Philanthropy – Design for the Needy

Tin-Man Lau, Professor
Chyun-Chau Lin, Assistant Professor
Chiu-Ter Chiu, Associate Professor
Nien-Te Liu, Assiociate Professor

Department of Industrial and Graphic Design, Auburn University, USA

Department of Product Design, Shu-Te University, Taiwan

Department of Product Design, Shu-Te University, Taiwan

Department of Product Design, Shu-Te University, Taiwan

Department of Industrial and Graphic Design
207 Wallace Center
Auburn University, AL 36849

Product Design Department, Shu-Te University
No.59, Hengshan Rd., Yanchao
Kaohsiung County 82445, Taiwan (R.O.C.)

lautinm@auburn.edu
frank@stu.edu.tw
chiuct@stu.edu.tw
ntliu@stu.edu.tw

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Abstract:

Industrial Design students are trained to develop solutions for the consumer markets, on one hand for the user needs, and on the other hand, for the manufacturer need. More than often, industrial designers are mindful of how to create a market for the consumer and focus on the profit side of products rather than using their talents and skills for the needs of those who really need design solutions but cannot even afford to survive with basic necessities. As Paul Polak indicated that the majority of the world's designers focus their design efforts on developing products and services exclusively for the richest 10% of the world population, while the other 90% has immediate needs unmet. There should be one aspect of industrial design education that brings attention to the students the awareness of those who are not consumers but have unfulfilled basic needs. Combining student efforts from two schools, one in US and one in Taiwan, an eight-week curriculum is developed to bring design students to an awareness of the needs of those who live below the poverty line in the world. This is an attempt to instill the concern of the other 90% in design students with much hope that some of them will take it by heart as their social responsibility as a designer. This paper is a documentation of the development of the curriculum as well as projects conducted by the students.

I. Introduction

Industrial Design students are trained to develop solutions for the consumer markets, on one hand for the user needs, and on the other hand, for the manufacturer needs. More than often, industrial designers are mindful of how to create a market for the consumer and focus on the profit side of products rather than using their talents and skills for the needs of those who really need design solutions but cannot even afford to survive with basic necessities. As Paul Polak indicated in his book "Out of Poverty" that the majority of the world's designers focus their design efforts on developing products and services exclusively for the richest 10% of the world population, while the other 90% have immediate needs unmet. As the world gets more and more capitalistic, the distance between the wealthy and the poor is getting wider apart. In the realm of industrial design education that trains problem solvers, there must be a curriculum shift to bring awareness to students of those who are not regular consumers but are less fortunate with unfulfilled basic needs. Design education should focus more on how to motivate and train gifted designers to contribute their talents to better the living conditions of those who truly need design solutions for their basic necessities.

This paper is a result of a program that combines student efforts from two schools, one in US and one in Taiwan for an eight-week period working together on design projects that try to address problems of the other 90%. A curriculum is developed to bring design students to an awareness of the needs of those who live below the poverty line in the world. This is an attempt to instill the concern of the other 90% in design students with much hope that some of them will take it by heart as their social responsibility as a designer.

The project is a part of the annual exchange program between the two schools. Eight Auburn industrial design students have the opportunity to spend two months in Taiwan learning design together with Shu-Te students.

II. Traditional Design Education

Traditional industrial design training has been focused mainly on consumer products that apply technologies to market needs to fulfill materialistic desires that cultivate a culture of "the more the better" lifestyle. Many manufacturers of consumer products, especially those who sell high-tech products, keeps telling consumers they need the next version of their new products. Designers spend all their efforts to come up features and applications that act like baits to get consumers hooked. Young designers unintentionally get drifted into the hype of high-tech chase. Design education has a due responsibility to change the mindset of the new generation of designers to take the lead of changing the wasteful design lifestyle, and put more emphasis on bringing design solutions to those who have urgent basic needs. The Share: The World's Resources (2010) website states,

> "The threat of climate change and global warming, fueled by relentless commercialization and excessive consumption, has turned into a fighting ground for both policymakers and concerned citizens. The coming decade is set to determine not only a collective response to reducing carbon emissions, but the entire future direction for international development and the global justice movement."

