SHOCK EMPATHY WORKSHOP : EXPLORING EMPATHY SKILLS FOR DESIGNERS AND NON-DESIGNERS

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Abstract: User-centered design or user-focused design are terms which describe processes that attempt to involve potential customers or users within a design process. The intention of such processes is to create solutions that better serve the needs, feelings and wants of users, therefore increasing user experience, product desirability, and ultimately to increase the value of the solution. This paper discusses a simply executed creativity workshop which has been refined over a number of years to deliver a heightened awareness of empathy with user needs and characteristics. The workshop challenges participants to deliver solutions to problems that are unexpected and seemingly ridiculous in nature. The creativity workshop has been implemented in a variety of timeframes with designers, engineers and mixed non-technical groups. During more recent years it has been recognized that this exercise was in fact delivering learning outcomes beyond those of 'creativity' which were originally intended, and includes those of building the value of empathy and understanding of users in the design process.

Keywords: User, design thinking, empathy, group

1. Introduction

Design thinking is a widely accepted term and infers a 'designerly' approach to problem solving. Processes and frameworks which attempt to define 'design thinking' often include 'empathy' skills the process where user requirements are included. For example IDEO and the Stanford d-school have 'understand' and 'observe', as the first two stages of their design thinking process models. Empathy with users is widely recognised as a fundamental aspect of designing; however, novice designers and non-designers can be challenged by the practice of 'designing for others'. To novice designers, designing for others can be seen as designing for an extension of themselves. Novice designers often struggle to accept that end users will have attitudes, needs and opinions outside and different to their own life experiences. If we are to educate designers to develop inclusive products which respect and meet the needs of diverse global communities then building empathy skills within designers will be of growing importance. As design educators, how do you teach this? How do we show that empathy is of value? In real terms how do we teach 19 year old students to

design solutions for 89 year old people with dementia? The aim of the study reported in this paper was to establish a systematic way of supporting non or novice designers to both develop empathy skills and recognize the value of empathy in a design process. In this paper we introduce the approach and provide examples of student work and results of student evaluation.

1. Literature Review

An appreciation for the need to understand people is not a new concept in product design and development (Leonard & Rayport, 1997). Terms like human-centered design, design thinking and the need to capture the voice of the customer are manifestations of a view that in order to design well, the individual or group must be considered before the development of a solution.

Research by Wheelwright, and Clark (1992), indicated that in order to create a successful and accepted solution a deep understanding of the user needs is required.

Kouprie & Visser (2009), state that it is important that designers need to see the advantages of empathy in order to value of empathy in a design process, describing empathic understanding as, "going beyond one's designer role to embrace the role of the user that engages with the environment/product".

Creating solutions to problems in new contexts and scenarios for people that are completely different to you as a novice designer is challenging. Being able to empathise as a tool to generate insights and viable solutions is critically important in order that the solutions are both desirable and appropriate. Altay, (2017) suggests that the likelihood of higher-quality design outcomes can be increased by developing student's empathic understanding within design education.

Advocates of empathy can be found outside the field of design such as from the field of medicine where design thinking tools such as empathy can be used as a means to better understand the problems its patients have so that better care can be provided (Gottlieb, M., Wagner, E., Wagner, A. and Chan, T., 2017)

There is a range of tools and techniques available to help develop understanding of the 'fuzzy front end' of product development (Khurana, and Rosenthal, 1997). Methods and tools to encourage designers to understand the view of the user are well known within the design process, Suri (2003) offers several of these tools which can be used to develop new user insights. These tools aid designers to understand the intended users, and their needs and aspirations, as well as possible solutions. These tools also support the evaluation of designs with users as an integral part of the design process. Due to the fact that there is a vast array tools available it is suggested that this complexity can however, lead to a move away from the use of insight building tools and an over reliance on the designers personal perspective of a problem during the practice of design (Duff and Pandza, 2012).

It can be said that to improve a designers' ability to create appropriate solutions the need to engage with tools such as empathy requires a platform that demonstrates the positive impact this approach has on creating value through insight. The difficulty here is moving past what Daniel Gilbert (1998) refers to as the roadblocks to empathy (Table 1.0)

IDEALISM	*People see things as they expect them to be*
EGOTISM	*People see things as they want them to be*
REALISM	*People think they see things as they are*
CIRCUMSTANTIALISM	*People think about only the things that they see*

Table 1. Road blocks to empathy

The challenge as we see it, is not in the development of new tools to develop insight but a means to demonstrate to novice and non-designers the importance of building empathetic insights and the value this delivers to the design process. As such we have yet to come across a platform that delivers this

learning in a meaningful way. To quote an old Chinese proverb: teach me, I'll forget; show me, I'll remember, involve me, I'll understand.

