

## Waste Design using Experimental Design techniques

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### KEY WORDS:

waste;Dutch Conceptual Design;  
Design model, Experimental Design.

### ABSTRACT:

waste is either the unusable by-product of a process, or the products of a process which are produced in excess of what can be used. Because of our anthropocentric perspective, if something has no utility to humans (or its utility to humans is not understood), it is seen as 'waste'. Products of design are often turned into waste long before the end of their expected life span. This is the result of complex cultural forces which create a desire for new products design and thereby cause the obsolescence of existing products. The waste created by 'the desire for the new' has significant environmental costs.

Experimental Design, saying that the researcher follows the broad use of the term "experimental" and "experimental design" in the literature to refer to non-scientific techniques and methodologies in design.

One of the design movements Design historian Mienke Simon Thomas writes that Dutch conceptual Design was a natural development of new modernism, an European movement important in the Netherlands, which through the influence of practitioners like Bakker, experimented with found objects.

Most of sustainable design strategies focuses on the product life cycle and where and how designers can interfere in order to help, this research works on seeking a design model that helps designers to craft new products out of waste

This research examines how product designers can help in reducing the waste through using experimenting new design concepts out of waste, depending on the designers' creativity and adopting the philosophy of Dutch conceptual Design "A well-directed imagination is the source of great deeds." Chinese proverb

The researcher assumes that through following a tailored design model designer would be able to achieve fashionable, new designs and in order to prove that assumption some products would be designed out of waste through applying the new model

## INTRODUCTION:

When product designers introduce themselves to people and refer to their jobs as product Designers, people directly react saying so you are an engineer??, same happens with industrial designers, sometimes even specialized people can't tell the difference between industrial and product design, Lorenz and Tjalve(1) illustrates (figure 1) that the creative field would vary to include, the creative pure Art, industrial Design, product Design, Engineering Design, then technology, reflecting that product design is somehow related to both industrial design and Engineering design

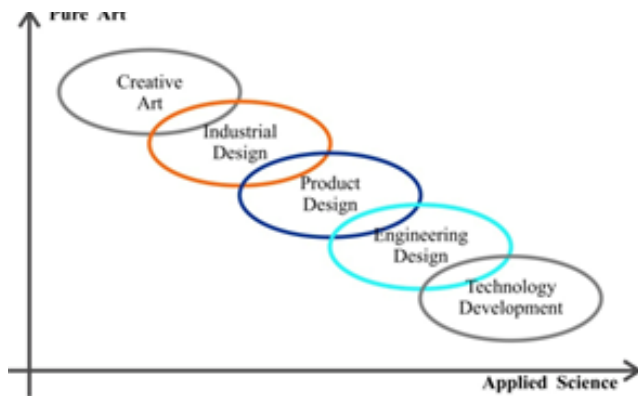


Figure (1) Location of product design according to Lorenz and Tjalve

Product Design for Recycling if we can call it like that, could be considered as one of the most important sustainable design strategies meanwhile affects our day to day life activities.

Creating a new product from waste has always been, and will always be a Challenging, but rewarding process for any creative environmentally concerned product Designer. There are so many types of waste out there, but solid waste is what product designers can use so it's important to discuss it in the research. The word experimental would directly ring the bells for lab experiments and other similar topics, but here it introduces what the product designer would do, when given a bunch of waste and challenge h is/er to creativity skills and knowledge of materials, manufacturing techniques in order to design something useful from it. Dutch Conceptual Design is considered a pioneer field in furniture Design experimenting with materials and elements in general in order to create unexpected furniture designs.

Although the product Design resulting from the suggested process is the child of so many experiments done by the designer not the normal design process stages, it should still reflect target user/customer's needs.

Trying to build designers' community practicing prod-

uct design for recycling while exchanging waste, knowledge, supporting each other and using one design model for Recycled Products Design Process RPDP, is the main aim of the research, the researcher designed some products using that model.

## What is waste?

Imagine that the products you are using, stopped working, you tried your best to fix them but, you were told that there is no hope, or some of the stuff you own are not fashionable any more what will you do?? You will toss them all in the garbage, at this moment your products are no longer products they are WASTE.

