User centred design | analysis

Introduction

Nowadays, User Centered Design has been embedded in many design works. This essay seeks to explore the nature of this approach. This essay is split in to four sections.

The first section is to provide a definition for User Centered Design while the second section will explain the benefits of using this approach with examples. I will then move on to discuss the limitations of User Centered Design and a conclusion will come afterwards.

What is User Centred Design?

User Centred Design is an approach which aims at increasing the usability of products, and therefore making them more effective in meeting users' needs. This approach requires the designer to focus on the users throughout

' The planning, design and development of the product.' (UPA resources, no date)

Norman (1999) described user centred design as

' Transforming difficult tasks into easy ones.'

It requires the designer to study the users before designing.

User Centred Design approach often requires a great deal of involvement from the users during the process. Carrying out this approach often includes collecting end users' opinion right before the start of the project, as well as during the design process, and designing with them. The objective of this is to allow the designers to have a good understanding of the subjects who will

use the product. Therefore, good interaction between designers and users is the key under this approach.

UCD is widely recognized and there is an international standard which serves as a benchmark and a guideline. International standard ISO 13047: Human-centered design process outlines the 5 stages of a typical UCD design, which are identifying need for human centered design, specifying the context of use, specifying requirements, creating design solutions and evaluating designs. (UPA Resources, no date) These steps define only general procedures but not exact methods. In fact, these standards do not outline how each phrase should be carried out. For instance, specifying the context of use can be done by surveys, observations, interview and many other methods.

Advantages of User Centred Design

Norman (1999) first suggested UCD is essentially a series of procedures that simplifying difficult tasks through exploiting natural properties of people and of the world, simplifying the structure of tasks, making both execution and evaluation sides of an action visible, exploiting natural constraints and designing for error. Aesthetics is not considered as a need in his original definition of UCD.

Needs of end-users in study during a UCD process should not be only those associated with functions of a product, but also users' unexpressed needs including, but not limited to, needs for aesthetics. Norman (2004) introduced three levels of user centered design namely Visceral design, Behavioral design and Reflective design.

Visceral design is about the appearance of the product which aims at capturing people's attention that they would never forget it or replace it with others. A design that people love it when they see it the first time is a successful visceral design.

The Muji Bath Radio is essentially a radio which is designed to be used in bathrooms and it fits in with the bathroom with a playful element. This product is designed by Industrial Facility. It is fun only when it gathers with the Muji refillable shampoo bottle, they appear to be a family; the bottle itself and even the label of the shampoo are of the same size with the speaker of the radio. Using it is very straightforward, simply turning the top to adjust the volume and on or off while the AM and FM tuning section is at the bottom. The radio is sealed to ensure it is water resistant to protect the radio due to the environment that it is being used (Fig. 1-3). (Industrial Facility, 2009)

Behavioral design is the functional part of a design. The product needs to be functional and easy to use. Norman suggested that even some products are complicated and users need to learn how things works but it should be learnt once only.

Apple increased the usability of Mac computers by making the interface of software written for Mac OS similar. Therefore, once the basic controls are learnt, users can manage a variety of software for this system easily and quickly.

Another good example would be hook-and-loop fastener which makes tying shoes easier and serves as an alternative to shoelace. It is also a design that

focuses on users. Tying a shoelace is an everyday but potentially difficult task for children and infirm adults due to its inherent complexity. Hook-and-loop fasteners simplify tying shoes and provide an easy alternative to shoelaces. Many may argue that this example is not significant but as Norman (1999) suggested; this simple design caters the needs of users and solves the difficulties of a large segment of population.

Reflective design is about the message the product gives to the user and the way the product represents the person who uses it. Sometimes people buy a product is not for the physical outcome but the psychological outcome. The main selling point of this type of design is not their functionality but things like prestige that owning the design brings. For instance, People drink Fair-trade coffee may not really concern about the farmer's benefit in the third world. They may do so to show to others how kind and generous they are.

Nowadays, many businesses have incorporated this ideology into their product range. Creating products which consumers actually need and want often feeds through to higher sales and hence higher profit. Brand image will also be benefitted. One of the key benefits of UCD approach is that it allows designers to attain some level of understanding of the users' needs. According to Parsons in ' Blueprint November 2009' (2009, p. 54), before UCD is being widely adopted, designers have to use their experience and knowledge to guess the needs of users. This in turn may create a mismatch between the product and the needs of end-users. UCD ensures efficient use of time and resources.

Limitations of User Centred Design

However, UCD is by no means a perfect model and may not be the ideal solution in some cases. I am going to illustrate the limitations and disadvantages of UCD in the following paragraphs.

UCD is often characterized as time-consuming and costly. Many UCD designers believe that market research is generally not an appropriate way to understand the behavior of the end users. Users may not do what they told market researchers and there are often unexpressed needs such as those associated with " attractiveness" and aesthetics. For the sake of gaining a full and reliable understanding, UCD designers often observe their users directly such as observing how end-users actually carry out specific tasks. Observing a range of subjects can be expensive and definitely takes a great deal of time as well as effort. However, it is possible these observations are subjected to Hawthorne Effect whereby individuals change their behavior when they know they are observed. (Campbell, Maxey and Watson, 1995) These observations may not be reliable after all.

Moreover, end-users may not know what they truly need. They may not know if they really need or desire the product until they actually see it. Therefore, participation of users in the earlier stages may not be too helpful.

