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# EXPANDING HORIZONS: ENGAGING STUDENTS WITH EMPATHIC THINKING

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**ABSTRACT**
Young student designers have little experience with populations unlike themselves. This can present challenges when project briefs require them to design for people with different life experiences and abilities. Without this understanding their designs may fail to meet the needs of target users. Over the last two years the authors have conducted a series of short, studio based, low fidelity interventions with design and engineering students to widen their empathic horizons and appreciation of what it feels like to be old. The main objective of this paper is to report on the latest of these interventions with a cohort of product design students conducted in 2019 who were asked to develop concepts to support mobility of older people. The feedback from staff and students showed conclusively that this not only increased their understanding and empathy with older people but also led them to understand the value of and even enjoy undertaking research.

*Keywords: Older people, transport design, design empathy, empathic modelling*

## 1 INTRODUCTION

McDonagh and Denton [10] introduced the term 'empathic horizon' to indicate a designer's ability to empathise beyond the characteristics of their own group, such as nationality, background, age, gender, culture, experience and education. Empathy is defined as 'the intuitive ability to identify with other people's thoughts and feelings – their motivations, emotional and mental models, values, priorities, preferences, and inner conflicts' [9]. It is distinguished as *feeling with someone,* rather than *feeling for someone*. With this in mind, designing for an aging population requires designers to reach further into their understanding of what it means to be human. This goes beyond sympathy and relies on the designer acknowledging limitations of their own personal perspectives (their empathic horizon) in order to expand their knowledge and become more empathic thinkers.

Empathy can be described as moving from a *felt sense* (intellectually appreciating the experience of another) to a *felt experience*. Felt experience refers to the personal understanding gained when experiencing the experience of another person's experience. As our demographics are shifting towards a population of elders, and disability is no longer perceived to be a barrier to quality of life, it becomes the responsibility of service and product developers to understand real people, to ensure real solutions are offered. On a cognitive level the average person can begin to appreciate how aging and disability could impact another person, however, the authors would profess that until you have dived deeper into that person's reality (physically or virtually) your understanding is limited.

The products we surround ourselves with relate to the environments in which we spend our time, along with the way in which we complete tasks; contributing to our daily experience. Industrial design is a relatively new profession (compared to the sciences and engineering) frequently driven by economic ambitions, but its origins exist in the industrialisation of late-medieval traditional craft [3]. The discipline, or perhaps the process, of design might be described as a hybrid of creative design, user experience, manufacturing practicalities, user computer interaction and more recently the role of emotionally-led design, resulting from more informed direct interactions that support the empowered and independent individual.

As the demographic is changing within our communities, so is the socio-economic landscape. Elders are already the dominant customers/consumers. Service and business models, products and environments (residential and retirement) will need to be rethought. With the increase in elders living longer, with their powerful financial sway "…societies will function differently" [1].

> *We are constantly learning the difference between empathy and sympathy. Patients don't want us to feel sorry for them, they want us to understand what they are going through.* [7]

This paper reports on a studio-based intervention, specifically designed to enable undergraduate product design students to experience the challenges of old age, and its effects on mobility. Undertaken in conjunction with a design brief, it was hypothesised that the intervention would lead to more thoughtful designs, which recognised the effects of ageing.

# 2 THE EMPATHIC DESIGN DISCRETE LEARNING INTERVENTION (DLI)

## 2.1 Overview of process

Participation in the DLI [6] was voluntary. It occurred over a three-week period as part of a 2nd year undergraduate design research module. Students were given monetary rewards after the final presentation. Students self-organised in to teams of 3-6. The DLI took them through the stages outlined by [4] of discovery, immersion, connection and detachment, allowing time to investigate, discover and experience the mobility problems of older people and develop concept designs to address these.

Students were given an 'inspirational lecture' on the benefits of empathy, an overview of research relating to mobility and elders, an introduction to MaaS (defined in Section 2.3) and the concerns of local authorities and elders regarding its inclusivity [10], research ethics and interview skills.


*Figure 1. Personas developed from interviews*

## 2.2 Techniques used to encourage empathy in the discovery phase

The methods used to encourage empathy in the DLIs have been described in [9] and have been iteratively developed over the course of 2 years. These are based on:

- low fidelity experiential simulations (Figure 2) (with restrictions on hearing, mobility and vision) in which students perform everyday tasks individually (e.g. opening a water bottle, using a phone, putting on a plaster, playing word games), in pairs (e.g. taking off shoes) and group tasks (e.g. playing cards, discussing their work, ordering a pizza)
- higher fidelity simulations using an immersive gerontology suit, wheelchairs and walking frames around the university.
- traditional design research methods – conversations with purpose, personas (Figure 1), task analysis, journey mapping, observations, mock ups/sketch modelling (Figure 3), word clouds, mind maps, benchmarking, market analysis and materials research.
- Reflection in and on through practice [8], supported by quick notes, fishbowl [2] and presentations of concept designs

