



**GUIDELINES FOR GRAPHIC DESIGNERS TO DESIGN OBJECTS THAT ARE  
EASILY ACCESSIBLE FOR OLDER ADULTS.**

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## DECLARATION BY CANDIDATE

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## ABSTRACT

South Africa's population is aging rapidly and as people get older, they start to suffer from age-related disabilities such as sight impairment, lack of muscle strength and mobility. Senior citizens play a vital role in society: some of them are still income-earning and supporting their families while many are the primary caregivers and housekeepers in their families. The aim of this research was to identify what age-related disabilities these seniors had and the obstacles these caused while interacting with daily objects. The end goal was to create guidelines for designers to use in order for products to be designed for the improvement of senior citizens' quality of life. Through context mapping, the research method using generative techniques and the mind-set that everyone is creative, seniors participated in a collaborative design research. This brought about insights that contributed to drawing up the guidelines. Through a generative session on the redesign of a product, unexpected data resulted in a solution that would not have been achieved if the user was not put at the centre of the design research.

Guidelines that are useful for designers appear in other literature as discussed in this report, but the key insight is that designers should set their egos aside and allow the user to be the expert in order to produce relevant and valuable results.

**KEYWORDS:** accessibility, co-design (collaborative design), context mapping, generative tools, senior citizens, tacit knowledge

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## CHAPTER 1: ORIENTATION OF THE STUDY

### 1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Design has the ability to make ideas tangible. This is possible when we involve the user in the design process. Sanders and Stappers (2016) believe that everyone is creative, merely from their experiences in daily life. Many adults do not engage in creative activities and, thus, do not believe that they are creative. Sanders and Stappers' (2016) hypothesis shows that the personal aspirations of people are to be and feel creative. People are wanting control over how they live and work and what products will support them the most in doing so.

The aging population of Africa is growing rapidly – figures show that by 2050 there will be an increase from 64 million in 2015 to 220 million over 60-year-olds (United Nations, 2015; Stanley, 2012). Senior Citizens in Africa play a vital role in our society by providing for, or looking after family-members. As senior citizens are a growing segment of the population, contributing to the economy, they are an important consumer market that should be considered by businesses and by designers. Despite their contribution, they are often excluded due to products being designed mainly for the younger, more abled consumer (Stanley, 2012).

As people get older, many experience loss of hearing, deteriorating eyesight, loss of mobility due to arthritis and many other minor disabilities, according to Statistics South Africa [StatsSA] (2011). This can result in difficulties in performing daily functions such as concentrating, walking, hearing, seeing and self-care (StatsSA, 2011). Due to these disabilities, some older people may require chronic medication, glasses, hearing aids and wheel chairs. Many senior citizens live alone and have to take care of themselves (StatsSA, 2011).

Haque (2011) talks about how brands need to reposition themselves from mere differentiation to benefitting people. Brands were once differentiated as mere artefacts, but leading brands today add value to people's lives in ways that are real and meaningful. For example, Nike has an app for tracking an athlete's running distance, speed and other valuable information. This has been made as a tool to enhance

human potential. Similarly, brands that are used by the elderly should be considered to improve their quality of life, to really matter.

Buchanan (1998) explains “Branzi’s Dilemma” which is a challenge in finding identity and moral purpose when values are contested and understanding design philosophy in the context of problems. He believes that designers have a moral obligation to create useful products that improve people’s lives. Design should go beyond the aesthetic, that consider the values, culture, problems and ideas of the users. The intended function of design in society should be to reflect human values such as what is good, just, useful and pleasurable and to involve the user in the strategic design process.

This begs the question: how might design be used responsibly to make interactions with everyday objects easier for older adults?

## 1.2 PROBLEM STATEMENT, RESEARCH QUESTIONS AND OBJECTIVES

### 1.2.1 Problem statement

Many older people may have problems in interacting comfortably with everyday objects due to age-related disabilities. Disability is defined as “a physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions” (Merriam-Webster, s.a.(a)).