It is a future challenge especially for designers to help reduce wastes and use their talents to bring benefits to those who are still living below the poverty line. We are living in a world that allocates its resources not according to human needs but political powers. We all acknowledge that efforts should be focus on human lives and living quality but ironically we spend much of our resources on weapons rather than social aids. At the Share: The World's Resources website, it is reported that $40 billion is spent annually to provide social services to all developing countries but the worldwide budget for military spending is $780 billion.

In his book "Out of Poverty," Paul Polak (2008) indicates, "The majority of the world's designers focus all their efforts on developing products and services exclusively for the richest 10% of the world's customers. Nothing less than a revolution in design needed to reach the other 90%." (p. 3) There is a need to cultivate the sense of responsibility and accountability in young designers so that some of these designers will use their talents and skills to bring design solutions to the world of the other 90% who do not even have basic needs met in their daily lives, and do not have any hope of seeing improvement in their life time.

The majority of world is living below the poverty line of the United States. It is shown at the Global Issues website that at least 80% of humanity lives on less than $10 a day. A report from the World Hunger website also shows,

"Poverty is the principal cause of hunger. The causes of poverty include poor people's lack of resources, an extremely unequal income distribution in the world and within specific countries, conflict, and hunger itself. As of 2008 (2005 statistics), the World Bank has estimated that there were an estimated 1,345 million poor people in developing countries who live on $1.25 a day or less."

It is obviously a recursion of lack of resources, income, poverty, and hunger that plagues the people in most parts of the world. Unless the affluent minority is willing not only to share the resources but to put efforts in coming up solutions, there would be no way out for those who are under the curse of poverty. Designers are gifted in spotting out problems and solve them systematically. If the new generation of designers is trained to take those who are less fortunate by heart as part of their responsibility, they may foster some hope to see changes in the near future.

III. The Developed Curriculum

The main purpose of this project is to instill the sense of responsibility of a designer to contribute design talents and abilities to serve the society and the other 90%. The goal of the project is not to develop fully viable products in eight weeks, which is quite impossible, but through the design process and cooperation in team work, students learn how to identify problems by research and study, and propose possible solutions to those found problems. Because of the limitation of time, a tight curriculum is developed to ensure the design process is executed in a full circle. The curriculum is divided into four phases:

A. Research phase
  1. Study of people
  2. Study of problems
B. Concept development phase
  1. Explore possible solutions for identified problems
  2. Define product system functions and configuration
  3. Visualize problem / solution scenarios
C. Idea development phase
  1. Iteration of idea sketches and conceptual models
  2. Evaluation and selection of optimal solutions
  3. Refinement of design
  4. Full scale model for anthropometric study
D. Finalization phase
  1. 3-D computer models and control drawings
  2. Final scale models
  3. Final Evaluation

IV. The Design Class

Students are divided into eight design teams with one student from Auburn and five to six students from Shu-Te. Since students from both schools are from very different backgrounds, working together on solving problems brings insights from alternative perspectives because of the different experiences.

The design class is not limited to the classroom setting. Students also work on assignments outside class for long hours. The outside class assignments create an on-going problem-solving process as students spend time with one another in a more casual setting.

One other benefit of the design class is that students from both schools are exposed to faculty members from both schools to gain input from different sources. For some students learning from a different instructor is always a fresh learning experience and get more motivated in work.

The theme of the studio project is Philanthropy: Design for the Needy. Students are asked to design product systems that will help those who live in poverty or third-world countries that their living condition could be improved by design solutions. The main reason for this project is to provide students an exercise to build the sense of responsibility of designer in contributing their talents and efforts to the needy and the society. The result may not have a tremendous consumer market but may help many have better and healthier lives. Design students need to have the passion to care for not only consumers but also for those who need design solutions even they cannot afford.

A. Design Brief:

Students are asked to focus on problems of the majority of human race that can be solved by design efforts. Their charge is to work on the subject matter in a systematic manner. They are assigned to work with their group as one design team to identify a problem area, to analyze the situation, to propose concepts of solutions, and to design and present the final solution.

