

UPCYCLING: RE-USE AND RECREATE FUNCTIONAL INTERIOR SPACE USING WASTE MATERIALS

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ABSTRACT

This paper is written to discuss the use of waste materials in recreating a functional interior space. Upcycling was introduced as one of the methods to maintain the environment by creating useful products out of waste and unused materials. The over usage of natural resources and overloading of human made materials, has led to many environmental issues such as landslides, green house effects, flooding and pollution. A distinctive, yet functional interior space, can be created through the process of converting waste materials or useful products into new goods, which also contributes to a higher environmental value. A few case examples are chosen to identify and analyze all the challenges and factors to be considered in designing using upcycled materials. The impacts and effects of upcycling to create new products are discussed, based on chosen case studies. The environmental issues in design are observed as part of understanding the significance of this study. By fully understanding the role and benefits of up-cycling, further recommendations of techniques can be taken into consideration. Thus, it can be applied to ensure better and effective usage of those materials and products, particularly in interior space, in order to conserve and preserve natural sources.

Keywords: Interior space, upcycling, waste materials

1 INTRODUCTION

Designers today have more exposure to various techniques in creating a product, where machineries are no constraint and references from the previous techniques and inspirations worldwide are referred to. By giving this waste material to designers, ideas should come first through sketches or mock-ups, followed by the understanding of the character of each waste material and finally, how to tackle the usage of each material.

Upcycling can be defined as reusing an object in a new way, without degrading the material it is made from [2]. The process relates with the recreation of used materials or also known as waste materials to recreate and giving it another new life or function without having to spend much in getting new materials [1]. In other words, it makes old things new again. This method is not only taken for better life quality, but it also gives a sense of a higher environmental value to the invented products. It will also increase the aesthetic value of such creation. Designers should work within their creativity in creating a new product with minimal cost and the materials given. The upcycling process will encourage them to be more sensible with their design ethics as the issue of environmental waste and the reuse and reinvention of materials are being pointed out [1]. This should be another positive challenge for these designers in creating new things and at the same time also raise the awareness among people on the importance of upcycling.

This paper presents the findings on the advantages of upcycling process in recreating and reinventing an interior space. The outcome of this process, to the environment and the public, will be identified and discussed. The aim is to study the upcycling process based on the selected case studies.

2 WHY UPCYCLING?

Upcycling offers a whole new life for waste materials. Upcycling is opposed to recycling, as recycling is typically accepted as breaking down the original material and making it into something else using more energy [2], whereas upcycling is totally energy saving. However, both processes – upcycling and

recycling, promote the same benefits to the nature and its sources. Below are some of the advantages offered by upcycling to human beings, and the environment and its surroundings.

2.1 Sustainability

In this context, sustainability is referred to as the practice of creating something new, which has a minimal long-term effect on the environment [3]. The makeover of waste such as wood, used metal or paper, old furniture, cans, bottles and even factory waste helps for sustainable living. Waste is being used again where it prolongs the life spent and productivity of those materials (see Figure 1).

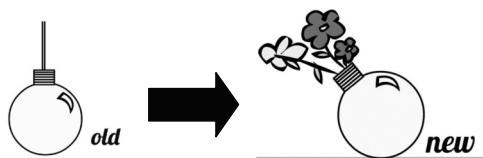


Figure 1. A lamp bulb is transformed into a vase

The previous function of the original material or furniture is transformed into a new and creative way of using it. The original form is either being sustained as it is or manipulated and combined with other furniture products.

2.2 Environmental wise

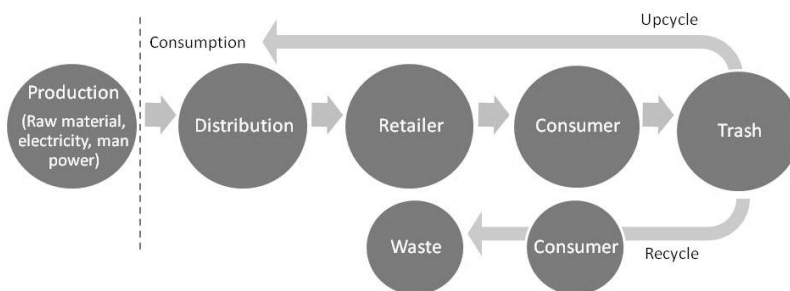


Figure 2. The supply chain of upcycling and recycling process

Source: <http://intercongreen.com/2010/02/17/recycling-vs-upcycling-what-is-the-difference/>

