

감성디자인적 접근을 통한 혁신적 포괄적 디자인 Innovative Inclusive Design by Emotional Design

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Abstract : First question: What makes inclusive design truly inclusive? Most inclusive design products are far from being appealing to their intended customers. This is mainly because designers are typically concerned with enhancing the usability, and not the emotional value that creates the connection between the product and the users. Typical solutions are larger displays and larger buttons, and these solutions often make the product less tasteful, graceful, and favorable. As a result, such products become less inclusive, veering from the original intention of the designers.

Emotional design is not about making fun products, but about enjoyable products. Positive emotional design increases the affection value in products that enable users to create emotional connection with products. With the emotional connection, the user can engage in learning about the product as well as enjoy using the product. This can also resolve most usability issues by increasing the attention level and decreasing boredom. When more people feel that a product is enjoyable, it becomes more inclusive. Second question: Can't inclusive design have innovative value? Most inclusive design products are far from being innovative, and thus, they cannot create market opportunities. While emotional design approach increases value for users, innovative design approach creates value for the businesses. This will eventually promote development of inclusive products.

This paper discusses the benefits of emotional design approach in inclusive design. It also argues how emotional design can help make inclusive design more innovative. Accompanied exemplar design process illustrates how emotional design contributes to inclusive design and how it leads to innovative products.

Keywords : Inclusive Design, Innovation, Emotional Design

요약 : 첫번째 질문-포용적 디자인을 진정으로 포용적으로 만드는 방법은 무엇인가. 대부분의 포용적 디자인 제품들이 사용자들에게 그다지 매력을 주지 못하는 이유는 디자이너들이 제품의 사용성의 개선에 치중하면서도 제품과 사용자를 연결해 주는 감성적 가치를 간과하기 때문이다. 디스플레이와 키보드를 크게 하는 등의 사용성의 개선책은 때로 제품을 매력이 없고 관심을 끌지 못하게 만들어 결과적으로 원래의 의도와는 달리 포용성을 충족시키지 못하게 되게 된다.

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감성적 디자인이란 단순히 재미있는 제품을 만드는 것이 아니라, 사용하기 즐거운 제품을 만드는 것을 의미한다. 긍정적인 감성적 디자인은 제품에 대한 호감을 증가시켜서 사용자로 하여금 제품에 대한 연결감을 고양시키고, 이러한 감성적 연결감은 제품을 사용하는 것을 즐겁게 할 뿐만 아니라, 사용 방법을 배우는 것조차 즐겁게 만든다. 또한 제품에 대한 주의를 높이고 지루함을 줄여서 사용성에 따르는 많은 문제를 해결해 준다. 더 많은 사람이 즐겁게 사용한다면 그 제품의 포용성은 더욱 높아질 것이다.

두번째 질문-포용적 디자인은 혁신적인 상품성이 있을 수 없는가. 대개의 포용적 디자인 제품은 혁신적이지 못하고, 따라서 새로운 시장 기회를 만들지 못한다. 감성적 접근방법이 사용자 측면의 가치를 높이는 일이라면, 혁신적 디자인 접근 방법은 시장에서의 가치를 높이는 일이다. 이는 더 많은 기업의 포용적 디자인 제품의 개발을 촉진시키게 된다.

본 논문에서는 포용적 디자인에서의 감성적 디자인 방법의 효과를 조명하고, 감성적 디자인 접근 방법이 포용적 디자인 제품을 혁신적으로 만들 수 있는 가능성을 다룬다. 또한 제시된 디자인 프로세스를 통하여 이러한 과정의 사례를 보여준다.

주제어 : 포용적 디자인, 제품 혁신, 감성적 디자인

1. INCLUSIVE DESIGN VS. INDUSTRIAL DESIGN

Industrial design focuses on the target user group in the market, which often excludes users who do not belong to the mainstream. Such users include people who cannot use the mainstream products due to physical, cognitive, cultural, educational, financial obstacles, and other challenges. They have never attracted major industries as the market segment is extremely small for mass production and the marketing is not cost effective. Some special product industries have been developing products for such specialized market, but such products tend to be more expensive and less appealing.

Inclusive design is a concept of creating designs to fit the needs from diverse user group. Inclusive design allows such people included to the user group. This generates larger market, lower price, and more happy users. The origin of inclusive design goes back to the

design for the aged or the handicapped and mostly the focus is on providing the means of usability and accessibility. This is why inclusive design is often confused with design for the elderly or the handicapped. Such products for the elderly and the handicapped have a very narrow market and thus price has to be higher than those for the mainstream market. Stigma attached to such product is a big issue, too.