It is important to consider older adults when designing products as this market is still contributing to the economy. In addition, there is a responsibility that should be acknowledged by designers, namely, to add value to their work (Buchanan, 2001). A product should not merely be functional: it must serve the person who uses it through usability and appeal. While aesthetics plays a role in design, designers must investigate the complex human and cultural factors impacting object and design interaction. The aim is for the designer to understand how users will identify with the product and desire it as part of their lives.

Design research today leaves us with two alternatives: firstly, a designer’s role is to design for people as an expert; secondly, the designer should have a participatory mindset that values the input of other people (Sanders & Stappers, 2016).

So how can (graphic) design be used to include and design products that are easily accessible and useful to all people, including older adults?

### **1.2.2 Research questions**

The primary research question of this study is: “What are the obstacles faced by older people in their everyday interactions with man-made objects and how might we improve this age group’s comfortable interaction with everyday objects through (graphic) design?”

The secondary research questions of this study are:

1. What are the most common disabilities among the elderly that present obstacles in their daily interactions with man-made objects?
2. How do these obstacles impact their daily lives?
3. How do older adults overcome these obstacles?
4. How can design improve the accessibility of these objects?
5. What guidelines and legislation are in place internationally to guarantee accessibility for older adults?
6. What general guidelines can be compiled for designers for the common disabilities that older adults face?

### **1.3 AIMS AND OBJECTIVES**

The aim of this study is to investigate the obstacles faced by older adults in their everyday interactions with man-made objects in order to derive guidelines on how (graphic) design may be used to ensure comfortable interactions with these objects.

The objectives of this study listed below:

- To identify the most common “disabilities” among older adults that present obstacles in their everyday interactions with things;
- To investigate and understand how these obstacles impact on their daily lives;
- To investigate and understand if and how they overcome these obstacles;
- To identify ways in which design could improve their accessibility;
- To investigate guidelines / measures / legislation in place internationally to guarantee accessibility for older adults; and

- To compile generalisable guidelines when designing for the typical “disabilities” that older adults face.

## 1.4 OVERVIEW OF THE RESEARCH METHODOLOGY

### 1.4.1 Qualitative Research Approach

Qualitative researchers are interested in how human beings interact with the world in natural settings. The qualitative researcher’s intention is to provide a ‘voice’ for the participants involved and is interested in the human experience relating to a particular topic. The general aim of a qualitative research approach is to understand and explore rather than to measure and quantify (Crouch & Pearce, 2012).

Qualitative data is mostly collected from spoken or written texts. There is no set way of analysing the various types of qualitative data and it was necessary to adopt different strategies to analyse the data by identifying patterns and themes to code the data. The approach to the analysis was inductive, creating a theory from the data. The relevance of qualitative research was about researching older adults in their natural environment while they interacted with everyday objects.

### 1.4.2 Research Paradigm: Critical Realism

Critical realism moves beyond understanding the subject or phenomena, as the researcher seeks to create (social) change or improvement. This aligns with the aim of this study, namely, the creation of guidelines for designers.

The epistemological position of critical realism is that knowledge is not seen as permanent, but is considered within its changing social and historical context (du Plooy-Cilliers, Davis & Bezuidenhout, 2014). Research in this study was not gathered with the view of only understanding, but also that there would be practical value that could be applied in the field.