According to Race (2005), motivation is a key aspect of learning. We need to develop a platform that involves novice designers and non-designers in the empathy building process so that they both value it and are motivated to learn more about it. As discussed earlier, novice designers and non-designers are often unfamiliar with the value of gaining user insights before tackling user-centered problems. By observation merely informing such groups of the need to really understand or empathize with their target group is not very effective. Knowles (1975), in his paper focused on andragogy, argues that adults need to know *why* they are learning something, learn *experientially*, and learn best when they see the topic is of immediate *value* to them. Once the value of why they are learning is established learners are better motivated to learn about and apply more formal user insight tools and methods.

2. Description of the activity

For over ten years this exercise has been used within the Product Design Program as an important activity to encourage the use of creative thinking and visualization skills within the context of producing innovative solutions (Trowsdale et al, 2012). It has been used with academics from across the university for example as part of a university-wide Student Education Conference (SEC) to approximately 30 staff from a number of disciplines. The workshop participants were from business (1), science (2), dentistry & medicine (3), engineering (6), healthcare (2), languages (2), performing & visual arts (7) and staff development (7). It has been used with business and CDT students within learning modules.

Mix 'n' Match		
Set-up - Mascot	**Reveal – User is mascot**	**Process and Outcomes**
Teams of participants are asked to identify an animal to act as their team mascot. This is a standard task for such group naming. Examples Tiger, Blob Fish, Dolphin.

A list of common products is distributed to the teams, one for each team.

Examples Kettle or Watering Can

It is explained to the teams that they are asked to explore innovative solutions for the product producing one poster to show the user and one to show the solution. | The task appears like any other design exercise. However, their expectations are immediately shattered when it is revealed that the **user** of the everyday object is their chosen mascot.

The combination of familiar object and unexpected user places the teams in a design conundrum.

How will they approach this ridiculous idea?

Participants are asked to present and justify their solutions after a set period. For non-designers this has been as little as 30 minutes. For designers has been 6-8 hours. | The unexpected user does not allow for stereotypical design solutions. Participants realize that solutions are more likely if criteria are challenged in their entirety. For example what is this product going to be used for by this new user group? Also rather than meaninglessly projecting human values onto the animals finding out the needs and values of the animals is critical to justify their design decisions and solutions. The quality of the solutions is not in question. It is the innovative approach and the justification in terms of empathy with the user that is of value and is assessed.

Total time for the exercise: execution: 12 hours; discussion 1 hours. |

Table 2. Explanation of Activity

One of the key aspects is the element of surprise when revealing that user they have chosen. There is an 'oh no' moment when the participants realise they themselves have chosen their user, an animal they may have little knowledge about and one which may be very different any user they have previously considered. For example the users may not have arms or legs or eyes, maybe limited movement or reduced dexterity. The environment the product will be used within will be entirely different and the motivation of the users to own the product may also be unusual.

The participants quickly realise that to make sense of these unusual combinations of users and products they need to learn more about their users and their lives.

3. Results of the activity

The teams research online using specialist nature websites and media to develop a justifiable story regarding the reasons why their animal requires a particular product. For example a snow leopard may require a kettle to melt snow to drink. Typical research topics are shown in table 3 with the information discovered listed in table 4.

Table 3. Typical research topics from participants

Social
>   What sort of lifestyle do they lead, Are they social animals? Do they build strong family connections? What do they do every day? What do they eat?

Environment
>   Where do they live? What is the temperature, weather? What environment do they live in?

Capabilities
>   What sort of grip do they have? Are they weak or strong? What limbs do they have? How good are their various senses, sight, hearing? Can they carry items?

Physical properties:
>   What is their shape, size and weight? Do they grow or change during their lives?

Needs
>   What do they need? Does Maslow's hierarchy of needs apply, Self-fulfillment, Esteem, belongingness, Safety, Food, Shelter, Protection?   Are they predators or prey? What are their everyday needs?

