

# The culture of waste – A designer's dilemma

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## Abstract

This paper would discuss how designers contribute towards the culture of waste, which results in environmental degradation. Various reasons on why designers sometimes produce such waste would be explored. Contrary, designers can offer us our greatest environmental hope if they are conscious about the impact of their products on the environment. Proposals would be advanced on how this culture of waste could be tackled. This includes designers adopting methodologies such as user-centred design, eco-design and dematerialisation. These methodologies were used by the forth year Design and Technology students of the University of Botswana.

## Introduction

At one time, the relationship between the user and the objects was one of trust and affection. We would keep and cherish forever the tool that served us well. But now, we tend to ignore the fact that these objects are creatures produced by our spiritual sensibilities and by our practical abilities and therefore, we have to care for them. For example, my grandfather has a bicycle, which was bought in 1963, and its still in a good condition and working well. I wonder how many of those bicycles, which were bought at the same time, are still in existence!

As a result, designers have a responsibility to play a key role in the creation of products and services that a large number of people will use. Designers can create products that people do not really need, that are malfunctioning, difficult to use, or that do not fulfil people's desires. Customers might still purchase these products under the influence of advertising, fashion or because of a sincere personal belief in the item – but get rid of them afterwards. Nelson (1999) asserts that, 'we have acquired a kind of mass docility which makes us easy to manipulate.' In such cases, designers are responsible for contributing to a further development of the culture of waste (throwaway society), which ends up damaging the environment. Cowan & Van der Ryn said, environmental crisis is a design crisis. Paradoxically, designers may also offer us our greatest environmental hope and this places a special and unique opportunity on their shoulders. Furthermore, Nelson (1999) equates to our culture of accepting what experts say without questioning. He maintains that, 'we were raised in a world of technical experts and specialists and we have been conditioned to take their wisdom for granted.' This creates a conspiracy of silence, maintaining the feeling of helplessness among users. Some authorities equate this to the ill structured nature of design, particularly at its earliest stages, which can render the search for methods and techniques to support a more user-centred perspective problematic. Whiteley (1993) quoted Papanek saying,

...today industrial design has put murder on a mass-production basis. By designing criminally unsafe automobiles that kill or maim nearly one million people around the world each year, by creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become a dangerous breed.

The adoption of the user-centred philosophy is certainly desirable but the catch-cry of ‘know the user’ is insufficient if it is equated solely with the production of prototypes or the quick running of a user-trial towards the end of the design process.

Moreover, these days every designer wants to be close to the customer. The trouble is that she/he seems not to know who the customer is; is it the person who buys the product or service, is it the vendor, franchisee, wholesaler or the entire network of people who interact with the product/service. From a different perspective, Norman (1988) advanced the following as major reasons why designers go astray:

- Designers must please their clients and in most cases clients may not be users.
- Designers are not typical users; they cannot believe that anyone else might have problems when using their device.
- The reward structure of the design community tends to put aesthetics first. For example, there are prize-winning alarms that cannot be set easily, can openers that mystify etc.

It is believed that, it is only after the designer has recognised this reality that he/she can start working on being close to these groups, establishing an orientation that seeks customer inputs as a first priority. It needs designers to know the multi-faceted audience in-depth. Only this knowledge can help designers create products that truly meet people’s existing and latent needs, and therefore be ethical as well as commercially successful products. In support of the above sentiments, Friedman (1997) quoted Moller saying, ‘in design as in any other problem solving process, it pays to analyse the problem before creating the solution. It is better to use 10% of the resources to find out how to use the remaining 90% properly than to use 100% of the resources the wrong way.’

Therefore, people should be at the centre of the design process and propositions should match the mental images people have about how the future will be, and the quality of life they want. This is what the Philips Design Group has done in their establishment by coming up with the ‘*Strategic Futures*’ methodology. This is a way of discovering people’s latent needs and desires.

Designers are not merely concerned with problem solving and aesthetics, but they integrate the potential of technology with the needs of customers and at the opposite end, market researchers training tends to focus more on statistics and human relations. Design is a critical component of marketing and vice versa, it behoves design to learn how to speak the language of marketers. By packaging ideas in ways that are familiar to marketers and by understanding the way they think and what they do, design can play a more integral role in the marketing strategy process. There should be integration between the two rather than working in isolation. This would lead to a better understanding of their own humanness and on whom they are designing for and the impact of their designs. In all however, user-centred design attitude is based on the principle that those involved in and/or production of a product should be directly involved in its design.