Recycling is known widely as a way to save the environment. So does upcycling. However, there are still differences between both processes as explained in Figure 2. Both processes started with production of raw materials and ended differently. Upcycling minimizes trash and wastes. The products are known as eco-friendly as the process can be repeated, returning the material to its original form, and back as a new source [4]. Referring to the supply chain above, recycling process would only delay the wastes from going into the landfill. This will later overload our nature with waste materials which will burden the earth and will also contribute to the green house effect.

Upcycling also reduces the use of raw materials, reserving the natural sources on this earth. Less trees being logged and less digging of mountains, thus contributing to less energy consumed [4]. This is because the process allows the materials to be used as many times as possible because it is a never ending cycle. It offers a smarter way of producing goods under the cluster of 'Reduce, Reuse, Recycle, Remove' efforts, as it is the shortest way of decreasing the amount of household solid waste that goes into the waste stream, thus minimizing the global product market [10].

Environmental designers are the ones who are responsible in inspiring others by creating these upcycled products, so it can be practiced in all homes and limiting consumers from buying unnecessary products which will also be more costly.

2.3 Creative approach

Upcycling can be a way for one to be more creative in helping mother earth. The beauty of this approach is that one could still keep the sentimental value of a used product and instead of throwing away, one can create it into something new with higher aesthetic values. Waste which used to be ignored and neglected can be valued and upgraded into something more. In terms of interior design, Rosalyn Lazaruk stated that the approach of upcycling will give more personality to a space when there is a creative piece in it [5]. Hence, this highlighted that good, functional design does not have to include solely 'virgin' material [1].

The shape or form of the sources is manipulated into a new product where it meets the requirement and necessity of its new function and space area. If the previous form or shape of the material is placed on the table or floor of an interior space, it might be more interesting and attractive when it is hanging on the wall or down the ceiling after the original materials or furniture product are combined together. The needs of experimentation or trial and error method will create and produce not only new creative furniture, but also exclusive and one of a kind item.

3 CASE EXAMPLES

Three case examples have been chosen to identify and analyze all the challenges and factors to be considered in designing using upcycled material. As the materials are old they might face deterioration and damage caused by human, environmental or other factors. The impacts and effects of upcycling in creating new products are discussed later based on the case studies.

3.1 Case example 1: Gregory Kloehn



Figure 3. Transforming Dumpster Home for Camouflaged Urban Living

Source: <http://dornob.com/transforming-dumpster-home-for-camouflaged-urban-living/>

This project was completed by an artist, Gregory Kloehn where he transformed a dumpster into a multifaceted, fully-functional home (see Figure 3). He fully utilized the interior space of the dumpster by dividing it into 4 areas -a working kitchen, a toilet, a storage and also a sleeping area. Meanwhile, the exterior part was converted into a shaded rooftop deck with dancing pole, breezy outdoor shower, an impromptu flower bed, grill, bar and more [6].

Gregory Kloehn obviously has turned the real usage of the dumpster to a whole new 360 degrees. He did not only fully utilize the space, but exceeded the usage of it on the exterior part of the dumpster. He totally exploited the dumpster space and shaped it into something that was creatively unpredictable.

3.2 Case example 2: Ariele Alasko

Arielle Alasko reclaimed furniture made from salvaged wood, and then reassembled them into new furniture with the touch of her personal signature designed patterns (see Figure 4). The designer who came from California and now based in Brooklyn, found her sources from around her neighbourhood. Her sense of appreciation towards these waste materials and knowing that she uses materials that are often overlooked, uncared for, obsolete and giving it a new purpose, have opened the eyes of many people not only designers but also at the same time giving a new hope to these waste materials [7]. Besides using natural waste around her to create beautiful furniture from those waste materials, she also contributes in saving the environment. She proves that old and unused materials can be appreciated as someone's trash which can turn into someone else's treasure.



