to warrant the effort gone into producing eco-apparel, or is eco-apparel currently perceived as a trend (a fad) and will die out in a season or two.
- If we do have sufficient consumer volume, and economic sustainability deems possible, do we have a community of apparel designers, manufacturers and retailers that have bought into the green apparel concept and who see a business opportunity in going green?

To answer these questions, one would first need to establish how eco-apparel fits into the bigger picture.

Eco-apparel and sustainable development

The concept of sustainability is broad, and not intended to be discussed at length in this paper. However, one cannot probe questions around the sustainability of eco-apparel in South Africa without briefly reviewing the concept of sustainable development, economic sustainability and environmental sustainability.

The Bruntland Commission's⁴ definition of sustainable development is *development that meets the need of the present without compromising the future generations to meet their needs*. What should also be taken into consideration is that sustainable development is a global objective and includes:

- ✓ economic growth,
- ✓ social cohesion and
- ✓ environmental protection.

Stiglitz (2002: 251-252), on the other hand, warns that sustainable development should not merely be for the above-average consumer price category, thereby ignoring the rest of society. Almost in the same breath, one needs to remember that eco-apparel needs to *prove to be a business opportunity*.

Can any product, not just apparel, be perceived as adhering to environmental sustainability, be economically sustainable and allow for economic growth? Economic sustainability in eco-apparel is currently only applicable to a high-priced product category. It is because of this fact that eco-apparel might have a short-lived product cycle (fad). Is there a business opportunity and would it be worth the effort? The above is a debate that needs further investigation. Several examples exist which need to be investigated. Denmark is a very good example, where eco-design is taken very seriously⁵; another is Sekem (Egypt) where superb organic baby clothing is produced. The following section serves to find an explanation for the concept: "green wardrobe". What makes one product greener than the next?

Green thinking

The development of the green wardrobe

Some areas within eco-textile and apparel design and production are tangible, well definable and very clear in their objectives. In others, the concept of eco-products or eco-production becomes intangible. Areas, within the design of the product or the processes used in manufacturing the product, are not so clearly delineated or definable. In other words, it cannot

⁴ This definition is taken from the European Commission's document regarding a European Union Strategy for Sustainable Development (2002: 21-25).

⁵ Refer to the book: *Guidelines – a handbook on the environment for the textile and fashion industry* in which several case studies are given and could serve as guide to the textile and apparel industry in South Africa (Breds, Hjort, Kruger, 2002: 19 – 23)

be described as: if you do A, the product is x% cleaner or more eco-friendly, thereby determining the ecological foot print of a product. In order to establish the above, one will need to establish what eco-apparel consists of.

Green textiles

In South Africa no specific standards, guidelines or legislation⁶ exists, prescribing what green apparel should consist of. Other countries have clear do's and don'ts regarding eco-textiles⁷. According to Cleaner Production Initiative of the CSIR (Hetherington, 2005: 4-11), when producing green textiles the following needs to be considered:

- *Measurable reduction in water, energy and chemical consumption and waste effluent.*
- *Transfer of cleaner production knowledge to a wider textile industry*
- *Promote cleaner production as a solution*
- *Marketing eco-sensitive cotton products.*

In the above, eco-textiles need to have a measurable percentage of organic material included. The Cleaner Production Initiative specifically promotes organic cotton. Other possible organic/partially organic fabrics have been developed. Some of these include hemp, bamboo fibres, silk and cotton flax.

The use of recycled textile fibres is not necessarily perceived as green textiles. Yet, should this not also be taken into consideration when considering the bigger picture? Green thinking should not necessarily mean organic. The recycling of soda bottles⁸ is as much a way of protecting the environment as using organic components.

Green apparel

Green apparel should therefore be a combination of various aspects. It is generally accepted that eco-apparel could be⁹:

- an organic product made of organic textiles such as 100% cotton
- partially eco, where only a percentage of organic textiles is used
- recycled matter from which a textile is produced
- a combination of the above.

Protecting the environment does not only relate to using either 100% organic or partially organic textiles, it also includes recycled textiles. Any apparel product can therefore be grouped into two categories – (a) *cradle-to-grave* and (b) *cradle-to-cradle*.

A: The cradle-to-grave product

In the case of an eco-apparel cradle-to-grave product (as shown in figure 3), the product should have had a reduced negative effect on the environment¹⁰ once it reaches the end of its life-cycle and ends up on the land fill. This is possible, if the product entirely/partially consists of organically developed textiles and other components. For example the thread that is used to construct the garment, all textiles used in the product, i.e. interlining, fastening methods.

⁶ In July 2002 the National Economic Development & Labour Council (NEDLAC) tabled a study undertaken to review eco-labels in other countries in the world, to determine the implications of establishing such a label for all products (not only textile products) in South Africa. This report compared various established eco-labelling systems in the world, and provided positive and negative implications of such a system for the South African market. An eco-label initiative would need government legislation and a decision making body consisting of all relevant stakeholders. The study emphasises that the success of such an initiative depends on "...the level of environmental awareness and purchasing power of consumers, the credibility of the label amongst consumers, and the nature of the market for the eco-labelled products" (Nedlac, 2002: 2). The possibility of establishing a labelling system in South Africa would be dependant in identifying probable product categories, the relevant environmental criteria, developing consumer awareness and certification standards.

⁷ EU Flower is probably the most referred to in eco-apparel.

⁸ Refer to (b) Cradle –to-cradle product.

⁹ Several sources have describes eco-apparel as such. The source that is the most articulate on this subject is Breds, Hjort & Kruger – *Guidelines - a handbook on the environment for the textile and fashion industry*.

¹⁰ Lester Brown refers to the *throw away economy*, which should be replaced by a *reuse* or *recycle economy* (Brown, 2006: 4-5, 109).