### **How could the culture of waste be tackled?**

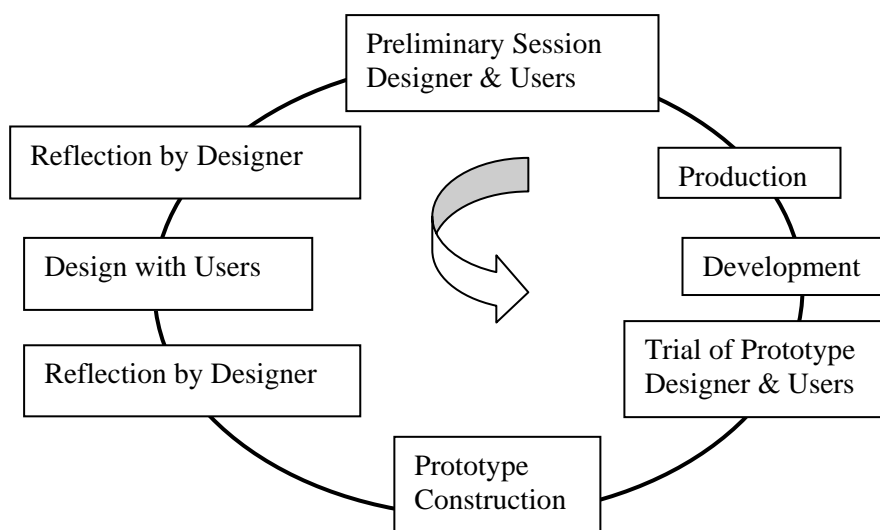
Norman (1988), once echoed that if everyday design were ruled by aesthetics, life might be more pleasing to the eye but less comfortable; if ruled by usability, it might be more comfortable but uglier. If cost or ease of manufacture dominated, products might not be attractive, functional or durable. Clearly, each consideration has its place. Trouble occurs when one dominates all the others.

#### **1. Participatory Design**

It involves users in the design process. We are integrating the concept of involving users in an on-going research with year four students of Design and Technology at the University of Botswana. This concept is being piloted through the DT 404 – Student-Initiated Course. This course aims at giving greater independence to students as part of preparing them for their final year project in year 5.

Students have the opportunity to extend their experiences in technology; to reinforce any element of study followed previously in the course. They are required to solve live problems that exist in our society. Students are to identify the problem and then come up with a design brief of their own in consultation with the end users. Some examples of projects students are tackling include, device for trapping dust and rainwater at doors, public mobile phone stand, mobile phone solar charger etc.

We are addressing how best the user could be involved in the design process. User-focused design could be defined as a methodology that puts users at the centre of the design process. Furthermore, Norman (1988) described the concept of user-focused design as ‘a philosophy based on the needs and interests of the user, with an emphasis on making products usable and understandable.’ It is participatory, iterative and multi-disciplinary. We take it that users are also creative just like designers and they can express their unmet needs and dreams when they are given the tools with which to do so. We believe that, participatory design is based on the principle that those involved in or production of a product should be directly involved in its design. This invites people who buy and use products to the design table where they have traditionally been excluded. Kano (1984) said, ‘to satisfy customers, we must understand that meeting different kinds of requirements is the key to achieving customer satisfaction’. Customers are used as inspiration instead of relying on the designer intuition. The designer’s intuition has not been discredited, but only relocated to a more appropriate position. It is now used to develop tools for understanding and facilitating creativity. The above statements can be summed up by saying; the lone inventor is a familiar animal, but a dying breed. As two or more heads are better than one, seeking new concepts must nowadays be a group activity. If users are involved, the chances of a product failing the acid test of the market are low. In DT 404 course, we are following this tentative model:



The Preliminary session is mainly characterised by redefining the customers needs and is done in small groups of 5-8 people. It is a brainstorming session combined with unstructured interviews. The student designer extracts as much information from the participants and he/she remains an impartial facilitator. This session enables the student designer to establish revealed, expected and exciting requirements. Ronney et al (2000) asserts that, ‘Customers are not apt to voice these requirements, it is the responsibility of the designer to explore customer problems and opportunities to uncover such unspoken items’.