*Figure 2. Low and high-fidelity experiential simulations*

### 2.3 Design brief

The design brief related to designing products or services, which would encourage or help elders to use Mobility as a Service (MaaS). MaaS is defined as an amalgamation of demand responsive and joined up public transport services together with on line services to enable users to plan, travel and pay for multimodal transport in a seamless manner [11]. Most cities are moving towards MaaS. However, such systems, reliant on use of ITS, may increase stress in older people. Therefore, the product design students' task was not to design a vehicle, but products and/or services which could help encourage and support mobility in older people.

## 3 DESIGN OUTPUTS

From the 70 students in the module, approximately half volunteered for and completed the empathy DLI. Barriers to participation and attrition rates have been discussed in [9] leading to the inclusion of receptivity as an initial stage that needs to be overcome. In this instance, the attrition could have been due to the extra workload students had to manage. Students also commented that others may have been discouraged by the contextual lectures at the beginning.


*Figure 3. Research to understand aging (from group portfolios) including rapid prototyping*

The students worked in 5 teams. Apart from the lectures, they had half a day using experiential simulations, made two formal presentations and participated in one fishbowl discussion. They received additional advice and mentorship from the authors. The final presentations demonstrated high levels of engagement and enthusiasm for working on their design outside of these sessions. Design concepts (Figure 4) included:

- self-righting walking stick to reduce bending when a walking stick falls over
- socks to reduce diabetic neuropathy and reduce foot discomfort thereby aiding mobility
- gloves to aid grip and reduce problems associated with arthritis to enable better grip on public transport
- carrying system to improve mobility/conduct of everyday tasks around the house
- seat design innovation for public transport to aid getting into and out of seats

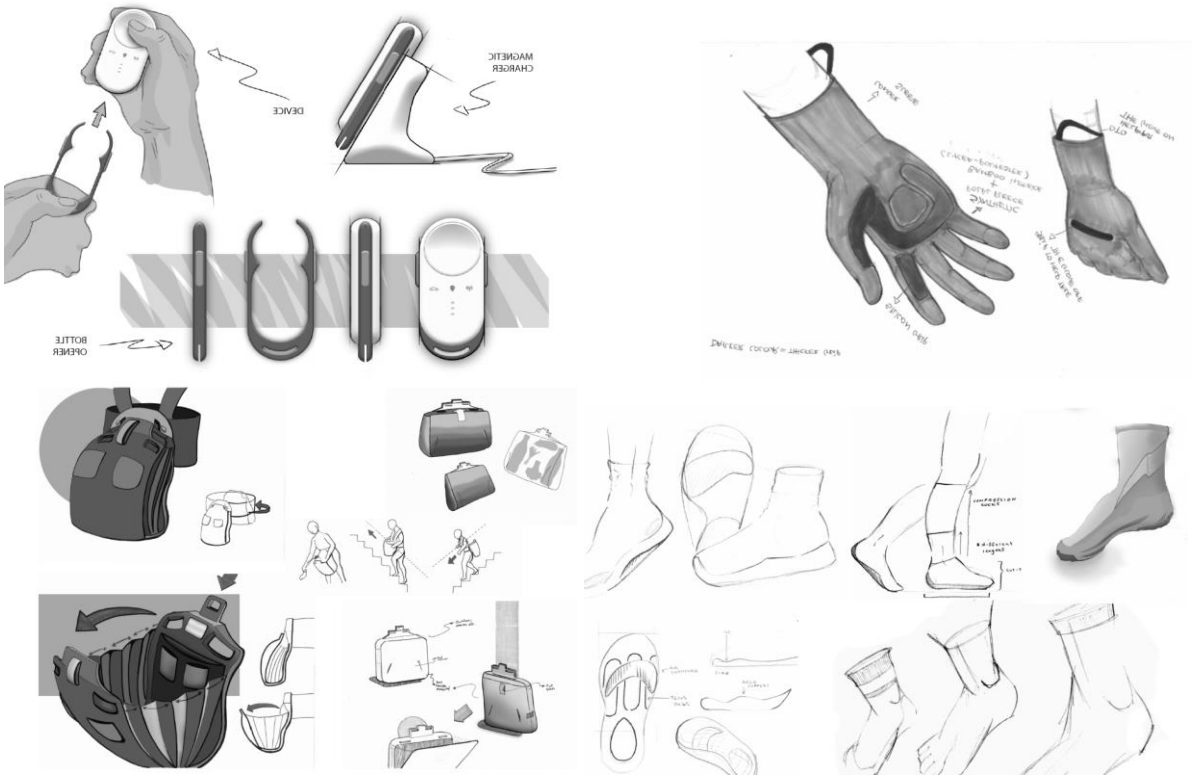

*Figure 4. Examples of concept designs and prototypes (from group portfolios) to address interface with MaaS, grip on buses, carrying loads around the house and support for feet*