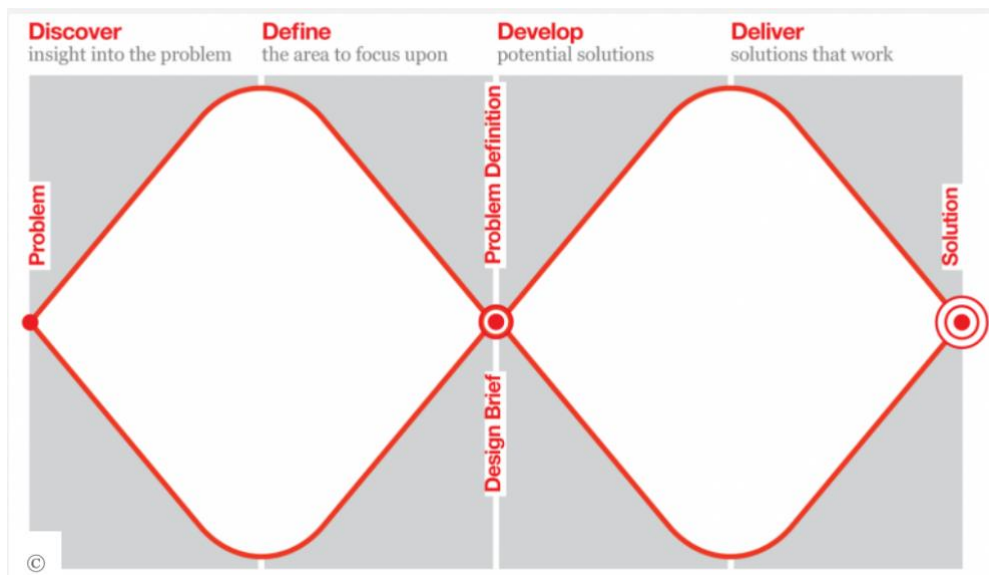
The ontology of critical realism is the belief that social reality has many layers (du Plooy et al, 2014); that is, what we observe is not necessarily the way it really is. In this study, obstacles were found in that there is a lack of literature on older adults, but once the generative techniques were employed the outcomes and deeper emotions were revealed.

## 1.5 RESEARCH DESIGN

### 1.5.1 Data Collection Method

Brown (2009), explains that designers need innovative approaches that are powerful and effective and that can integrate into aspects of society and business and offer new ideas, which he terms “design thinking” and is deeply human-centred, with the belief that all problems no matter how complex are solvable. “It means believing that the people who face these problems everyday are the ones who hold the key to their answer” (IDEO, 2011).

The design process can be divided into four phases (Figure 1.1). This is known as the “double diamond” (Design Council, 2015)



*Figure 1.1: The Double Diamond*

Source: (Design Council, 2015)

With the evolution of design culture, there is an escalated interest in collaborative and interdisciplinary design approaches (McCormack, Dorin & Innocent, 2004). Context mapping is a generative technique, which is useful for the exploratory phase of the design process. Context mapping was used in this study as a research method to investigate the obstacles faced by older adults in their everyday interactions with man-made objects. Generative research involves acquiring data which directly involves the user in the design process to solve complex design issues (Sanders & Stappers,

2016). Context mapping requires the users' participation in order to understand the context of use and therefore forms part of participatory design.

Generative tools such as collages, cultural probes, photographs, and product models were used for data collection. Cultural probes are techniques that were used to inspire design. In this study, sensitising diaries were used as the first stage by participants to record information about their daily interaction with products. By using these techniques, the context of people and the factors and emotions that lead them to the customer experience could be understood. The sensitising diaries then set the stage for the participants to generate their own creativity, though guided activities in the group session.

### **1.5.2 Basic Principles of Context Mapping**

Understanding a user's tacit knowledge will enable better guidelines for designers to create useful designs that suit people's lives (Visser, Saunders, Stappers & van der Lugt, 2005). Sanders (2005) developed generative tools in the 1990s to explore knowledge about the users' feelings and dreams, revealing their tacit knowledge. Tacit means "expressed or carried on without words or speech" (Merriam-Webster, s.a.(b)).

Tacit knowledge cannot be easily explained but the process can be observed, demonstrated and imitated (Crouch & Pearce, 2012). By using generative techniques, participants can express deeper feelings about their experience (Visser et al, 2005).