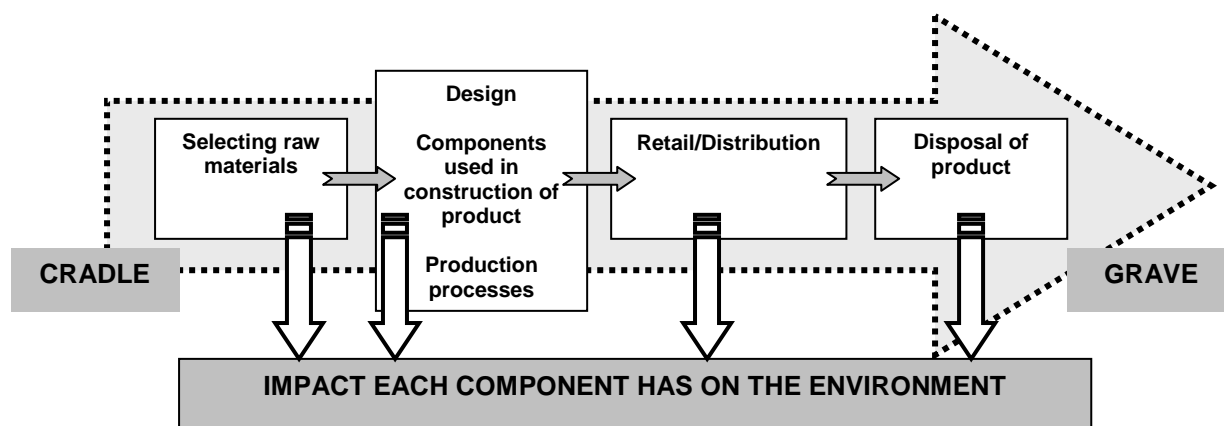


Figure 3: Cradle-to-Grave concept¹¹

If one only considers the textiles used in eco-apparel, producing an organic apparel product is feasible. The Danida¹² project established worthwhile results for all involved – from cotton growers to mills. Another good example would be *Fox-fibre cotton* which is a product manufactured from organically coloured fibres. Making use of already coloured fibres eliminates the need for chemical over-dyeing. Examples exist of bigger brands that have included a measure of protecting the environment when designing their apparel. Nike blends 3% organic cotton to its cotton blend for socks and t-shirts. Esprit combines Tencel¹³ fibres, organic cotton, natural or low impact dyes and buttons made from reconstituted glass in some of their apparel (Burns & Bryant, 2002: 119 – 126). In all the examples given, the impact on the environment is only measurable in the manufacturing of the raw materials/textiles. Except for the use of glass buttons, that is where consideration for the environment seems to stop.

Apparel manufacturing is not always pertinently considered in the cycle illustrated in figure 3, because it does not have direct physical effects on the environment, as is seen in textile manufacturing. In apparel manufacturing issues such as ethical design and socially responsible design and manufacturing practices (fair trade)¹⁴ become important. It is difficult to measure the saving in costs of these issues; but fair trade has an equally important role to play in apparel production. The cradle to grave concept as illustrated in figure 3, would be more powerful if the design, manufacturing and distribution of eco-apparel in South Africa, would start to play a far more active role.

Green efforts in the eco-apparel product development and manufacturing stages should include:

- design as a powerful tool of communication,
- design of the apparel product taking efficient use of energy into consideration,
- components used in the apparel product; where they originate from and what are they made of,
- production processes for completion of the apparel product and
- packaging of the final product.

Added to the above should be Fair Trade and Labour practices.

¹¹ This diagram is adapted from Shaw's diagram to accommodate environmental issues across the supply chain for apparel products (See Shaw in Hon, 2003: 74).

¹² The DANIDA project included the department of Environmental Affairs, Tourism, Trade and Industry; the University of Natal, Cotton SA. The project was started in 2000 and successfully completed with positive results in 2005, showing savings of all role players of up to R19 million during the run of the project (Hetherington, 2005: 5). This initiative is currently carried forward by the National Cleaner Production Centre (NCPC).

¹³ Tencel is a cellulose fibre made from wood pulp that is processed with recycled chemicals resulting in a washable, strong and silky fibre.

¹⁴ The recently established National Environmental Management Act (NEMA) and its' inspectors (the "green scorpions") will definitely have a role to play in the South African textile and apparel industry.

B: The cradle-to-cradle product

This type of product cycle can also be described as a developed apparel product. As shown in figure 3, at the end of a products' life cycle, the product is re-used to develop another, not always the same type of product.

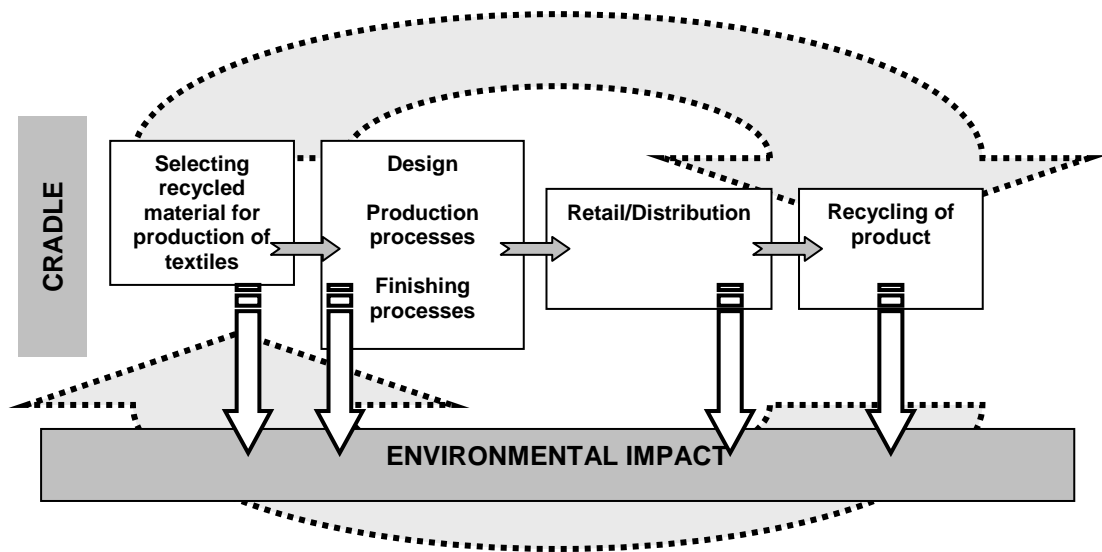


Figure 4: Cradle-to-cradle concept

An engineered green product refers to a product that has been recycled. These products may or may not consist of natural elements as discussed in cradle to grave concept. In some cases, as with the products produced by Patagonia, plastic soda bottles are recycled and fibres are produced to develop textiles. It is believed that through this programme 24 billion plastic bottles were kept out of the landfills in the USA. Another of this company's initiatives is to collect old worn out Capilene garments in order to recycle (the common threads recycling programme) these into "new" synthetic polyester (Polyethylene Terephthalate [PET]) fibres, using a Japanese recycling system. This is referred to as a *take-back* programme, or *cradle-to-cradle* programme (Patagonia, 2007: 1 – 2).