So, we can just say that waste is what is no longer needed by humans or what they think they no longer need. The more humans buy stuff, and do things, the more they would have waste, that waste needs to be managed in an entirely wise manner or we're going to reach a real dangerous level of pollution that could take us to a real unpleasant environment, with all the expected consequences known to all of us. That same waste for someone else, with a creative mind, is a resource. That is why designers from all fields can play a tremendous role in turning the waste into a new born desired thing, some think that waste is a result of a poor design process, while others think that waste is a must according to human beings' desire for change, both are right and have strong argument, but one thing both opinions agree to and that is waste needs to be managed right.

Managing waste starts with classifying it, and there are many ways that to do that, in which they depend on a certain important factor for example, it's state "solid, liquid or gaseous", their composition, which is very important to any designer when dealing with it, also whether it is degradable or not is game changer when it comes to design, realising the fact that waste could be an amalgam of all this makes it crystal clear how important it is for designers to have a trusted data base national wise stating the waste management system adopted locally.

## Waste management

For product designers, understanding the life cycle of a product and becoming aware of the role they can play at each phase of that life cycle are key players for better designs, in the case product design for recycling the process starts after another designer failed to do the right design decisions when the product was designed. Such a vision makes it clear that how the solid waste is managed is very important when designing for recycling, figure 2 briefly illustrates waste management

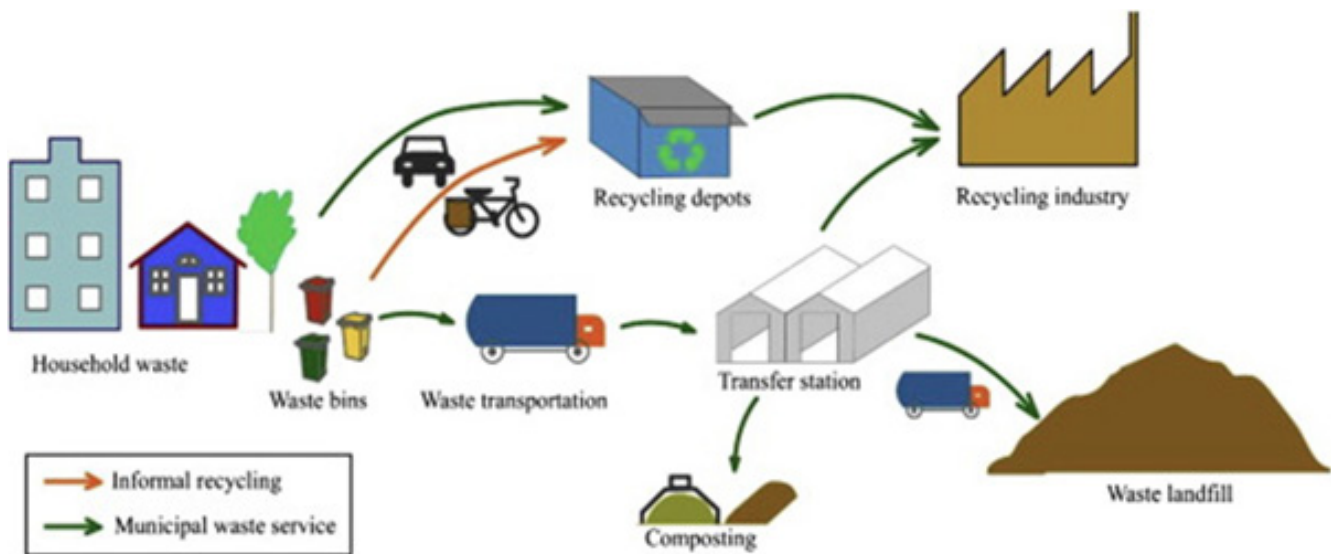


Figure (2) Waste management

### Reuse, Recycling and upcycling

Three terms reflecting the right human behavior towards waste, despite their high similarity in spelling each of them has its meaning.

Reuse: is all about inventing a new job for the hard waste like empty water bottles for example when we decide at home to reuse it and therefore ensure to continue using it some how in order to avoid throwing it away, and the way it would be reused differs from one person or, one group to the other.