Inclusive design has been successfully implemented in architecture and interior design. There are two reasons: Legislations such as the Americans with Disabilities Act (ADA) enforce making public spaces accessible. Implementing inclusive design in architecture is relatively easy as most residential houses are easily designed and remodeled to suit specific needs.

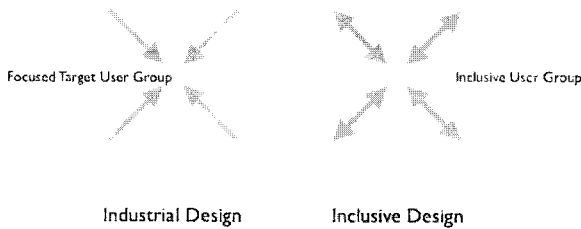


Figure 1. Traditional Industrial Design and Inclusive Design¹⁾

More industrial designers are interested in inclusive design than before. But there are two major issues in this trend: Most industries are not truly interested in investing in inclusive design products, and many designers just focus on usability issues not the value of the product.

Figure 1 shows the difference between traditional industrial design and inclusive design from the viewpoint of how users are targeted. While traditional industrial design focuses on the target user group, inclusive design looks at much wider range. This means many people are excluded in the traditional industrial design paradigm.

2. WHAT IS MISSING IN INCLUSIVE DESIGN?

There is a big gap between making products people need and making products people desire. There are many products being widely used by people with special needs, however, such users are not necessarily pleased with such products.

A medical wheel chair would be a good example. If a person cannot walk for entire life or for a while, the person would need a wheelchair to enable mobility. But no one would ‘want’ or ‘desire’ a wheelchair unless the

person ‘has to’ use it.

Another great example is a hearing aid, which helps people with hearing impairment. Despite its value, the users try to hide it as much as they can. This is mainly because the designs of most wheelchairs and hearing aids (and the list goes on) are dealt with how to make the product work, not how to make the user’s life more pleasing. Think about this: Who would want products if they are not pleasing to use? Who would make products if no one wants to use?

Most inclusive designs are safe, functional, but boring (Julia Cassim, Helen Hamlyn Centre, Royal College of Art. This is because the main focus of inclusive design has been on the improvement of usability. And this is why users and manufacturers turn away from so-called inclusive design or universal design products. Simply the drawback is most alleged inclusive design products are neither attractive to invest nor appealing to use. The main cause for this misfortune is lack of understanding how to make inclusive design more pleasing, appealing, and attractive.

3. INCLUSIVE DESIGN. TRULY. WITH EMOTIONAL DESIGN

The true goal of inclusive design is making products that appeal to all people: Something that appeals to all stakeholders - users, manufacturers, distributors, designers, and so on. The bottom-line is, does the product appeal to everyone? This makes inclusive design truly inclusive.

Emotional design is different from making beautiful designs, which only appeals to the eyes. Emotional design touches beyond user’s hand - heart. Emotional design can create and

1) Sooshin Choi (2008)

enhance connection between the product and the user. People pay more attention to the objects that have positive emotional value. Emotional design changes ‘interaction’ to ‘interplay’ by creating a stronger bond between the user and the product. Emotional design can improve usability by making the user happy to see, touch, try, learn, use, and maintain the product. It even prolongs the life of the product.

The big difference between inclusive design and emotional inclusive design is simple: Is the focus on improving usability? Or, is the focus on improving usability by enhancing emotional connection? This may not sound significant, but result is remarkable. When wheelchair users tried iBOT™, they were not just glad to get mobility, but enlivened and eventually cried when they were able to hug their loved ones without bending in awkward posture.

The water fountain in Sydney is not only functionally inclusive to use by anyone (adults, children, wheelchair users), but also very emotionally pleasing in terms of appearance and experience. The form fits well not only with the palm trees in the region but also with the person drinking water from it. The fountain and the user are ‘hugging’ when drinking water.

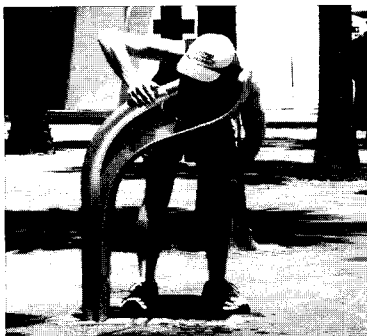


Figure 2. Water Fountain in Sydney

The button is located where the hand naturally

be (under the palm, in the figure 2), and the user - from any posture - can use it without looking for it. Excessive water would flow through the ‘leaf’ of the fountain to the drain on the ground.

The fountain is an excellent example of how emotional and innovative inclusive design makes public product satisfy people who use, maintain, and produce it.