Once again, recycling takes place in the textile manufacturing phase of the apparel product. Product development (design) of such apparel is to ensure that products are trendy. Is the consumer aware of what a garment (apparel) consists of? Would this play a role if the consumer is faced with selecting an eco-shirt or a non eco-shirt?

The green consumer

Who is the green consumer?

The answer to this question is crucial, as economic and subsequently environmental sustainability depends on it. In a study done in England and Germany (Joergens, 2006: 360-371), respondents were asked their view on ethical clothing; whether ethical consideration came to mind when deciding on selecting a garment. And although this paper is not about ethical decision-making when selecting clothing, ethical issues are invariably interlinked to social responsibility, as well as environmental considerations. Joergens defines ethical fashion as fashionable clothing that has incorporated fair-trade principles and labour conditions while not harming the environment (Joergens, 2006: 361).

The study took a young consumer into consideration, as this group was probably most concerned with "being able to fit" into the fashion scene.

It is interesting to note that, although most respondents in both countries stated that ethical consideration is/should be part of the decision making process, cost and prevailing trends were inevitably the deciding factors when selecting clothing. It would be worthwhile to see if the South African market would react in the same manner. The study also does not incorporate a more mature consumer who might have different needs, and who would possibly be less interested in the fashionable aspect of the product. The mature consumer is generally interested in the functional aspect of a product and might possibly be more interested in the “feel good factor”.

The study in England and Germany also does not indicate in which geographical area it was undertaken and what the spending power of the average consumer in that particular geographical area is. Too little information or the wrong information about ethics and the environment is another issue to consider. In addition to this, what is considered to be ethical and what not, and by whom? This lack of information is another comment the respondents made, leading to the question: How informed are consumers on ethical, social or environmental issues, or are costs and trends all that are considered? How green does the consumer need to be?

From green to brown

The “greenness” of the consumer has an important part to play in the decision-making process in whether or not to buy an eco-apparel product. The light green consumer is very concerned about the “feel good factor”. This person would want to proclaim that saving the forest is a good thing but would not want it to impact on his/her lifestyle. According to Bruce and Bessant (2002: 259) this is essentially a reformist movement “..based on the premise that industrialisation can be perfected, or at least improved, to minimise its impact on the environment, and lifestyles do not have to change in any significant way”. The dark greens on the other hand are the ‘..radicals and the visionaries, and pose a fundamentalist challenge to the prevailing economic and political world order”.

The Roper Organisation in 1990 identified five consumer segments ranging from true-blue greens, green-back greens, sprouts, grouzers and basic browns. The light green and dark green consumers fall into the first two segments and most probably form the niche target group where eco-apparel is currently pitched. The scale indicates that the basic browns have no environmental commitment.

But who is the green consumer? Are they young, old, male, female, dark green or light green? In each of these consumer categories, the question should be why would they choose green products? Chris Riley refers to the modern consumer, which he adds has empathy for the “..environmental impact to the perceived cost of consumption and is attracted to companies who acknowledge their responsibility by embracing incremental improvements in environmental impact” (Riley in Heller & Vienne, 2003: 70-81). He also mentions that environmental concern and fair trade, or the exploitation of labour, is embedded in culture. What is seen as a step up from poverty by one cultural group; could/would be referred to as unfair trade practices by others. Yet, if a culture of environmental protection exists and where fair trade is acknowledged, would one be able to nurture the consumer in becoming more aware of this, and ultimately create a demand for this kind of product?

Green selling

The environment (eco-apparel) versus sufficient market share

Socially conscious advertising, advertising by relying on the “feel good factor” of the consumer, is often used by some companies to increase profits, and adds to the “look good” of the company. For other companies it forms an integral part of their mission statement (Joergens, 2006: 360-371, Swartz in Heller & Vienne, 2003: 9 – 19). Very often consumers sense the exploitation in this, and therefore tend not to believe in either company.

Swartz (2003: 9-19) refers to this concept as “*causeploitation*”, which leads to “green scamming instead of green marketing”. On the other hand, companies such as People Tree pride themselves in being “...a Fair Trade company that puts environment as well as social concerns at the top of its agenda...” (People Tree: 3). People Tree have just opened in London. The founder of this company, Safia Minney, feels that the *profit-at-any-cost economic model* often used by leading manufacturers and retailers, manipulates and misuses the people and the environment. It must be mentioned that the garments in People Tree’s catalogue average at thirty pounds each¹⁵. The garments are organic and are produced in countries such as India, Bangladesh and the Philippines, by “...making use of existing resources and the traditional skills of marginalised communities” (People Tree: 4). A noble effort and a far cry from the conditions in the Export Processing Zones (EZP) as described by Naomi Klein (Klein, 2005: 206 – 208). Jeffrey Sachs views these conditions in a different light and refers to them as “*The sweatshops are the first rung on the ladder out of extreme poverty*” (Sachs, 2005: 11).

The development of consumer awareness through various green initiatives is necessary to ensure that the consumer associates “going green” not with just a short lived fashion product cycle. By doing so, the concept of eco-apparel runs the risk of becoming too niche market orientated and therefore be a short lived product cycle or “fad”. The green initiative needs to show economic sustainability in order to carry weight. A general problem experienced by retailers is that of how much one can afford to do, and still remain competitive; as going green, depending on the amount of greenness, could add 10 – 40% to the retail cost of eco-apparel (Burns & Bryant, 2002: 122).

What will need to be determined is if the South African consumer is indeed open to this and how big the market share would be. Given the product price category would the market share be large enough to ensure economic growth and ensure a greener planet?

Green design education

The role of green design education

Breds, Hjort and Kruger mention that many in the textile and apparel industry “...believe that there is a contradiction in working with sustainability and fashion” (2002: 27). In *the bigger picture - why green*, I mentioned that one of our students referred to eco-apparel as the botanical concept. Have apparel design students become so caught up in: (a) the skills that they need to accumulate and (b) the fast pace that the fashion industry moves at; that they have forgotten what an enormously powerful tool design can be? Have we as design educators neglected to include “thinking” as part of the curriculum?