In the second stage the student designer has to reflect on the information obtained. This information helps in the analysis of the problem and it makes it to become crystal clear. The student designer is much placed in a better position to articulate these unmet needs; he/she proposes different solutions to the problem, which will be discussed in the next session with users.

Then solutions are presented to participants in sketch form for their input and this brings in the concept of design for users, with users and by users. This leads to solutions being modified, corrected and thoroughly criticised. At this stage, the student designer acts as a facilitator. Some students videotaped these sessions with the permission of the participants.

Moreover, the student designer then reflects on the suggestions, comments, modifications proposed and incorporate them in the new design. This leads to a construction of a prototype, which still has to face the acid test of the participants. The participants would test the prototype and give their input for further modification to suit their needs. Thereafter, the student designer would develop the prototype based on the input from the participants and this would lead to the production of the product. summary, Ronney et al (2000) argues that 'end users in any product supply chain are the most important members of the chain because they are the only ones putting money into the system – everyone else is taking money out (profits)! Therefore, if the end users are happy then everyone in the chain will benefit'.

#### Advantages of the Participatory Design Process

- The sessions provide the student designer with the opportunity to interact with the voice of the customer.
- The scope of the student designer is broadened. That is, he/she gains knowledge and experience on how to process the voice of the customer information into a form that can be used to support future product planning and definition.
- Feedback is given to the student designer from conception of the product up to the very end; unlike in other processes where feedback comes at the end.
- Improved product quality – this result in products, which have a higher quality of use and are more competitive in a market, which is demanding easier to use systems.
- The needs and wants of customers are met early in the design process thus increasing user satisfaction.

#### Disadvantages of the Participatory Design Process

- Users evaluation on the product is based on their experience and they cannot evaluate novel product attributes, which lie outside their experience; thus it has limited use especially in new and innovative technologies.
- It is time consuming to run all participatory sessions.
- The student designer needs to be a good facilitator and communicator otherwise the exercise would fail.

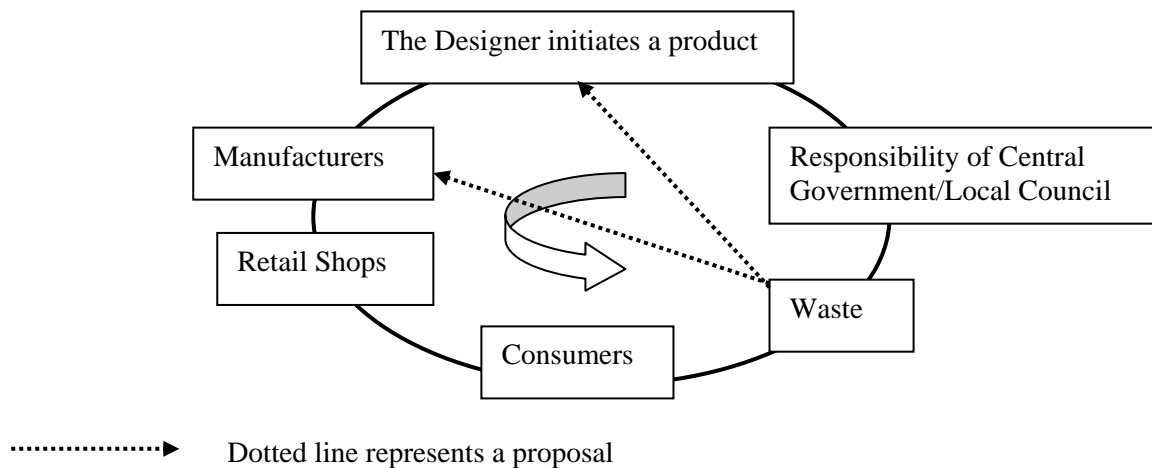
## 2. Ecodesign innovation

The motivation behind people's interests in sustainable development is the belief that current human activities may degrade the environment and cause serious negative consequences for human population. Therefore, design needs a new direction that requires a revision of thought and action. Student designers have to face the challenge of considering the lifelong impact of the products and process they make. The responsibility of the designer should not only be to create a product for the time it is being used but also to take responsibility for its end of life. Student designers have to view the entire history of a product from material extraction, through manufacture, sales, use and post use. They need to consider the materials used: can they be recycled, will they decompose, be re-used, and are they toxic in manufacture, use or after life? Is the product useful, does it fulfil the real need, is it robust and durable, easy to repair, use the least amount of materials for the most performance? Does it generate pollution, is it energy efficient, Is the styling going to date too quickly, can the product be

upgraded easily as technology improves, at the end of a useful life can components be salvaged for use in newer versions?