B. Design focus

Areas students may choose but not limited to concentrate on the following aspects:
1. Transportation
2. Education
3. Personal / Public Hygiene
4. Recreation
5. Emergency / Medical

C. Design Process:

1. Collection of images of poverty and living condition of a specific group of people.
2. Identification of problems.
3. Presentation 1
4. Apply mind-mapping technique to record all possible problems and solutions
5. Propose a preliminary product system by development of a hierarchical tree structure
6. Illustration of scenarios using proposed product by developing a series of story board
7. Conceptualize different possible solutions – sketches and scale models
8. Evaluation and screening of sketches and scale models to converge to a final design
9. Development of a full-scale model cardboard to verify the dimensions and functions
10. Presentation 2
11. 3D computer model and Control drawings
12. Final scale model
13. Evaluation
14. Final Presentation

D. Concepts Development

Students were divided into eight groups and were asked to collect images of living conditions of a specific people group that live in poverty. Images were collected from the internet and publications for the study of their devastating and helpless conditions because of natural and man-made environment that deeply affect their daily lives.

After analyzing the images, each group identified the group of problems that can be solved with design solutions with the aid of mind-mapping technique. Each group evaluated the mind map and then simplified the possible solutions to a system hierarchical tree structure to describe the product system in functional levels. Through the diagram, design criteria were established.

The topics from the eight design teams and the team members are as the following:

1. Project Name: Educational Aid for Rural China
   Group Members: Anne Gagnon, Pei-Ching Lin, Mei-Hui Chen, Pei-Chi Chen, Yuan-Ting Chan, Jhin-Wei Chen, and Yu-Li Huang

2. Project Name: Public Bathroom Facilities in the Slums of Mumbai, India
    Group Members: Kata Gregg, Pei-Wun Lo, Pei-Hsien Li, Mei-Yin Chen,
    Ya-Yu Wang, Yi-Ching Cheng, and Chun-Pei Liao

3. Project Name: Water Collection System for Guizhou, China
    Group Members: Krista Kriz, Chen-Wei Liao, Wun-Syuan Hsu, Bing-
    Sheng Huang, Pin-Yun Chen, Ya-Hsin Lee, Hsiao-Chi Yu

4. Project Name: Power Play for Patriensa, Ghana
    Group Members: Forrest White, Ming-Chieh Tseng, Tang-An Chen,
    Kung-Loung Li, Shu-Jhe Yang, Yi-Ching Lin, I-Ping Chen

5. Project Name: Backdrop Backpack for Slums of Mumbai and Delhi, India
    Group Members: Pearson Cunningham, Wan-Hsin Tasi, Hsiao-Yu Wan,
    Ting-Ru Jiang, Fang-Ting Chen, Hao-Lun Li

6. Project Name: Portable Life Saver for Africa
    Group Members: Joseph Dang Kirkpatrick, Ling-Da Ciou, Tai-Yi Chen,
    Ting-Yu Tai, Yu-Lun Hsu, Yueh-Mei Lo, Chien-Yin Chen

7. Project Name: The Farm Hand for Africa
    Group Members: Matthew Dean Kloepper, Yan-Chen Li, Pei-Chz Li, Pei
    Chi Wu, Huei-Li Chen, Chia-Jen Lin, Min-Yan Jhung