The National Cleaner Production Centre (NCPC) has already developed a training manual for eco awareness in textile production to final apparel product. The manual is developed by the NCPC Clothing and Textile Unit to assist lecturers in Fashion and Textile disciplines with incorporating cleaner production aspects into their syllabi. Their effort needs to be applauded; somebody has started the ball rolling.

Unfortunately, unless we as apparel design educators’ change the emphasis in apparel design, developing an eco-curriculum will not achieve what it intends to achieve. The emphasis should not be on *the* final product, but rather on *why* the final design/product is as it is – and for this argument, green. In developing eco-apparel, design becomes the *tool* that could change perceptions and add value to the green value circle¹⁶.

The green curriculum

With this in mind, a model used in figure 2, has been adapted to become a green curriculum. As used in the beginning of this paper, the model describes the issues that have an influence on green apparel. The developed model as shown in figure 5, emphasises all aspect relating

¹⁵ £30 = R420 using an exchange rate of R14/£ (as per July 2007).

¹⁶ Refer to figure 1.

to the development of eco-apparel, with green thinking (green design) as the starting point/centre of the process.

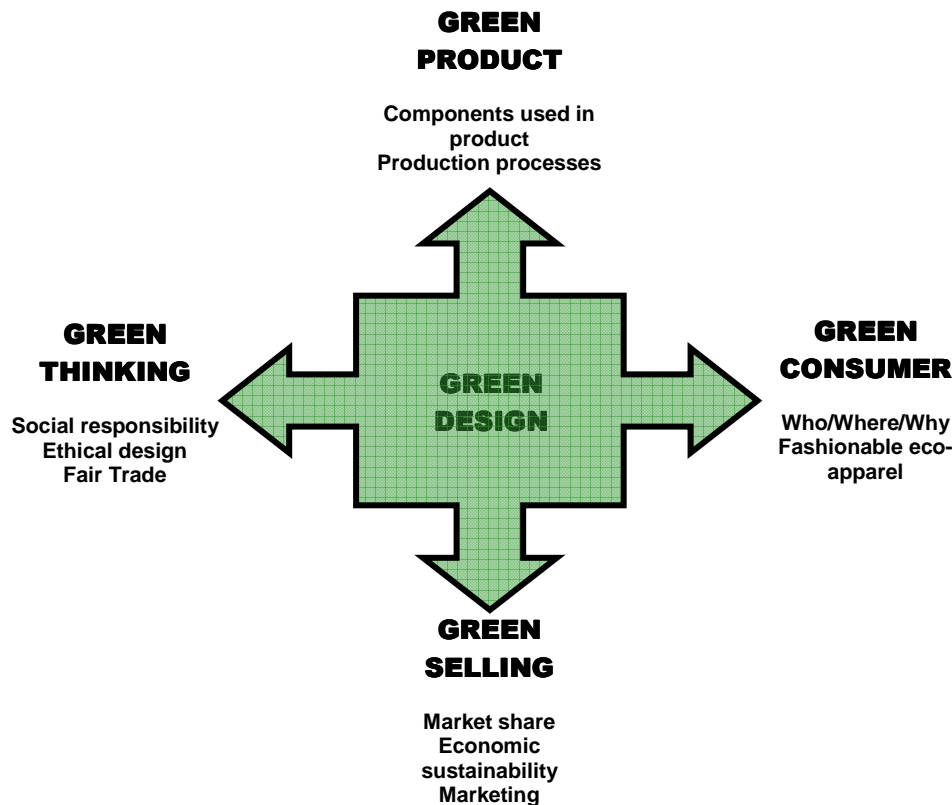


Figure 5: The green curriculum

The emphasis on an eco-curriculum for apparel design should be a reflection on:

- Green thinking: Concepts such as ethical design, social responsibility through design and Fair Trade practices need to be explored.
- Green product: The new approach to selecting components used for eco-apparel and the production processes used in eco-apparel manufacturing.
- Green consumer: How could green thinking influence the green consumer and still keep eco-apparel trendy.
- Green selling: Keeping the eco-concept attractive.

Breds, Hjort & Kruger describe the shift in design curriculum as "...incorporate the fundamental awareness and sense of responsibility into the educational system.." (2002: 27). Katherine McCoy feels that: "Designers must break out of the obedient neutral servant-to-industry mentality..." (McCoy in Heller & Vienne, 2003: 5). Education is but part of the whole concept of *how do we make this work*, but is the best platform to start from.

Conclusion: How green can your wardrobe be?

Several questions have arisen during the above discourse. These are to be further explored and will form part of a more comprehensive study. The areas that need further investigation are:

- How can eco-apparel be developed in South Africa?
- To what extent could design be the pivotal factor that will ensure development of eco-apparel in South Africa? Further investigation will be needed to establish what our designers feel they should/could be contributing to this important initiative. Related to this is a fashion design curriculum. Do we as design educators entertain issues such

as concern for the environment and social responsibility in and through design in the curriculum?

- What contribution can eco-apparel make to add to environmental sustainability?

Another point for further investigation is the “greenness” of the South African consumer.

- It would be worthwhile to undertake a study to establish if the average consumer is aware of, and would consider, ethical aspects as important when selecting apparel products. Would consideration towards the environment be part of their decision?
- Can eco-apparel remain a niche market product, or if eco-apparel, in whatever form, is not affordable by the average consumer, is *going green* worth the effort?

The 51 suggestions given in Time magazine and the recent Global Music Concert aired on national television¹⁷, emphasise the need for all individuals to become more concerned about the earth and its resources, and feeling good that they have been able to contribute. But will ‘feeling good’ be enough? Brown mentions that we need to educate ourselves, be better informed and “...to sit down and map out a plan...the choice will be made by our generation but will affect life on earth for all generations to come” (Brown, 2006: 266).

¹⁷ SABC 2 – July 2007, South African artists in Johannesburg took part in the global concert.