The procedure of context mapping was developed by Sanders and Visser. (2005), literally meaning that a map of product use is created. It is used to give design teams inspiration by actively including stakeholders and participants in the design process in order to create a pragmatic solution for product use (Sanders & Stappers, 2016). Context refers to factors that influence the user's experience of the product (Visser et al, 2005). Research on the user's experience provides an in-depth view of how products are used. "The fundamental perspective of context mapping is that every user is an expert in his experience domain" (Visser et al, 2009).

### **1.5.3 Population and Sample**

- Non-probability sampling was used. This means that this research did not include the entire population of older adults, merely the few that were selected. The

sampling method was purposeful sampling; this means that the participants were specifically chosen with certain characteristics relevant to this study (Crouch & Pearce, 2012).

- A homogenous group of older adults, 70 years and above with age-related disabilities such as arthritis, hearing, sight and mobility impairments were selected. Ten participants were selected from friends' parents and their social groups to complete the sensitising diary. Of those, a minimum of five took part in the generative session.

Some participants were income-earning or on pension funds, while others were still supporting their children financially. This study excluded senior citizens from poor communities.

#### **1.5.4 Data Analysis**

The approach to the data analyses was inductive since the aim was to create a new set of guidelines, working up from the data collected (Crouch & Pearce, 2012). du Plooy et al (2014) describe this type of analysis as content and contextual analysis.

The data in generative research are termed 'messy' data as it is not structured and rigid. The data came from texts, images, discussions, interviews, mind maps and sensitising diaries. Due to the 'messiness' of this data, it was not easy to prescribe how the data analysis would be done until it was collected. Capturing data should be planned by labelling all the items, such as, who provided the data, where and when it was observed as well as their names or coded names. This approach is based on the Convivial Toolkit of Sanders and Stappers (2016). They recommend "analysis on the wall" to analyse generative research with fewer than 10 participants. Data that were collected from the diaries and visual examples were analysed by identifying patterns and themes. The downside of this analysis technique is that it is very time-consuming and quite inefficient.

By highlighting common obstacles on the collages from the participants, it was possible to analyse data and draw up guidelines based on these findings.

#### **1.6 ETHICAL CONSIDERATIONS**

The following ethical considerations were considered in this study:

- Informed consent: A letter of consent was issued to participants (Appendix A). This explained the research procedures, the aims and purpose of the study, the risks involved, the benefits of the study, and the withdrawal clause and confidentiality.
- Anonymity: Participants had the right to remain anonymous throughout the group sessions and in any written or spoken texts.
- Confidentiality: The researcher explained to the participants that confidentiality would be ensured if they so desired. The participants had no desire to remain anonymous therefore their faces in pictures remain in.

### **1.7 TRUSTWORTHINESS**

Crouch and Pearce (2012) explain that while quantitative research is based on scientific methods, qualitative research uses non-traditional judging criteria. This means that qualitative research cannot be measured in terms of reliability and validity; the trustworthiness of the study is more important (du Plooy et al, 2014).

The trustworthiness of this study was supported by existing literature, through the meticulous documentation of the data collection process and through repeated patterns that were present in the data analysis.

Campbell (1996) states that consistency of data is achieved through examining the process notes and data. Stenbacka (2001) argues that, in qualitative research, reliability and validity become difficult to evaluate because it aims to understand a phenomenon rather than to generalise results.

### **1.8 LIMITATIONS OF THE STUDY**

- A heterogonous sample of participants aged 70+ was chosen from the Sandton area and were not from poorer or rural communities.
- It was important to over-recruit participants. The senior citizens also became confused as the dates changed twice and one participant had been waiting for her lift at the wrong time which resulted in her becoming angry.
- It was important to allow for unexpected situations to occur and therefore allow enough time for organisation.
- Web design, mobile apps and wayfinding design were not included in this study.