4. INCLUSIVE DESIGN MAY BECOME INNOVATIVE WITH EMOTIONAL DESIGN APPROACH

Innovation is the key. While most people believe product innovation can be achieved by technological advance, innovation can be created by design, too. As matter of fact, innovation can be created even without any technological breakthrough. Innovation, in my definition, is making things new and beneficial. If a design is not beneficial to the anticipated users, the design is not innovative even if it is new.

Most innovative designs, like Segway or iPhone, aim at the early-adopter market, which is often exclusive to the people who can understand and use new concept and afford high price tag. Such market is relatively small, and often risky for business. True innovation, however, should benefit larger audiences rather than an exclusive market segment. In fact, inclusive design is to create innovation for all people (Maria Benktzon, Professor. Sweden).

Most inclusive design approaches are to make current products usable by a wider range of people. This is to give the same value to people who never are able to use. Innovative inclusive design is to create new value for both current users and people who have never been included to the user group (Figure 3).

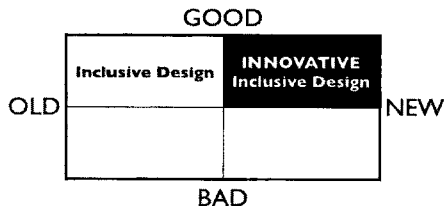


Figure 3. Inclusive Design and Innovative Inclusive Design²⁾

Emotional design approach in inclusive design will help finding opportunities for innovation in two ways. First, adding emotional value to inclusive design is already new approach and positive emotional design can promote enjoyable use, thus it is innovative. Second, such innovative perspective often leads to unexpected innovations, which is a surprising bonus.

5. INCLUSIVE DESIGN PROCESS WITH EMOTIONAL DESIGN APPROACH

Inclusive design process usually begins with understanding how difficult of impossible it is to use products if the potential users have any kinds of impairment. On the contrary, inclusive design with emotional design approach should begin with understanding what the users really appreciates.

For example, wheelchair design projects usually begin with investigating how to make it easier to use the wheelchair. Emotional design approach should begin with finding what they dream about. All wheelchair users would like to walk, if they could. All wheelchair users would like to have ‘normal’

experience without bothering using wheelchair. They want to walk, run, and jump like others do. One wheelchair user stated that she would like to swim as fish in the water. So the design of wheelchair - manual or powered - should represent the user’s dream not the impairment.

6. EXEMPLAR PROJECT

Most computer printers are designed to meet the needs of skilled computer users, thus they are less inclusive. Students at the University of Cincinnati designed inclusive printers for less technology savvy users including older consumers. Such users need computers and printers, but often feeling frustrated and intimidated with complex technology loaded machines.

First, students surveyed users to find out two aspects of the desires from such users - one was about the context of using printers and another was about their emotional expectations to the things including printers. Some intriguing quotes found from the survey were: "I want a tasteful looking printer that one does not have to hide," "not-machine-like printers," "A printer looks like it is not a printer," and "A printer that wouldn’t look awkward alone on the desk." None of these are keywords commonly used in developing printers.

The collected desired image words and created image scale maps³⁾ (Figure 4) to derive key images for the design of the

2) Sooshin Choi (2008)

3) The template of image scale map is developed by Shigenobu Kobayashi, Color Image Scale (1997), Kodansha Int’l

printer. The Image Scale was developed by Nippon Color and Design Research Institute, is used widely in color and fashion design areas to analyze the meanings of images and to forecast trend. This scale is also an effective tool for industrial designers dealing with images.

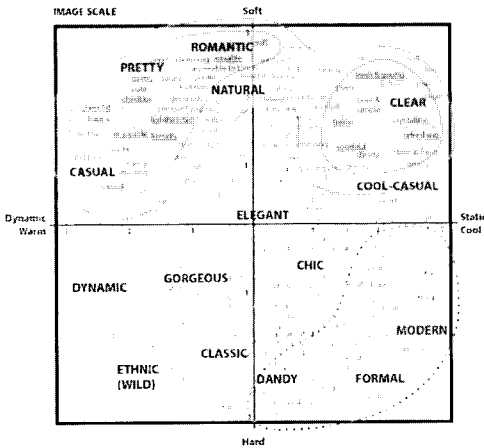


Figure 4. Image Scale Map showing clusters of desired images and key image words

These key image words including Pretty, Romantic, Casual, Natural, and Clear, in this case, became the foundation of the form language of the printer. While most industrial design begins with understanding functional engineering hard-point, this emotional design process begins with emotional design form language. Figure 5 shows design language development sketches.