8. Project Name: Human Waste Management System for India
    Group Members: Vincent Tsai, Yi-Ting Tang, Ya-Chieh Tseng, Shan-Ju
    Liu, Yu-Hsin Tai, Jia-Chi Zang, Zong-Da Yu
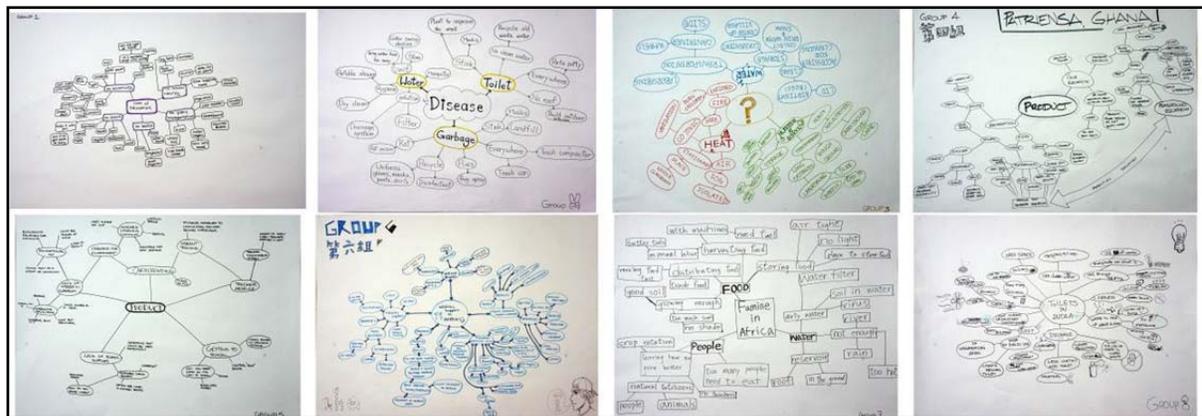
Figure 1: Mind-Mapping developed by the eight design teams
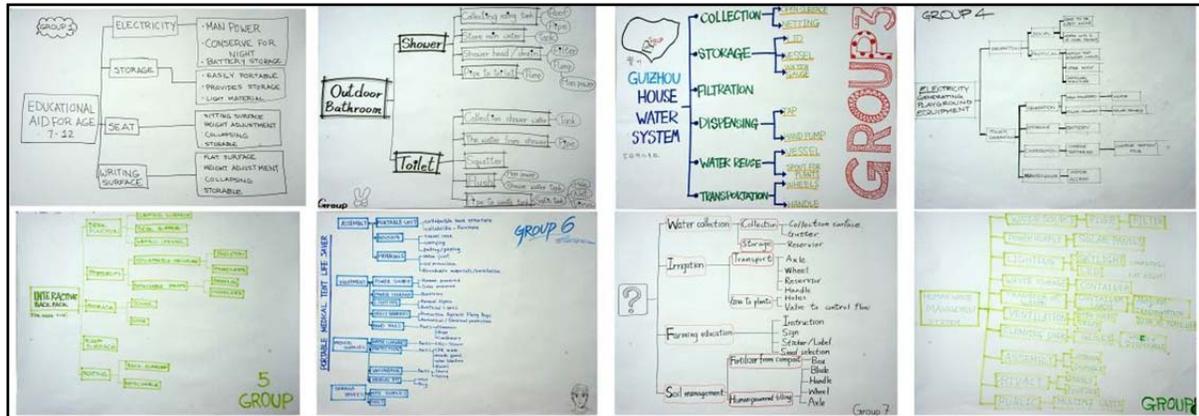
Figure 2: Hierarchical Tree Structure diagram of eight proposed systems

Using story-board method to go through hypothetical scenarios, students described how they can solve the problems with their proposed product system. This method helps students go through scenarios step by step to sort through the functions that the design may have.

Figure 3: An example of story board from Group 1

With the design criteria, students start designing the proposed solutions with sketches and scale concept models. Over 500 idea sketches are drawn in the class, and over 120 scale mockups are built during the development stage as a means to present different ideas and for discussions. Students work together not only in class but also outside class. Students learn a lot not only in design but also how other people design. Because of the cultural difference, ways to approach problems are often different.

Figure 4: Idea sketches

Figure 5: Scale models

Figure 6: Group discussion of scale models

E. Full-scale model

After the long process of sketches and mockups, discussions and debates, each group

narrows down usable ideas into one final concept. With consideration of anthropometric

requirements, each group uses cardboard to build a full-size model to verify the dimensions and

the form of their final design. This step is critical not only to make sure the proposed concept is

reasonable in scale but also in accordance with ergonomics. Each group develops the full-scale

model and present to the class for final critics and suggestions before finalizing the design.