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DESIREE SMAL

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1. EDUCATION:

- 2004** Master of Technology (Fashion)
Tshwane University of Technology (TUT), Pretoria, South Africa
Dissertation title: *Computer-Aided-Design (CAD): Training needs for Fashion and Textile Design*
- 1997** National Higher Diploma (Clothing)
Technikon Pretoria, Pretoria, South Africa
- 1984** National Diploma (Clothing)
Technikon Pretoria, Pretoria, South Africa

2. ACADEMIC EXPERIENCE - Undergraduate teaching

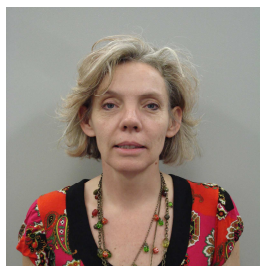
- 2000 - 2007** Lecturer, Department of Fashion Design and Technology, Faculty of the Arts, Tshwane University of Technology (TUT), pre-merger known as Technikon Pretoria, Pretoria, South Africa
- 2000 - 2005** Lecturer, Department of Textile Design and Technology, Faculty of the Arts, Technikon Pretoria, Pretoria, South Africa
- 1999 - 2000** Lecturer, Department of Home Economics, University of Pretoria, Pretoria, South Africa (Part-time)
- 1994 - 1997** Lecturer, School of Fashion Design, Faculty of the Arts, TUT, pre-merger known as Technikon North West, Ga-Rankuwa, South Africa
- 1992 - 1994** Ikageng Adult Learning Centre, Queenswood, Pretoria, South Africa
Development and implementation of a short course: basic sewing skills for adult learners.
- 1990 - 1991** Training Officer, Garments FIJI Ltd, Suva, Fiji, South Pacific.
- 1987 - 1988** Lecturer, Department of Fashion, Vaal Triangle Technikon, Vanderbijlpark, South Africa

3. ACADEMIC EXPERIENCE - Postgraduate teaching

- CO-SUPERVISOR** Ms Lufuno Phophi,
Master of Technology (Fashion), TUT, Pretoria, South Africa
Title of dissertation: *Venda Traditional Female Dress: Use and significance.*
Status: Degree completed in 2005
- CO-SUPERVISOR** Ms Melanie Harteveld (2006)
Master of Technology (Fashion), TUT, Pretoria, South Africa
Title of dissertation: *A dynamic identity-building process contributing to the "defining of Namibian couturier design".*
Status: in progress
- SUPERVISOR** Ms Beata Hamalwa (2006)
Master of Technology (Fashion), in process of registration at Cape Peninsula University of Technology, Cape Town, South Africa
Provisional title of dissertation: *The Evolution of African Identity in Fashion – An analysis of contemporary fashion trends in South Africa and Namibia.*
Status: in progress
- SUPERVISOR** Mrs Lee De wet (2006)
Master of Technology (Fashion), UJ, University of Johannesburg, South Africa.
Title of dissertation: *Investigating Fashion Forecasting Approaches in South Africa: Proposed Way Forward.*
Status: in progress

3. ADMINISTRATIVE EXPERIENCE - Managerial

- 2007** Head of Department: Department of Fashion Design, Faculty of Art, Design and Architecture (FADA), University of Johannesburg, Johannesburg, South Africa
- 2005 - 2007** Joint Head: Department of Fashion Design and Technology, Faculty of the Arts, TUT, Pretoria, South Africa.
- 2005** Acting Head: Department of Fashion Design and Technology, Faculty of the Arts, TUT, Pretoria, South Africa



FLUX: Design Education in a Changing World

HOW GREEN IS YOUR WARDROBE?

Can SA be green enough to ensure environmental and economic sustainability in eco-friendly apparel?

DESIREE SMAL

Being green isn't just something we need to do at home OR at work; it's something we need to do at home AND at work in every aspect of our life."

(World Business Council for Sustainable Development [WBCSD], 2007: 1)

GREEN

design education

in

fashion/apparel

GREEN DESIGN EDUCATION

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2007

GREEN THINKING

Design
Raw materials
Production processes

GREEN APPAREL

GREEN CONSUMER

Consumer
Fashionable eco-apparel
Social responsibility

GREEN SELLING

Market share

Economic sustainability

Marketing

a three-way model

Design

Raw materials

Production
processes



GREEN THINKING

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Changing World

2007

Green textiles

- Measurable reduction in water
- Transfer of knowledge
- Promote cleaner production
- Marketing eco products

GREEN THINKING

FLUX: Design Education in a
Changing World
2007

Green apparel

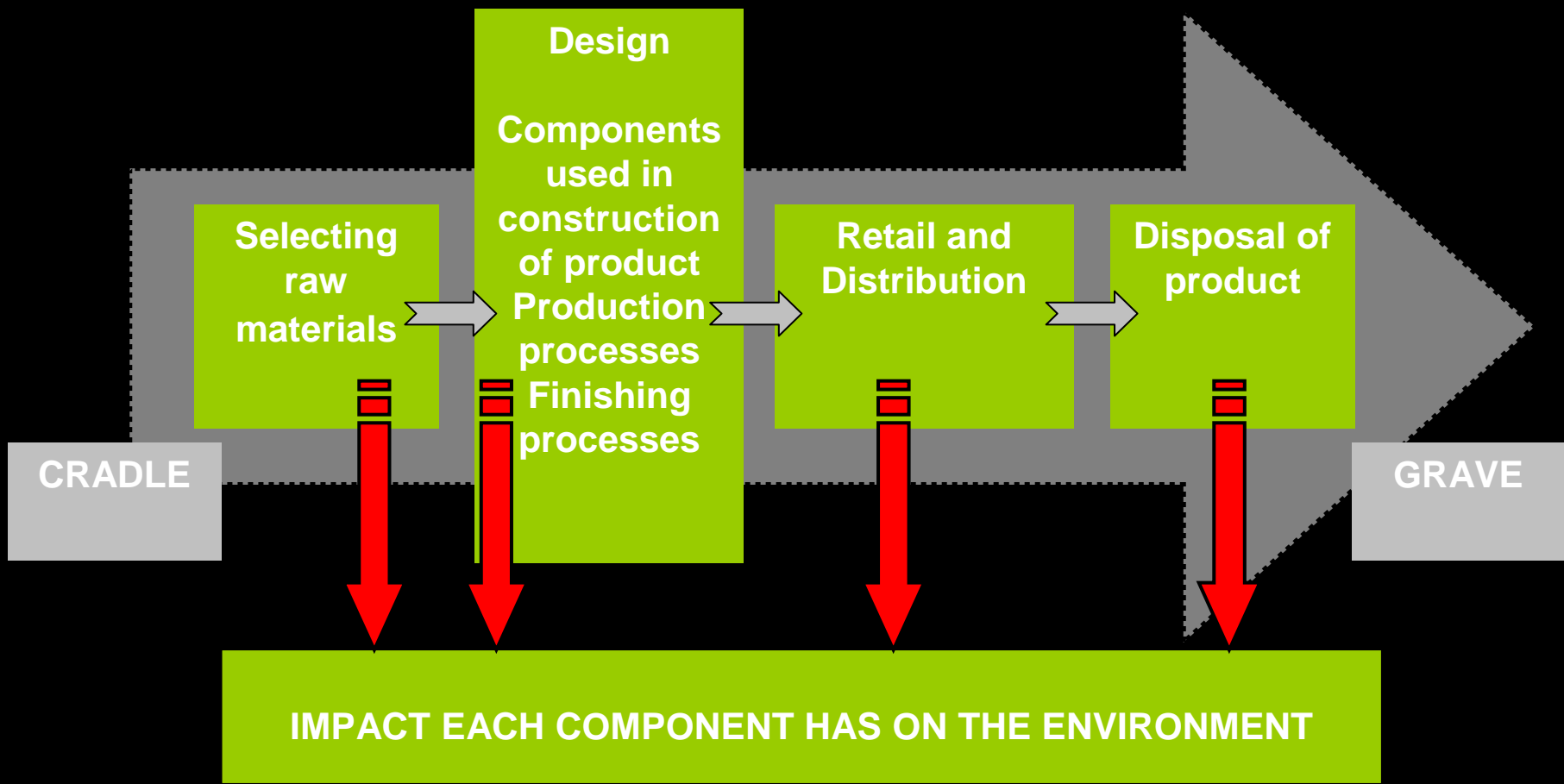
- 100% Organic apparel product
- Partially organic
- Recycled
- Combination of the above