Figure 4. Designer Ariele Alasko with her reclaimed furniture
Source <http://www.themakersproject.com/#ARIELE-ALASKO>

3.3 Case example 3: Wooden Pallets in Interior Design

One of the materials which are often used in Interior Design today is wooden pallets. There are a lot of ways in creating a space that costs less but still looks like it is worth a lot. There are many products that can be invented and designed out of this material and it all depends on how far you will go in creating the finished product.

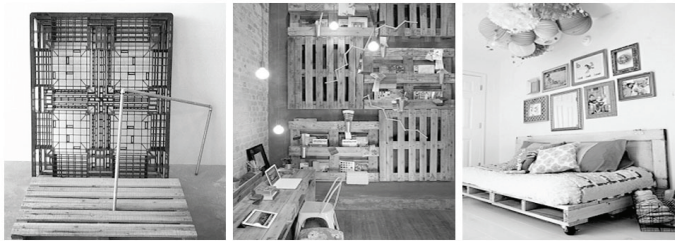


Figure 5. Few examples of designs made from wooden pallets
Source <http://pinterest.com/pin/113504853080524560/>

These three pictures show the possibilities of how one can recreate these wooden pallets and re-use them to become a part of interior design (see Figure 5). There are no limitations in creativity, it can be applied on the floor as a platform or flooring itself, up on the wall as display racks or turn them into furniture that can be used daily instead of buying products that have no personal character and are usually mass produced.

4 DISCUSSIONS IN DESIGNING USING UPCYCLED MATERIALS

An analysis based on the approach of the above case examples has been identified. There are factors which need to be considered in upcycling for maintenance purposes.

4.1 Factors Which Need To Be Considered In Designing Using Upcycled Materials

4.1.1 Types of Material

Understanding the nature of the material, how to preserve it and how it can blend in with the space given, whether it's outdoor or indoor and the condition of the material when it is left. Different types of materials have different ways to be approached in giving them a boost. Letting the upcycled material retain its original colour will give a raw and natural sense to the furniture. Some designers would call it an industrial look, where the interior is left raw and naturally exposed. Appreciation towards this kind of approach is widely known and we can see the industrial trend that emerged sometimes has a mix of these upcycled materials. We would notice the use of raw galvanized pipes, raw cement wash on the walls and some additional wooden fixtures in a space, even in a commercial space.

4.1.2 Preservation

Different types of materials need different preservation techniques to make sure it is long lasting. Some waste materials may need certain treatment on their surfaces to avoid bugs or other things that can ruin them. Therefore, one must understand the nature of the material, how to preserve it and what type of finishes can be applied. It is highly advisable for designers to be familiar with the aforementioned items so that their creation will have good finishes that can last for a long time.

4.1.3 Functionality

The sky is the limit, each individual has the ability to build and transform one item to another new product with a whole new function. Creating a new product is one thing; creating a functional product is a whole new level. It will be a bonus if a designer can solve a problem in their creation and give it a purpose to be in a space.

4.1.4 Aesthetic value

There are ways to have the end product in place or to get it to blend in with the space. Today, people are more appreciative towards eclecticism and random placement of furniture or products in interior design, also the usage of raw materials with the right touch of creativity that still maintains the aesthetic value of each product. These products then have to create the aesthetics of the whole space, giving it personal meaning and character.

4.2 Upcycling in Product Design Education

The upcycling process offers different raw materials to designers, thus encouraging their creative and critical thinking in producing an innovative and inventive outcome. It insists that the designers 'think out of the box' and out of their comfort zone. The conventional way of designing encourages the designer to explore on the form or shape of a design [9]. However, upcycling promotes another design process where the potential and capabilities of the existing material are being explored or totally transformed into a new function. It makes and forces the designer to think and see not only beyond their capabilities, but also beyond the material potential. The design process of upcycling involves creativity in integrating existing material or pieces into a new and fresh product as the original function of its basic form is totally neglected and abandoned. As the products are given a new lease of life and functionality to it, it offers new impact to the space itself.

Guidelines in design for sustainability should be the foundation in undergraduate design courses, as this encourages students to factor sustainability in design. In relation to that factor, it seems that there is no specific rule in design methodology, since design is always perceived as subjective in nature, personal and dependent on designer creativity and imagination.