Table 4. Example of information on the sketch sheets. Ring-Tailed Lemur

- Anthropometrics and Physiology:
  > Head and Body approx. 45cm, Tail 55cm long Weight 2.25Kg, Adapted hands for gripping to trees or in infants gripping to parents.
- Psychology:
  > Lemurs can memorise lists and remember them in a sequence. They can understand basic mathematics.
- Social:
  > Dominant female members with outer edge passive male members. Parenting – any individual supports care of dependent young. Hang around in 'troops' of 6 to 30 lemurs.
- Environment:
  > Deciduous and Evergreen forests, Warm and wet Nov to April, Cold and dry May to Oct. High rate of precipitation.
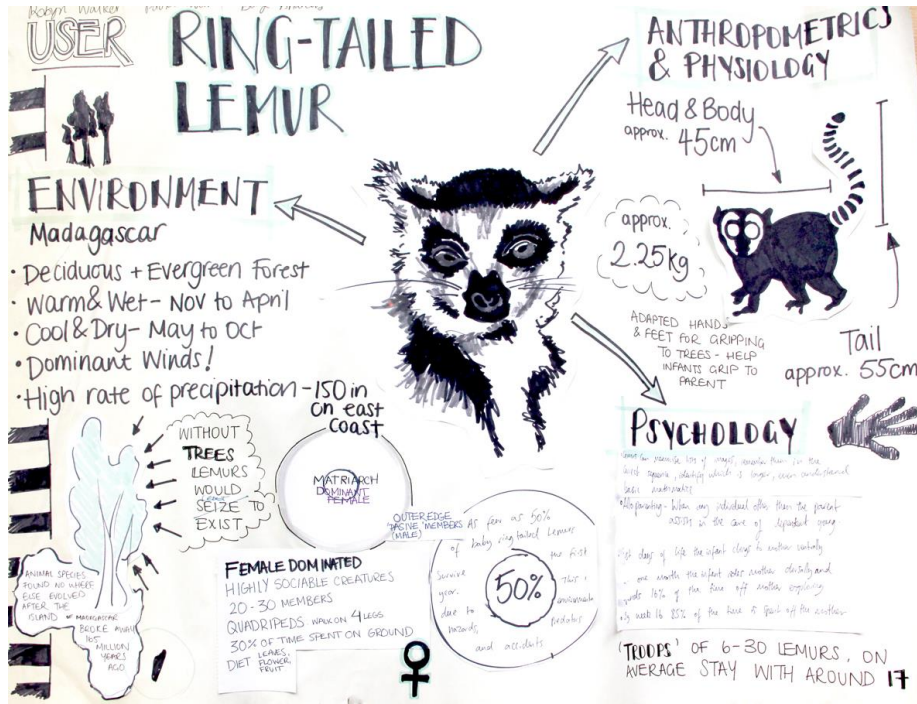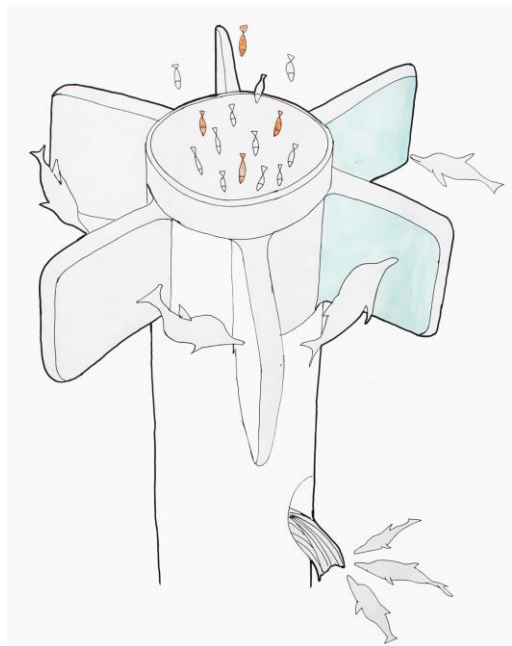
Figure 2. Participant exploration sheet for animal users.

Radio for a Slow Loris

Food Mixer for a Dolphin

Figures 3 and 4. Participant exploration of potential solutions.

4. Student reflection

A reflection phase at the end of the exercise is of paramount importance. Without this phase the task can be seen by some as just a silly visualization and problem solving exercise and the opportunity missed for deep learning from the activity. The different solutions are discussed group by group in front of the others. Questions are asked by the tutor such as, "Initially did you think you could resolve this problem", what steps did you take to design and then justify the end design". The participants realise the value of the information they initially discovered and how significant it has been to impact upon their solution proposals in terms of the users, physical needs and emotional requirements.

5. Results and Observations

The results discussed are derived from reflective feedback provided by 30 design students following participation in the exercise. The selected comments can be found in in Table 4. When the feedback was studied this indicated to us that although never explicitly stated as a learning outcome of the workshop, the students had discovered that empathy with users had been an important aspect to deliver valuable insights in the process of developing user centered solutions.