Recycle on the other hand focus on reprocessing the original material or changing it into another one

Upcycling is all about empowering the old material and making it more efficient while removing any unnecessary costs, for some people it's about more creative recycling process

In upcycling the designer puts together his creativity skills along with materials technology in order to come out with a brand-new product

### Dutch Conceptual Design

The Dutch Design movement developed as a reaction to the somewhat stagnant design scene of the time,' says Cok de Rooy, owner of renowned Amsterdam stores The Frozen Fountain. Both Piet Hein Eek and Hella Jongerius, were part of this game-changing cluster of creatives. Eek brought something new by using alternative materials – making furniture out of scrap wood – and in doing so created a recognizable and much sought-after signature. Jongerius, meanwhile, fused industrial and craft elements in a way that hadn't been seen before.

“Dutch conceptual design concerns activity in the Netherlands largely corresponding with the beginning of the organization Droog in the early 1990s and continuing to the present. Droog's origins lie in a collective of young designers discovered and exhibited by critic, publicist and curator Renny Ramakers in 1993, (1) before being joined by designer and educator Gijs Bakker. The group has been described as promoting a kind of design characterized by the prominence and visibility of its own concept.(2) While Droog has produced collections addressing multiple topics of interest to experimental design, including environmental issues such as over-consumption, product obsolescence and sustainability, Ramakers has insisted that the only consistency is the clarity of the “concept”, and rejected the idea that Droog is a collective with a fixed vision or ideology. However, there are aesthetic consistencies, if not ideological consistencies, in Droog designs. Paola Antonelli noted its shared expression of intellectual dryness, humor, austerity, experimentalism and provocation

There are multiple explanations for the origins of the dry aesthetics that characterize early Droog products. Design historian Mienke Simon Thomas writes that Dutch conceptual design was a natural development of neo-modernism, a European movement important in the Netherlands, which, through the influence of practitioners like Bakker, experimented with found objects and limited production outside of mainstream industry Ramakers and Bakker assert that Droog initially formed to critique luxury, evidenced by works reacting against the excesses of the postmodern Memphis peri-

od of extravagance – i.e., the interest in colour, pattern and decoration that developed in the 1980s after Italian radical design. (3) Antonelli expands on this argument, claiming that the resulting aesthetic of austerity was a cooling, minimalist and moral response to the “redundancy” of the hyper-energetic design typical of Memphis, Studio Alchymia and the design they inspired. (4) For Dutch conceptual design associated with Droog, the repetition of found or recycled products and DIY

produced objects and furniture were perceived to be connected to the impact of production and consumption on the environment. Sensory engagement with these issues was of interest to some Droog designers, such as Tejo Remy but, more generally, Droog was concerned with the communication of concepts, of which sensation was considered one concept among many.



Figure (3) Collecting glimpse of Dutch design principles some of the Designers of the 90s were bold enough To show out of the box creativity skills using waste as base for their designs

### Experimental Design (as considered in the research)

The Idea depends on collecting waste available in the designer’s surroundings, separating them into similarities and then using the creativity skills of the designer, the knowledge of materials and its characteristics trying to come out with a practical design Idea for daily use products, the researcher built a model “shape2” that would help in organizing the design process alternatives, named it collect to protect, through the model the designer would be able to organize the data related to all the materials and scraps, he/shewould be able to collect, then building practical decisions about mixing them, lots of alternatives could be given till final decision is made, Also the model is accompanied by an

app design carrying the same title, which would connect Product Designers for Recycling from the same region, or even worldwide so, they can share and exchange data, knowledge and waste, the app would be free to download on their mobiles, so any designer with interest in product Design for recycling can join and become an active member of the collect to protect virtual society, the App is basically designed to put designers from the same region all together so they can support and improve each other’s ‘skills, knowledge, and even announcing jobs, or design assignments, competitions, but it’s also supposed to be available for Design students from all design fields, the following designs are created by the designer using the suggested design model.