Figure 7: Full-scale card board models

F. Final model

Refinements and improvements are made to finalize the designs with 3D computer

models. Once dimensions and details are finalized, detailed scale models are built with various

materials according to the functions and forms. Students spent less than a week working on their

final models together after having their engineering drawings approved.

The final models are in scale because of the size of the project as well as the limited time.

This stage is not only important to the projects in result with a tangible outcome but even more

important for the learning experience in a group setting under pressure of time and cultural

differences. The following are pictures of final models from each group. Details of each project

will be explained in individual project reports.

1. Project Name: Educational Aid for Rural China
    A system that provides children a portable seating, writing surface, detachable lighting,
    and generator for charging the light.
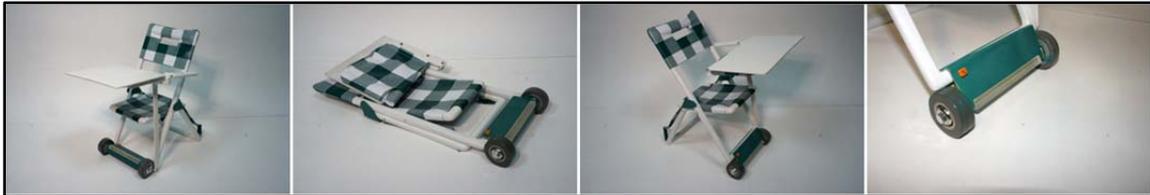
Figure 8: Final model of the Educational Aid

2. Project Name: Public Bathroom Facilities in the Slums of Mumbai, India
A system that provides public restrooms and bathrooms with rain water collection and filtration system.


Figure 9: Final model of the Public Bathroom Facilities

3. Project Name: Water Collection System for Guizhou, China
A water collection and filtration system for community distribution.

Figure 10: Final model of the Water Collection System

4. Project Name: Power Play for Patriensa, Ghana
A playground equipment for children with solar panels and electricity generation by motion.

Figure 11: Final model of the Power Play

5. Project Name: Backdrop Backpack for Slums of Mumbai and Delhi, India
A backpack that can be converted to a small seat and desk, as well as a sleeping mat.

Figure 12: Final model of the Backdrop Backpack

6. Project Name: Portable Life Saver for Africa
    A mobile first-aid / medical unit for medical service to remote areas.

Figure 13: Final model of the Portable Life Saver

7. Project Name: The Farm Hand for Africa
    A system for farmers to collect water, sowing, irrigating, and tilting system.
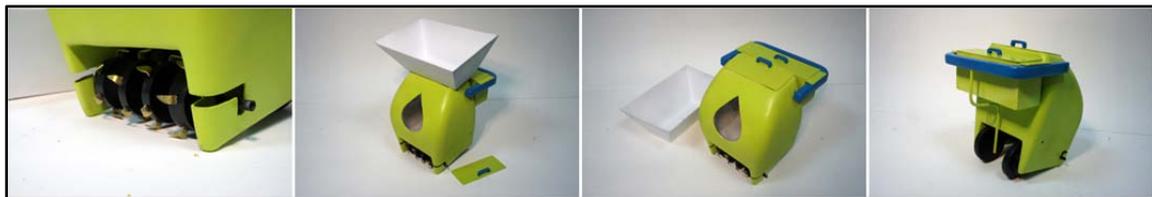

Figure 14: Final model of the Farm Hand

8. Project Name: Human Waste Management System for India
    A public restroom that manage human waste in remote areas.

Figure 15: Final model of the Human Waste management System

V. Conclusion

Although the whole project from start to finish being only eight weeks, students work

intensively on not only identifying the problems but on solving them. The solutions from these

design teams are just a means for students to learn about the other 90% who are less fortunate and realize that they are responsible to care for those who are in needs. All product concepts developed in this project are focused on real needs. The solutions may not be totally practical or applicable because of the limited time for study and development. However, if further study and development are given to these projects, there could be some viable products developed for the needy world. It is encouraging to hear comments from students after the program that they disagree with expensive design, which serves only a few elites while there are many still suffering for the lack of resources that seriously affects the quality of their daily lives.

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