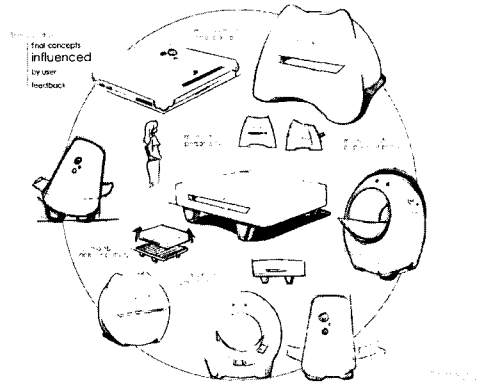


Figure 5. Design Language Development Sketches, Jen Ashman, University of Cincinnati

The final design (Figure 6) resembles a little monster with small eyes and large open mouth to provoke pleasing and casual emotion. This will let the users put the printer on the table rather than underneath it.

The papers are loaded on the back curved tray that moves forward while printing. Printed papers stay curved, and it eliminates the need of paper tray and potential interferences with objects in front of the printer. It occupies smaller footprint than ordinary printers.

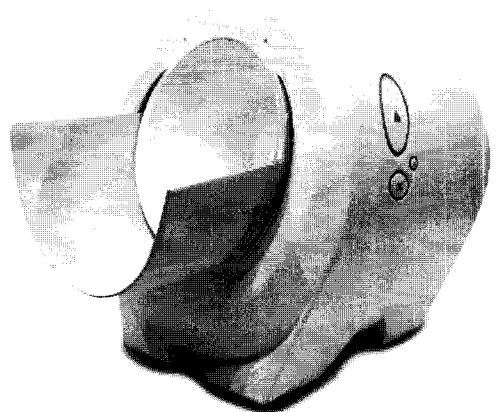


Figure 6. Printer with innovative emotional design

Some user comments on the emotional characteristic of the design were: "The printer with a sliding printer module looks very familiar to me," "This would make printing fun and enjoyable," "I feel like I am petting a monster when I touch the switches," and "It is like 'feeding' a pet when I feed the papers."

Although the design needs new technology enables the concept, it is very clear that the emotional and innovative value of the printer will satisfy users regardless of the level of experience.

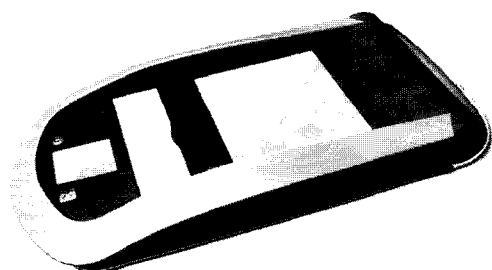


Figure 7. Innovative and inclusive printer, Joe Stauss, University of Cincinnati

Figure 7 is a design of printer derived from similar emotional need but more to create a printer with less frustration – a form of emotional reaction to uncertain and unexpected results. The student found several usability issues, such as paper jam and limited information on the status of printing as opportunities for emotionally pleasing printer. A stack of papers stays stationary while printing to eliminate paper jam and the printer module hovers over the papers. The user will never experience paper jam and will be able to see the status of printing.

Moreover, the printer can print on papers of any thickness and different surfaces including fabrics, wood, tables, and even on walls. This innovativeness of design can create new market genre of printer.

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REFERENCES

- [1] Christophersen, Jon (2002), *Universal Design: 17 Ways of Thinking and Teaching*, Husbanken: Oslo
- [2] Choi, Sooshin (2005), *Universal Design: A Practical Tool for Diverse Society*, The International Conference of Diversity on Communities, Organizations, and Nations, Melbourne, Australia
- [3] Choi, Sooshin (2005), *Strategic Use of Universal Design as a Business Tool for 21st Century*, MX Design Conference, Iberoamericana University, Mexico City, Mexico
- [4] Choi, Sooshin (2007), *Function Begins With Fun - Emotional Design Makes Products More Innovative and Universal*, Kansei Engineering & Emotion Research, Sapporo, Japan
- [5] Choi, Sooshin (2007), *Form That Works for All: Creation of the Form for Universal Design*. 2nd MX Design Conference, Mexico
- [6] Clarkson, John [et al.] (eds) (2003), *Inclusive Design: Design for the Whole Population*, Springer: London; New York
- [7] Covington, George A., Hannah, Bruce (1997), *Access by Design*, Van Nostrand Reinhold, New York
- [8] Keates, Simeon [et al.] (2004), *Designing a More Inclusive World*, Springer: London; NY
- [9] Mace, Ronald L., Hardie, Graeme J., and Place, Jaine P. (1990), *Accessible Environments*:

Toward Universal Design, Center for Accessible
Housing, North Carolina State University:
Raleigh, NC

- [10] Norman, Donald(2005), Emotional Design:
Why We Love (Or Hate) Everyday
Things, Basic Books: NY

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