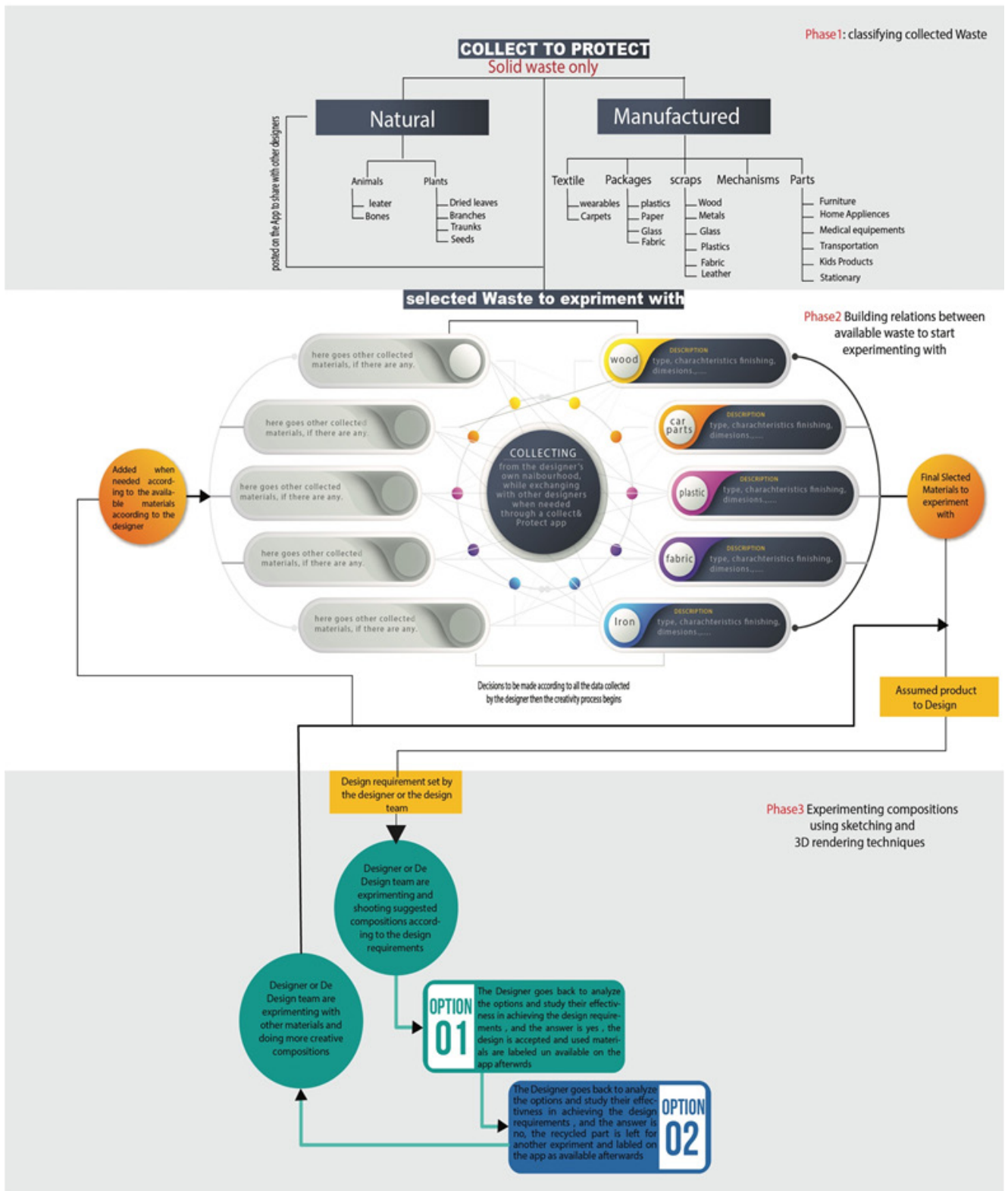


Figure (4) Strategic plan for the experimental Design recycling process

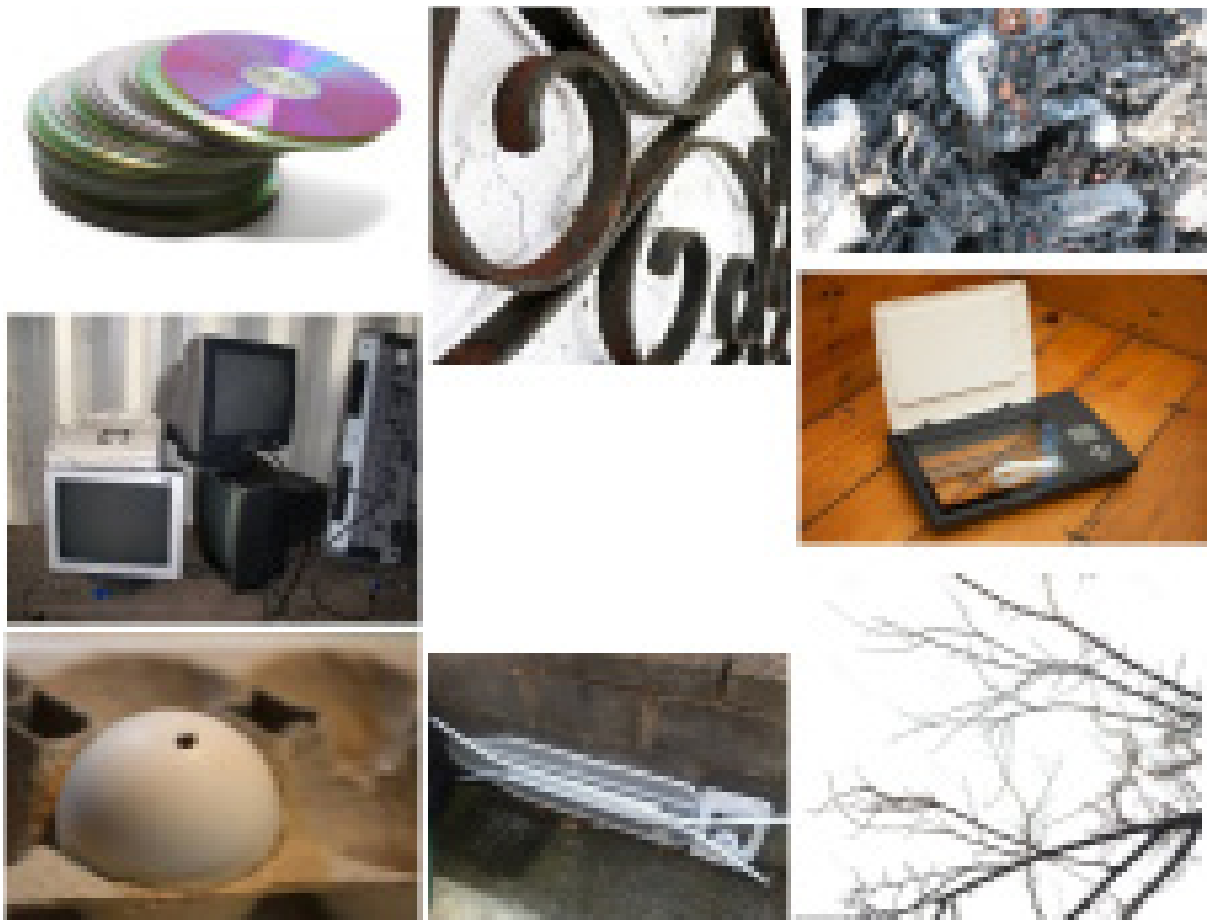


Figure (5) collection of scraps used by the designer on which the design model was applied



Design No. 1 Side Lamp  
Car recycled part wrought iron broken pieces+ a piece from an old chandelier



Design No. 2 Wall Watch  
Broken piece of furniture+PVC tubes+dried plants+old alarm



Design No. 3 Side Lamp  
Broken piece of car + Iron rods + old compass found piece of woods



Design No. 4 Candle Holder  
Dry tree bark + egg shell with poured melted wax inside it



Design No. 5 Side Lamp  
Car recycled parts + dry tree branches



Design No. 6 White Board  
Desktop base + broken scanner screen



Design No. 7 Trash Bin  
Broken Ironing board+ desktop screen case



Design No. 8 Disk Watch



Design No. 9 Coffee Table  
Desktop screen case keyboard +piece of wood scraps cut into a circle and painted on

Figure (6) design done by the researcher using the experimental design model

The designs were built depending on the strategic plan in figure 4, by experimenting and playing with available alternatives from different scraps, meanwhile first decisions were made according to the designer's or Design Team knowledge about these scraps and their characteristics.

The idea is not limited to product design it could be applied in many design fields, the following are some of the experiments done by the researcher in different applications aiming to break the ice in using the waste in new approaches hoping more focus could be done in new design fields



Mixed media collage poster





Mixed media collage poster

Figure (7) Mixed Media Poster Design

## Conclusion:

- Applying the strategic plan for the experimental Design Recycling process inspired from Dutch conceptual design (product Design for Recycling PDFR) when dealing with recycled materials can help designers to create better and out of the box ideas & designs  
- the suggested app shared between designers (collect to Protect) from nearby areas is an effective tool to improve the PDFR.

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