cradle to grave

cradle to cradle

GREEN THINKING

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Changing World
2007



GREEN THINKING

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Changing World
2007

CRADLE

Selecting recycled material for production of textiles

Design
Production processes
Finishing processes

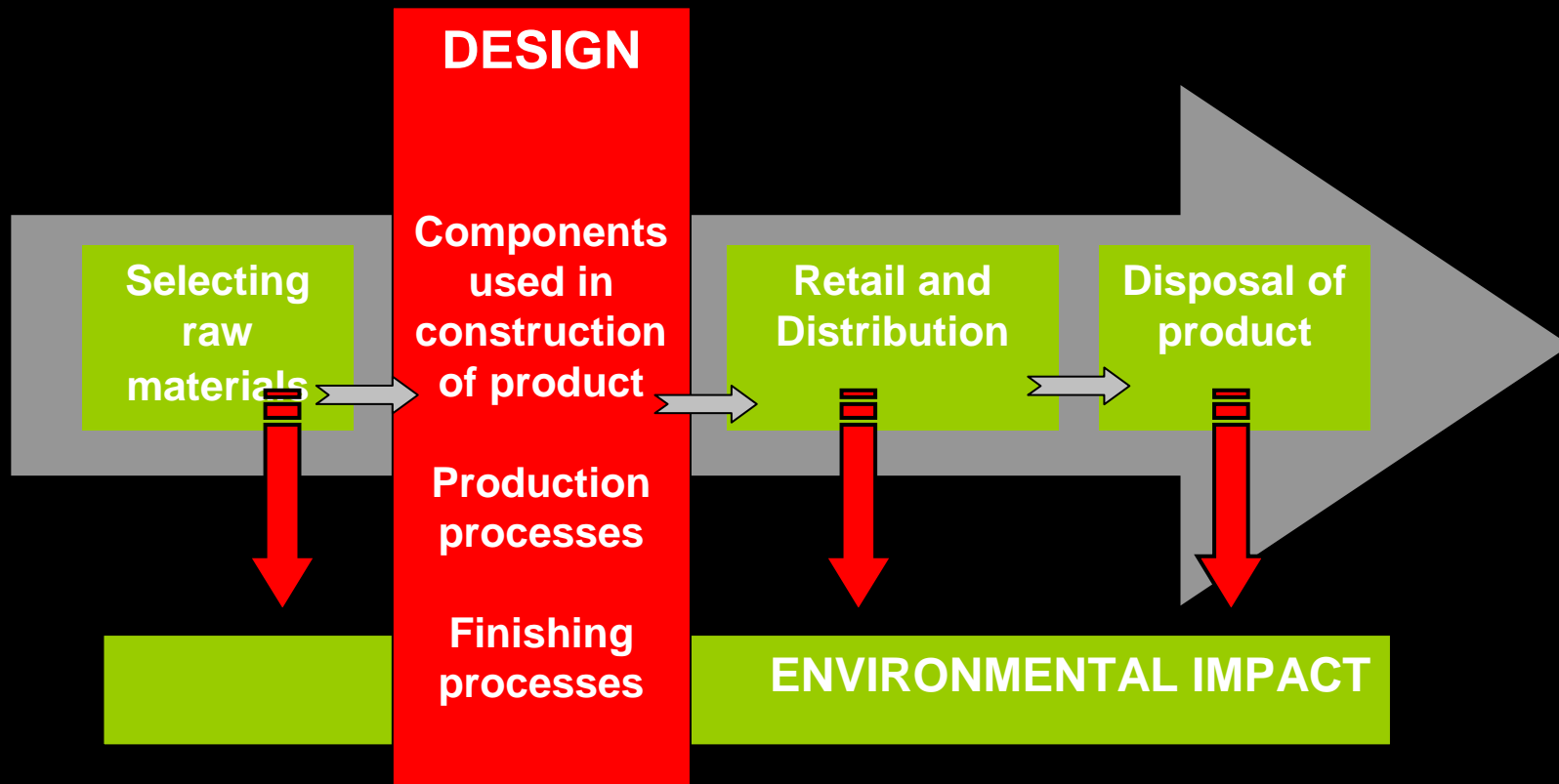
Retail and Distribution

Recycling of product

ENVIRONMENTAL IMPACT

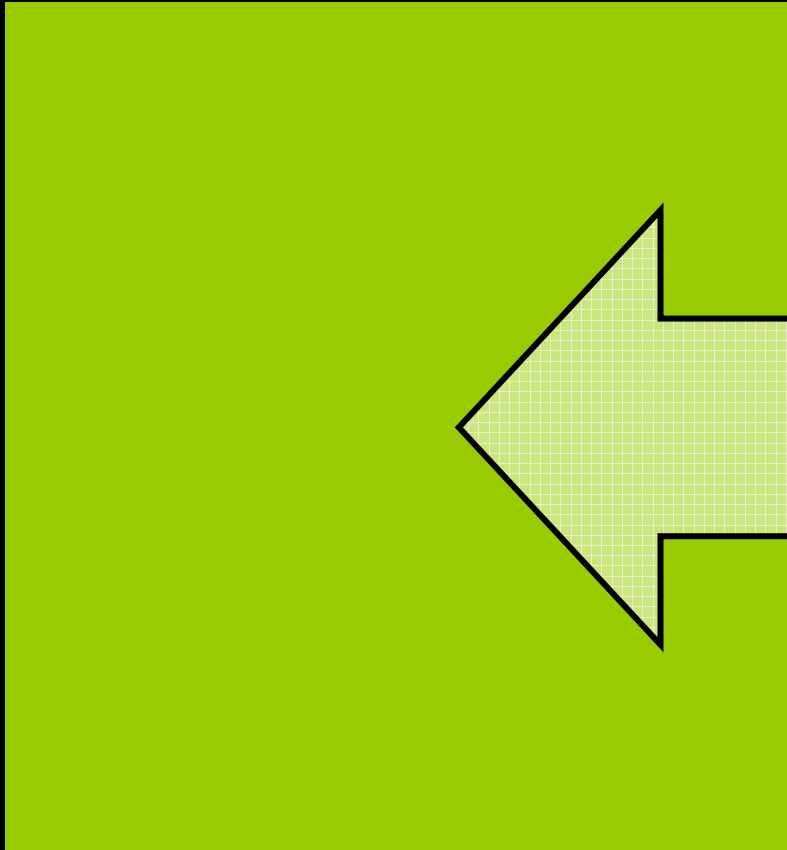
GREEN THINKING

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2007



GREEN THINKING

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Changing World
2007



Consumer

Fashionable