## 1.9 ANTICIPATED CONTRIBUTION OF THE STUDY

Morelli (2007), Papanek (1971) and Sanders and Stappers (2016) talk about the shift in design and how brands need to reposition themselves so that they benefit the user. Brands should aim to improve people's quality of life. This study is highly relevant because an ever-increasing segment of the population is getting older. By improving the design of products for easier accessibility, quality of life for senior citizens will improve and will increase profitability for business (Visvabharathy & Rink, 1984). In terms of designing for inclusiveness, guidelines identified in this study might equally apply to design for all people with disabilities.

The relevance to designers, as Buchanan (2001) suggests, is that designers should not only focus on the form and function, but wider concerns such as human experience.

This study will be useful to anyone designing products for seniors and other groups of people with minor disabilities. Design educators will find this useful in creating awareness of inclusive design and user-centeredness among their students. This study provides an example of co-design, involving the user in producing these guidelines. As there are no guidelines available in South Africa, this may prove to be a valuable document to designers, educators and businesses.

## 1.10 KEY TERMS AND DEFINITIONS

|                                     |                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Co-design<br>(Collaborative Design) | Co-design involves the user in the design process in order to develop inclusive solutions.                                                                                      |
| Context mapping                     | Context mapping is a procedure for conducting contextual research with users, where tacit knowledge is gained about the context of use of products.                             |
| Generative tools                    | Generative tools are collages, cultural probes, photographs, and product models were used for data collection. Cultural probes are techniques that were used to inspire design. |
| Senior Citizens                     | An elderly person or one who has retired                                                                                                                                        |
| Accessibility                       | Comfortable interaction (with objects)                                                                                                                                          |

## 1.11 STRUCTURE OF THE RESEARCH PAPER

Table 1.1 provides a summary of this research paper and highlights the alignment between the research questions, objectives and methodology.

*Table 1.1: Overview of the study*

| Research Questions                                                                                                                                                                                                                             | Aim & Objectives                                                                                                                                                                                                                             | Research Method & Data Collection                                                                                               | Data analyses                            | CH |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----|
| Orientation of the study                                                                                                                                                                                                                       |                                                                                                                                                                                                                                              |                                                                                                                                 |                                          | 1  |
| <b>Primary Question</b><br>What are the obstacles faced by older people in their everyday interactions with man-made objects and how might we improve this age group's comfortable interaction with everyday objects through (graphic) design? | <b>Aim</b><br>to investigate the obstacles faced by the elderly in their everyday interactions with man-made objects in order to derive guidelines on how (graphic) design may be used to ensure comfortable interactions with these objects | <b>Method Research</b><br>Context mapping - using diaries to record information on their daily activities and group discussion. | Patterns & themes                        | 1  |
| <b>Question 1</b><br>What are the most common disabilities among the elderly that present obstacles in their daily interactions with man-made objects?                                                                                         | <b>Objective 1</b><br>To identify the most common "disabilities" among older adults that present obstacles in their everyday interactions with things                                                                                        | Context mapping: sensitising diaries and generative workshop.                                                                   | Patterns & themes, analysis on the wall. | 2  |
| <b>Question 2</b>                                                                                                                                                                                                                              | <b>Objective 2</b><br>To investigate and understand how                                                                                                                                                                                      |                                                                                                                                 | Common patterns                          | 2  |