Upcycling has the potential in combining two or more different aspects in one solid object which will make a design become very distinctive and rare. Sentimental value of existing items is being protected and transferred into a new form. It offers elegance and aesthetic approach to an interior space as the value of the original item is being upgraded through the upcycling process. Even better, the upcycled product can sometimes become more of a sculpture rather than a product, similar to what happened with Philippe Starck's lemon squeezer. The product is more appreciated as a sculpture than its real purpose. It shows how good the design of the product is as the form surpasses its real function. This kind of appreciation can be achieved through upcycling design.

Incorporating and embracing upcycling processes in product design education will also give many advantages not only to the designers, but also to the environment. It promotes wastage-saving among the designers and avoiding unnecessary use of new raw material especially wood. It is most important to educate the designers to save nature as they are the people leading the trend and so they can create and raise the awareness.

5 CONCLUSION

Why should humans waste when they can be creative and challenge themselves with upcycling? It does not take only designers or professionals to practice this, as it offers the simplest way to decorate a space with the existing things around them, and transform the pieces in a creative way. Upcycling offers more appreciation of things and protecting the original state of the item for long as it possible. It also creates awareness among the public on the importance of protecting the environment from

pollution and other environmental issues. It is a win-win situation for both humans and nature as both are affected by the process. By fully understanding the roles and benefits of upcycling, further design recommendations can be suggested to ensure better and effective usage of those materials and products particularly in interior space, in order to conserve and preserve these natural sources. Although this may be one of the positive approaches in design, we can still see people taking the shortcut and buying new furniture and new products to fill up their space. This approach is not for everyone, but depending on how inspiring or creative a project is, it can win the minds of most people. It is the designers who are responsible in creating and making upcycling lifestyle practical and possible.

ACKNOWLEDGEMENT

This research was financially supported by the Universiti Teknologi MARA, Malaysia. This support is gracefully acknowledged.

REFERENCES

- [1] Brown, A. *Reduce. Reuse. Upcycle*. Available: <http://anitabrowndesignstudio.wordpress.com/2012/09/15/reduce-reuse-upcycle/> [Accessed on 2013, 15 January], (2012) 15 September.
- [2] Goldsmith, B. *Trash or treasure? Upcycling becomes growing green trend*. Available: <http://mobile.reuters.com/article/idUSTRE58T3HX20090930?irpc=932> [Accessed on 2013, 14 January], (2012) 30 September.
- [3] Ainsworth, K. *Sustainability by Design: Creative Collaborations And Sustainable Practice*, 2011 (University of New South Wales).
- [4] Caine, T. *Recycling vs. Upcycling: What is the difference?* Available: <http://progressivetimes.wordpress.com/2010/02/17/recycling-vs-upcycling-what-is-the-difference/> [Access on 2013, 17 January], (2010) 17 February.
- [5] Ash, A. *How to upcycle garage-sale finds*, Postmedia News. Available: <http://www.canada.com/life/greenguide/upcycle%20garage%20sale%20finds/6547293/story.html> [Accessed on 2012, 26 December].
- [6] *Transforming Dumpster Home for Camouflaged Urban Living*, n.d. Available: <http://dormob.com/transforming-dumpster-home-for-camouflaged-urban-living/> [Accessed on 2012, 30 December].
- [7] Causey, J. *Brooklyn Makers: Food, Design, Crafts and Other Scenes from the Tactile Life*, 2012 (Princeton Architectural Press). Available: <http://www.themakersproject.com/#ARIELE-ALASKO> [Accessed on 2012, 22 November].
- [8] n.d. *Upcycling*. Available: <http://www.terracycle.com/en-US/upcycling> [Accessed on 2012, 26 December].
- [9] Abidin, S.Z., Sigurjónsson, J., Liem, A., & Keitsch, M. On the role of formgiving in design. *Proceedings of E&PDE 08, 10th International Conference on Engineering and Product Design Education - New Perspective in Design Education, Barcelona, 2008, DS46-1*, 365-370.
- [10] Richardson, M. Design for Reuse: Integrating Upcycling into Industrial Design Practice, *International Conference on Remanufacturing 2011 in Glasgow*.