The presentations and flatwork demonstrated the levels of research undertaken and that the designs were grounded in not only understanding a problem, but the emotions an older person would experience e.g. on public transport – having to give up seats, not be able to grip the hand rails properly, struggling to get into or out of seats; to become immobile because feet are too sore to walk on; to no longer be able to perform household tasks; to feel more discomfort when a mobility aid lets you down.

### 3.1 What role did the empathy simulations play in the designs

Section 4.1 includes the student comments. As a group they were shocked by the effects of the low-level simulations – how isolated they felt, the levels of pain experienced. However, they also began to understand that older people do not want to stand out or be stigmatised. They need designs which give them back control and which they could trust, which would reduce the pain, frustration and guilt of not being able to do simple tasks. Experiencing the walking stick, wheel chair and walking frame together with an impairment (rather than just experiencing it as a young student) revealed that products which had been designed to assist people, were not only badly designed but caused additional problems, e.g. the difficulty experienced when adjusting the height of the walking stick with arthritic hands.

The simulations which led to greatest insight were the chickpeas in shoes (which was improved through the use of rapid prototyping of an in-sole by one group of students (see Figure 3- bottom left), adjustability/opening of products with limited mobility, group tasks in which impairments lest students unable to participate or understand what was going on (i.e. through hearing or sight loss) and not being able to keep up with the group using a wheelchair or walking frame. For example, walking down a corridor was slowed down; students had to wait to use the only lift in the building – they were quickly left behind or forgotten and as such were not included in conversations/social chitchat.

# 4 REFLECTIONS

## 4.1 The students

Students were invited to provide feedback on quick notes when experiencing simulations, and also in a debriefing session. Comments included:

- *Thought that it would show physical limitations, but it showed mental limitations as well.*
- *Felt that you were in a different metal space. Gives you a whole new perspective*
- *You know little about what is out there… what the range of conditions is…. don't know how they struggle*
- *Wouldn't know how to design for a wider audience, only design for people like yourself*
- *Thought it would be similar to other design work, but the modelling made it bigger than thought it would be*
- *Normally skip over research 'cos its boring'*
- *Understood the pain and frustration, did not appreciate that before*
- *The emotions make it more interesting*
- *Refreshing to design empathically, experience was refreshing*
- *Got an interest in designing exciting real-world products and designing for a reason*

## 4.2 Workshop leaders

All too often when confronted with a brief, design students will tend to do what they know. In real practice/employment, students that are unable to identify with needs of a brief are at a disadvantage. That's not to say that the brief is always right. A skilled designer will challenge that brief, introducing real context not biased ego-centric perceptions [5], ensuring that the beginning of the design process is clear, and the final ambition is understood by all involved – very much including the real user. One of the concepts that we tried to introduce when mentoring the groups was to talk about the emotional value of their designs; what does a solution mean? How does this feel? We started to hear the use of more gentle language in descriptions with less of a pre-occupation with manufacturing methods, a communication skill that will be advantageous when speaking with real people not just those with knowledge of production. This module and sight of the disabling experiences that can be found from even the simplest of tasks was highly advantageous to students and as a reminder to professional designers that we don't have all of the answers – but an empathic collective with a shared optimism might just get close.

# 5 CONCLUSIONS

This is the 6$^{th}$ time we have run the empathy DLI. This was the most in-depth study undertaken, and the only one which provided students with an opportunity to fulfil a design brief. Integrating it within a module, with the support of lecturing staff was a key element to its success – although with a pressurised curriculum this is difficult and needs to be planned into the design.

The feedback showed that the DLI led to deeper thinking about, and empathy with, elders. Students undertook additional activities, away outside the studio to gain further insights e.g. in terms of the development of prototypes, conversations with older relatives. At least one group is developing a working prototype to test their concept further. Students were able to transfer their experiences into design concepts which addressed a particular need, and to empathise with experiential knowledge, other than their own. The use of low-fidelity simulation tools demonstrated that minimal resource investment can result in relevant and sensitive design solutions, when led by experience and reflection. Running the DLI as part of a research module highlighted the necessity and benefits of doing research for the students

and this will hopefully be part of future modules. This would provide additional opportunities to measure quantitative changes in empathic horizon of students and to recruit local elders to discuss designs.

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