|                                                                                                                                 |                                                                                                                                           |                                                               |                                                                                             |   |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------|---|
| How do these obstacles impact their daily lives?                                                                                | these obstacles impact on their daily lives                                                                                               | Sensitising diaries and generative session.                   |                                                                                             |   |
| <b>Question 3</b><br>How do older adults overcome these obstacles?                                                              | <b>Objective 3</b><br>To investigate and understand how these obstacles impact on their daily lives.                                      | Context mapping – through the diaries and generative session. | Patterns & themes                                                                           | 2 |
| <b>Question 4</b><br>How can design improve the accessibility of these objects?                                                 | <b>Objective 4</b><br>To identify ways in which design could improve their accessibility                                                  | Context mapping – through group sessions and discussions.     | Through the user's feedback                                                                 | 4 |
| <b>Question 5</b><br>What guidelines and legislations are in place internationally to guarantee accessibility for older adults? | <b>Objective 5</b><br>Investigate guidelines / measure / legislation in place internationally to guarantee accessibility for older adults | Literature and research                                       | Relevance                                                                                   | 2 |
| <b>Question 6</b><br>What general guidelines can be compiled for designers for the common disabilities that older adults face?  | <b>Objective 6</b><br>To compile generalisable guidelines when designing for the typical “disabilities” that older adults face.           | From the results of the generative session and literature     | Analysing the visual and textual information.<br>Patterns, themes and analysis on the wall. | 5 |
| Conclusion, limitations and implications                                                                                        |                                                                                                                                           |                                                               |                                                                                             | 5 |

## 1.12 OUTLINE OF CHAPTERS

Chapter 1: Proposal and orientation of the study

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Critical analysis and discussion

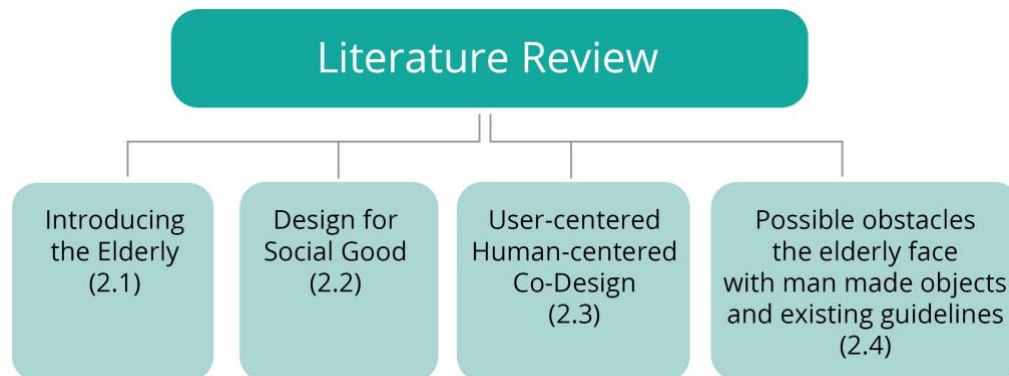
Chapter 5: Review, limitations, conclusions and recommendations.

## CHAPTER 2 - LITERATURE REVIEW

### 2.1 INTRODUCTION

This chapter introduces seniors, their disabilities and obstacles that cause them difficulties with man-made objects.

Figure 2.1 below provides an illustration of the structure of this chapter.



*Figure 2.1: Outline of literature review*

### 2.2 INTRODUCING THE ELDERLY

The elderly population in South Africa is an important and ever-increasing part of society (Stanley, 2008) but it is perceived as a relatively unimportant minority group. The South African Bill of Rights (Republic of South Africa, 1996) states that Seniors have the right of access to education, information and equality among others, but in practice, they are being excluded. Furthermore, designers have a responsibility to create successful products that have a positive impact on the client, the user and the environment. With all of these factors combined, it is important that Seniors are considered in future design-thinking.

Designers, on the other hand, seem unprepared and unaware that design thinking should involve seniors when considering user-friendly designs. Objects identified in existing literature such as packaging, user interface design and medicinal packaging, present a common thread, suggesting that design does not address the obstacles that seniors face daily.

## 2.2 DESIGN FOR SOCIAL GOOD

Frascara (2006) posits that we must stop thinking about design as the construction of objects and think about what it means on a human level and how it can satisfy their needs. Designers must serve the needs of people where objects are designed, based on a better understanding of people, society and the ecosystem. Some 45 years ago, Papanek (1971) pointed out the shift in the focus of design to meeting social and environmental needs, based on research, stating that “design must become an innovative, highly creative, cross-disciplinary tool responsive to the true needs of men”.