Student designers have to provide evidence that most of this criterion is met. The above consideration also forms part of the project assessment and this compels students to seriously take on board these factors.

It seems the designer lives in a cocoon because the blame for what he/she does never goes back to him. Customers would rather blame themselves for lack of knowledge, materialism, unsustainable consumption etc. It is time for users to shift the responsibility to the designer. At the moment, especially in third world countries, we are following a linear type of model whereby;



It is proposed a cyclic model whereby the responsibility of the end product waste would go back to either the designer or manufacturer as illustrated above. This would compel the designer to consider waste as his/her responsibility. Obviously, waste would be minimised and the environment will be spared from reckless disposal of waste for the next generation.

### 3. Users Responsibility

The customers also need to be conscientised about their unsustainable consumption, which ends up damaging the environment. Customers need to minimise the amount of waste they generate. Worth noting is that most of the people are aware of the consequences of their consumption patterns but to act accordingly becomes very difficult for them. The Sutherland Shire Environment Centre advocates for 3Rs. That is we need to;

- 'Reduce consumption – i.e. buy only according to need.
- Re-use products – to find new uses for old items is to create something new, thus saving money and resources.
- Recycle – energy used in manufacturing products is only partially recovered in recycling but is never recovered when thrown away. Recycling reduces our demand on natural resources'. (<http://www.ssec.org.au/wasteMin.html>)

David Bell the Director of the Centre for Sustainable development at York University in a Canadian Press once said, 'we have a disposal society'. ([http://www.cbc.ca/insidecbc/newsinreview/Dec\\_2000/garbage/culture.htm](http://www.cbc.ca/insidecbc/newsinreview/Dec_2000/garbage/culture.htm)) According to Bell we need to change this collective behaviour pattern or risk an environmental catastrophe. Human beings worldwide have created a culture of consumption and waste. However, the extent of these problems is not uniform: it varies according to culture and values of each region or nation.

#### 4. Dematerialisation

Dematerialisation encourages the production of end-services with less energy and material consumption. Lighter materials can be used to manufacture smaller and more lightweight products, which results in less energy and materials needed to produce one unit. Contrary, lighter weight of products may have an adverse effect on durability and thereby lead to be worn out in a shorter time. Dematerialisation may also refer to the decrease in the amount of energy used in the product manufacture.

In all however, the assessment criteria of DT 404 – Student Initiated Course puts emphasis on the students to take more responsibility of the products they make so that they are user-focused and environmentally friendly.

#### Conclusion

User-focused design is about designing products that are easy and pleasant to use. It is a philosophy, which asserts that the design process must be focussed on the end user. It is a methodology that involves users in all phases of its iterative design cycle and the result should be a simple, clean and usable product. Moreover, the product/service should provide environmental benefits. Designers who were trained long back need to embrace the concept of user-focussed design and change their ways of designing. The trends in design are so dynamic and they need people who are flexible to accept positive change. This would enable them to think differently and move more easily beyond product design to designing eco-services. Obviously, this would require radical and new approaches to change design curricular worldwide and redefine design related companies activities to accommodate ecodesign.

The open-ended DT 404 – Student Initiated Project has provided some scope to address some of the burning issues currently being debated in the design field. Students enjoy engaging in such a project because they benefit a lot and it makes them better future Design and Technology teachers. In turn these teachers would impart the right values in students thus laying a solid foundation for the future generation and would ultimately curb the culture of waste to some extent. Furthermore, students will become effective advocates for environmentally sound strategies, participative, user-friendly and sustainable product development within schools.

All in all, if people keep on buying poorly designed products, manufacturers and designers would think they are doing the right thing and continue as usual. Therefore, users should demand usable products and designers should help fight the battle for usability. This would curb the culture of waste and positively contribute to a much friendlier environment.

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