Table 4. Participant comments

What three things stood out for you when the project was introduced?	What single thing resonated with you once the project was complete?
At first I thought this was more for 'fun' and couldn't see it relating to my future work. I didn't realise how many of us were still quite 'tunnel-visioned' when it came to designing for the user. It took a lot of us a while to realise and understand the core of our briefs or mantras.	How important the user is!! My design should have greater emphasis on being more user central, and I need to get out of the trap of designing for what 'I' think is the best.
Our first reaction was regret choosing the blob fish. Then, when I thought deeper about how seriously I should be taking the project as it was obviously quite a novel project. Then I thought deeper about the exercise I realised the task was about knowing the user as well as possible, so that the solution is as appropriate and useful to the user as possible.	Innovation is the best design for the user and not for yourself.
I thought it was very strange. I didn't understand it fully. Didn't see how this related to anything we were doing.	I understood it completely how it related to design and understanding the user. I thought it was a clever project that taught me a lot and I will always remember it when I come to design something for a user.

The results of the feedback to the question "What single thing resonated with you once the project was complete?" were manually coded separating nouns, verbs and modifiers. The words 'product' and 'design' were found to be the most common. To reveal those words that were not expected, the words product and design were removed from the list. The remaining list of coded nouns was arranged in a word cloud as illustrated in Figure 1. The word cloud indicates that participants used the words User most often as nouns, which most resonated with them once the project was complete. This was closely followed by Ideas, Research, Understanding, Development and Teamwork.

Figure 5. Coding of Participants responses to;
"What single thing resonated with you once the project was complete?"

To provide an indication of the level of empathy with users it is useful to explain some solutions produced by the participants. For the solution to a radio for a Slow Loris participants explained that a Slow Loris is a social animal but one which is easily caught by predators. A radio was interpreted as a system for wirelessly sharing information, for humans this is for example news. News for a Slow Loris would be about Danger, Food, Mate or weather warnings. Protection from predators for these animals is not being seen as they are so slow. So a strap on radio, which acts as both camouflage and a warning system, was developed which could strap on to the animal. For the solution to a food mixer for a dolphin the food mixer product was interpreted as a product or system that would prepare or reduce the size of food. Research suggested that dolphins are very intelligent, collaborate to catch food and travel in pods of up to 12 dolphins. A large scale mixing system, which produced a vortex to both capture and dice fish, was developed. Due to the power and speed of dolphins the mixer is dolphin powered.

The earlier 'oh no' moment is balanced with the very important 'aha' moment during the reflection phase of the exercise. One of the most powerful elements appears to be in the self-discovery through doing approach.

As the activity progresses to the final presentations, participants begin to realise the value of this challenge within a human centered design context.
Our observations show that design thinking and visual communication skills clearly enhance the exploration of ideas. However lower levels of visual and creativity skills utilised by the non-design groups did not appear to hinder the activity in terms of exploring user empathy.

6. Conclusions and next steps

Design thinking is seen as a key means by which professional designers build a deep level of understanding of the end users' needs so that informed decisions can be made throughout the design and development of a solution. The development of a deep understanding of user needs has been recognised as a difficult activity for novice and non-designers to understand, particularly if they have not experienced its positive impact on understanding in practice. In this paper we have discussed an activity that helps develop an appreciation for the value of building empathy in the design process for novice and non-designers.

The exercise appears to present an effective way of demonstrating to groups the value of empathy and how it can help to develop user-centered solutions. It is demanded that participants develop solutions for users outside of their normal 'comfort zone'. The unexpected nature of the task challenges the participants to re-think user requirements on a much deeper level than if they were asked to develop

solutions for human users who are similar to themselves. Also they are challenged to deconstruct and re-think the purpose of the products they are creating e.g. why would a dolphin require a food mixer? This challenging approach stretches the boundaries of empathic understanding. It is beyond the experience of the self, completely outside of anyone's experience. It demands a readjustment which forces participants to look at the world differently from a user perspective. Observation of a number of groups from design and non-design backgrounds has shown that this learning approach is a catalyst to encourage participants to think about users and user requirements and to meet the needs of diverse users groups.

To develop the study reported in this paper it is our plan to run more workshops with the specific aim of testing the argument that this workshop increases the value and use of 'empathy' in the design process with novice and non-designers. It is likely that this will be in the form of a parallel study with pre and post evaluation to collect suitable data.

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