Designers are now adopting Papanek’s ideas and addressing the social, cultural, political and economic realities of globalisation. Morelli (2007) explains how globalisation may reduce the distinctiveness of local contexts, but the differentiation that is evident in the socio-economic context is a competitive advantage for companies. This means that design needs to be used to improve society.

Sanders and Stappers (2016) believe that all people are creative, pointing out that all people have creative ideas and, as experts of their own reality, have the ability to contribute to the design process from their own experience. By inviting ordinary people contribute to the design process, we can assess the user’s true needs and embrace collective creativity and meaningful design solutions that add true value by improving people’s lives.

Involving older users of products to identify obstacles and frustration presented by existing products and to “redesign” these products to minimise these stumbling blocks might provide designers with guidelines to design objects that enhance the everyday lives of seniors.

## 2.3 USER-CENTRED AND HUMAN-CENTRED DESIGN

When you understand the people, you are trying to reach and design from their perspective, you can arrive at unexpected answers that will be ideas that those people will embrace. Human-centred design starts with people and ends with innovative solutions to meet their needs (IDEO, 2014).

The methodology of user-centred design begins with the exploration of the user's needs first, evolving into the iterative process of ideation, sketching and prototyping. (Lupton, 2014). The user-centred design approach requires participation of the user at all stages of research and development (Chammas, Quaresma & Mont'Alvao, 2015).

User-centred design focuses on the user and their needs, providing valuable strategic information for the producer and value for the customer. The user-centred process can create innovative products and services for an aging population (Jensen & Widding, 2004). By embracing a generative design research, users are brought directly into the design process ensuring that their future needs are met (Sanders & Stappers, 2016).

Sanders and Stappers (2016) explain how people's roles are changing in the design process. The user in a co-design process can be given the title of "experts of their experience". They play an important role in idea generation and in the development phase of the concept. Users become part of the design team due to their "expertise of experience"; however, designers still need to provide them with appropriate tools in order to express themselves.

There is no specific training for social designers according to Margolin and Margolin (2002), but it seems that it is necessary for designers to understand more about social needs for future design, in order for designs to be inclusive to all. This correlates with the idea of design thinking. Johnston and Owen (2003, p.71) state that "Inclusion is not about producing solutions to meet a particular range of needs; it is about a change in our thinking". Designing for inclusiveness benefits both the user and a business's profitability. "Insight into how people use things is central to design thinking" (Brown, 2009). Design thinking is a process that has three stages: inspiration, ideation and implementation.

Co-design, human-centred and user-centred design all have the design thinking process in common. Other benefits they have in common are:

- Idea generation with a high degree of user value and originality;
- Better differentiated products;
- Increased support for innovation and change; and
- Better relationships between customer and service provider.

Through involvement of the users in this study within their own environment and through the generative session, it will be possible to find out what the obstacles are that the elderly face with everyday, household products, but, as a starting point, it is necessary to find out from existing literature what obstacles have been discovered as well as any guidelines that already exist.

## 2.5 DESIGN GUIDELINES AS IDENTIFIED IN EXISTING LITERATURE

### 2.5.1 Web interface design

Johnson and Finn (2017) provide design guidelines of how to improve the digital user experience for all, including older adults. The information covers disabilities in older adults that need to be considered as well as practical guidelines for designing interfaces. Topics such as vision, motor control, hearing and speech, cognition and knowledge are covered.

Diaz-Bossini and Moreno (2013) write about accessibility and older people engaging with mobile interfaces. They believe that all apps should be socially inclusive to encourage the elderly to engage with technologies. The rapid evolution of mobile technologies has resulted in massive social change globally, not least in South Africa, (Shapshak, 2017) with increasing numbers of seniors becoming more technologically adept.

Sayago and Blat (2009) conducted a three-year ethnographic study of older people and their everyday interactions with the web. The aim of their research was to find ways in which to make the web more accessible to older people.