eco-apparel

Social
responsibility

GREEN CONSUMER

FLUX: Design Education in a
Changing World

2007

**How green is
South Africa?**

GREEN THINKING

FLUX: Design Education in a
Changing World
2007

from green to brown

SA ?

GREEN THINKING

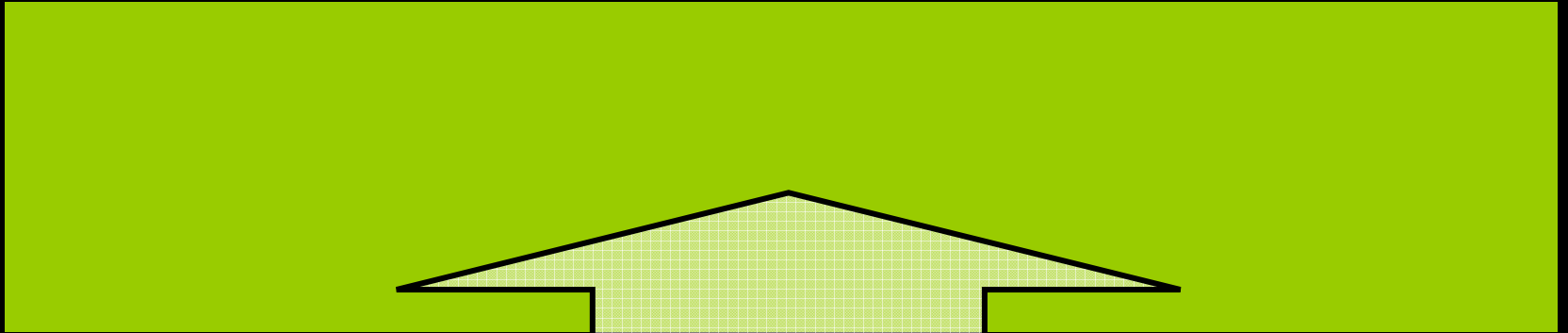
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Changing World
2007

Chris Riley refers to the modern consumer, which he adds has empathy for the “*..environmental impact to the perceived cost of consumption and is attracted to companies who acknowledge their responsibility by embracing incremental improvements in environmental impact*”
(Riley in Heller & Vienne, 2003: 70-81).