Furthermore, without the technical background as a professional designer has, what users think might work might not work in practice. Also, too much commitment to satisfy the needs of a particular targeted users group may overly complicate the design which reduces its usability by other users.

Norman (2005) suggested that ' If a user suggestion fails to fit within this design model, it should be discarded.'

A balance between doing what consumers want and maintaining the usability should be achieved.

UCD is an ideology, which is the manifesto of many designers. However, usage of UCD procedures does not guarantee the product is useful for the users. Although there is an international standard which outline the general structure for typical UCD projects, the methods to go about these procedures are decided by the designer. Besides, due to time and budget constraint, designer can only study the behavior of a particular sample. There is again no guarantee the sample is representative for all the targeted users since everyone's needs are somewhat different. In addition, the sampling method used directly determines the reliability of these observations.

Users needs are influenced by many external factors and hence needs are subject to changes. This is especially the case for visceral design and reflective design, which is subject to changes in the social culture. What is trendy at this moment may not be so in the next. Under UCD, designers spend a long time to gather input from users and encourage them to get involved in the design. By the time the product is produced, users needs may have changed and thus it no longer meets the new needs.

There are many examples where products, which have not gone through UCD procedures, are highly successful. Moreover, these products require the users to adapt them, which is exactly the opposite of what UCD is about. (NORMAN, 2009) For instance, chopsticks require the users to learn and

adapt them. Learning to use chopsticks can be difficult and there are a couple of new products aiming to replace chopsticks. However, they are still used by a huge segment of the population.

Individuals have different preferences and needs. A product aiming to satisfy the needs of one group may in turn compromise the need of another group. Take hook and loop fasteners as an example again, they are not as flexible in the adjustment of the tightness of support as shoelace and versatile. This design is originally targeted to young children, elderly and disabled. As Norman (1999) suggested, hoop and loop fasteners are not used in sports shoes such as football shoes and boxing boots.

User centered design does provide a general benchmark to judge the quality of a design upon. However, using this principal as a basis of design may not be beneficial as it limits the creativity of a designer. The following example will illustrate this.

The Step is the first unique cooker which extraordinarily holds both gas and induction heat (IH) hobs and it is designed to accommodate a variety of cooking type and level. It is designed by Industrial Facility and produced by KichenAid. It owns three professional gas burners, two induction plates, cast-iron grates, cast-iron grill, solid ergonomic controls with built-in electronic ignition and with a Vitroceramic and stainless surface. The hobs are divided into two levels. The gas hob with the grill is higher and far from the front because it needs to handle heavy pans. The induction heat surface is at the front and is the same level with the worktop and able to provide an extra space for the work. (Industrial Facility, 2009)Gas is always perfect for heavy

cooking whereas induction heat is normally for fine cooking and one is not happened to perfectly replace the other. From the user centered design view, in this case, consumers could enjoy cooking without sacrificing either one cooking method.

From my point of view, this is neat and modern but after all it is merely a combination of two existing product. Why spend time to work on how to re-design something instead of creating a new cooking technique? You will never know if something works unless you have tried. UCD sometimes prevent designers to start from scratch. It often places too much emphasis on the point ' tools adapts human' which limits the creativity of the designer. In fact, in many cases, needs arise only when a new product launches. For instance, before telephone and SMS messages were launched, people did not know they demanded communication in these forms.

Conclusion

Finally, I believe every products' starting point is human centered. Every single existing product is human centered. We design because we want to improve people's life by using our products. Every project, we work on the appearance, functionality, and narratives of the design. Although the priority may vary, we design useful products, no matter it physically does the job or psychologically does the job, it definitely have a positive outcome. A design could have been better does not mean it is not a good design. Without a doubt, listening to the end-users opinion is wise and helpful in design in many cases. However, basing our designs solely on what consumers want can be problematic. This is because users often lack the expertise. Having

users involved is beneficial but they cannot replace the job of designers.

(Parsons, 2009) I believe striking a balance between the two is essential.

Bibliography

Published Materials

Journal

- CAMPBELL, J., MAXEY, V., WATSON, W., 1995, Hawthorne Effect: Implications for Prehospital Research Annals of Emergency Medicine, Volume 26, Issue 5, Pages 590-594

Books

- NORMAN, Donald. Emotional Design: Why we hate love (or hate) Everyday things, The MIT Press. 2004
- NORMAN, Donald. The design of Everyday things, The MIT Press. 1999

Articles in Periodicals

- Parsons, Tim. ' User centred design, through enlightened in theory'. Blueprint, November 2009, p. 54.

Internet Material

- ' Bath Radio', Industrial Facility. http://www. industrialfacility. co. uk/if. html, 13 Dec 09.
- ' Step', Industrial Facility. http://www. industrialfacility. co. uk/if. html, 13 Dec 09
- ' Human centered design considered harmful', NORMAN, Donald. http://jnd. org/dn. mss/humancentered_design_considered_harmful. html, 13 Dec 09.
- ' What is UCD?', UPA Resources. http://www. upassoc. org/usability_resources/about_usability/what_is_ucd. html, 13 Dec 09.

- ' Step 90cm', Walter Dix & Co. http://www. wdix. co. uk/Products/RangeCookers/KitchenAid/Hobs/Step90cm/tabid/457/Defau lt. aspx, 13 Dec 09.