GREEN THINKING

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Changing World
2007



Market share
Economic sustainability
Marketing



GREEN SELLING

FLUX: Design Education in a
Changing World

2007

GREEN

design education

GREEN EDUCATION

FLUX: Design Education in a
Changing World

2007

GREEN THINKING

Design
Raw materials
Production processes

GREEN APPAREL

GREEN CONSUMER

Consumer
Fashionable eco-apparel
Social responsibility

a three-way model

GREEN SELLING

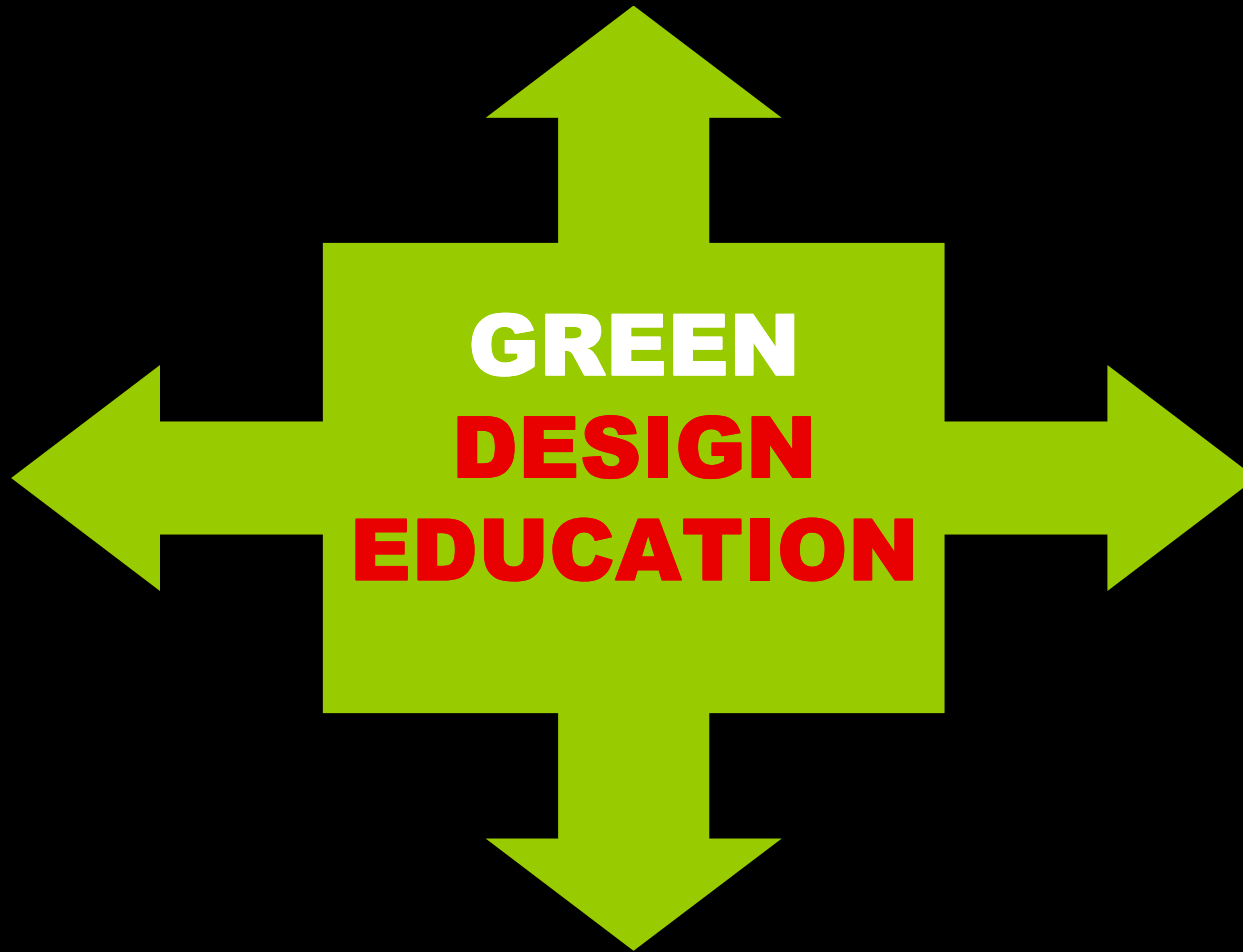
Market share

Economic sustainability

Marketing

GREEN EDUCATION

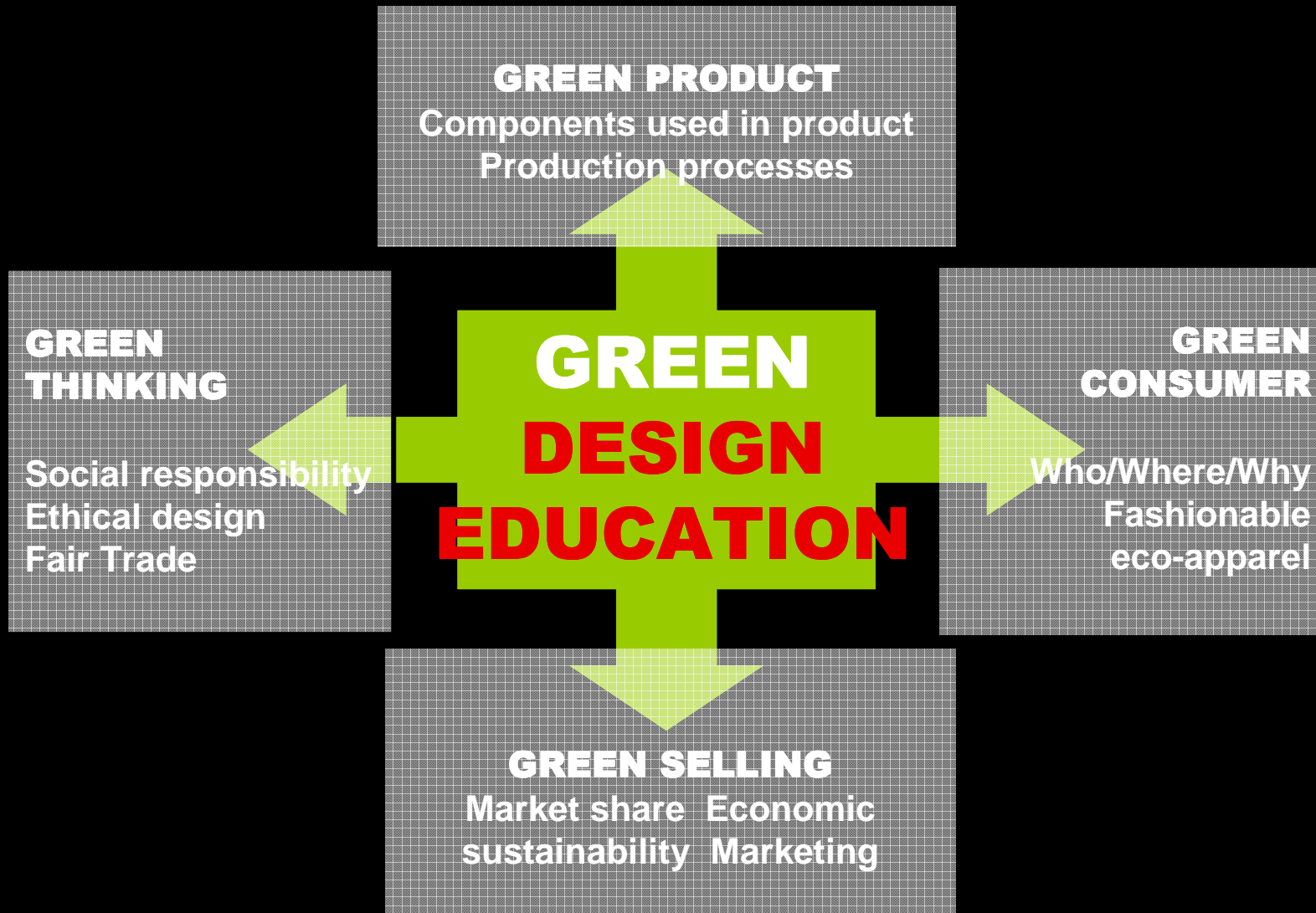
FLUX: Design Education in a Changing World
2007



three-way model – adapted for design education

GREEN EDUCATION

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Changing World
2007



GREEN EDUCATION

FLUX: Design Education in a
Changing World

2007

Lester Brown mentions that we need to educate ourselves, be better informed and..

“ ...to sit down and map out a plan...the choice will be made by our generation but will affect life on earth for all generations to come”
(Brown, 2006: 266)

Thank you for your time!

desiree smal

FLUX: Design Education in a
Changing World

2007