### 2.5.2 Medicine labeling

One of the issues related to older adults and medication is adherence to their medical regimes. There are many obstacles for the elderly that cause this, one of them being unclear labeling and packaging (Yap, Thirumoothy & Kwan, 2015). Seniors represent a major user group for medicines which will continue to grow. Due to the complexity of medication management amongst the elderly, it is of great importance that issues are addressed through a multi-disciplinary approach (Stegemann, Ecker, Maio, Kraahs, Wohlfart, Breikreutz, Aimmer, Bar-Shalom, Hettrich & Broegmann, 2010).

Rabie and Klopper (2015) have written guidelines to facilitate self-care amongst seniors in South Africa because the aging South African population is beset by staff shortages within care facilities. Self-care is linked to important support groups in the community whose purpose is to promote health and prevention as well as self-empowerment.

Malhotra (2017) compiled guidelines for improving medication labels and packaging for seniors in Singapore. The problems addressed were that labels were interpreted incorrectly and that there needed to be a better understanding of medication to implement better self-care. Other important factors that needed to be considered were content, format, design and bilingual text. This research is useful for the research report in considering the creation of guidelines for user-centred design for seniors.

Bonfirm and Paschoarelli (2015) researched usability in medicine packaging for the elderly, in particular openability of child-resistant packaging. They conducted tests on various opening mechanisms with the elderly.

### **2.5.3 Food and General Packaging**

Theobald and Winder (2006) discuss how age has an impact on the accessibility of packaging. The senior person's strength and power can be affected by arthritis, osteoporosis, impaired hearing and sight and are thus affected by packaging that has been badly designed; for example, many everyday household products with the *grip and twist* opening mechanism create accessibility difficulties for people with arthritis and weak joints. Theobald and Winder (2006) also explain how designers fail to consider visual impairments in the design of instructions and other visual elements. They explain how it is important for packaging to be designed with inclusiveness in mind as this is a basic human right of every consumer.

## **2.6 GENERAL GUIDELINES ON ACCESSIBILITY**

RGD Ontario (2010) presented guidelines that address print design, web design and environmental design. The guidelines advise on how to design for everyone in terms of accessibility, and is a good reference for the current study in terms of content, layout and research (Figure 2.2). These guidelines may be very useful to this study to use as a reference for further information in developing guidelines for the South African

market. For instance, there may be relevant accessibility issues in these guidelines that are not collected during the generative research.



*Figure 2.2 RGD Access Ability Handbook*

Source: (RGD Ontario, 2010)

The International Disability and Development Consortium (2012) in Brussels has put together an accessibility manual which focuses on people with disabilities and web and graphic design. Their goal is to further the good practice of accessibility and to create a more accessible environment. Wenk, Brombach, Artigas, Järvenpää, Steinemann, Ziesemer and Yildirim (2012) have also compiled guidelines to improve accessibility for senior citizens.

## 2.7 CONCLUSION

Frascara (2016) states that:

Designers have moved from a concern with objects to a concern with people. The design of an object is only a means to meet a need that affects people. We have to understand people's needs and wishes, and create the objects that meet them, while considering that every object placed in the public space has an operational and a cultural impact that the designer must evaluate.

South Africa's population is aging rapidly; therefore, seniors in South Africa play a vital role in society, brands and business.

If designers are to engage with social design (Margolin & Margolin, 2002), it could be of great value if guidelines were created to deal with obstacles experienced by seniors in South Africa. This would require engaging with the users to understand their experiences and feelings regarding the products they use. Importantly, researching the obstacles that seniors face in relation to products and services through qualitative research and engaging with user-centred design methodologies is necessary to fully understand the user's needs. Design should consider inclusivity through a user-centred lens as a fundamental need of society, but "The implications of new levels of conviviality and cultural sustainability are just now beginning to be explored" (Sanders & Stappers, 2016).

It is understood that there is a shift in the designer's responsibility, but how can this perspective become part of the designer's thinking? If there were broad guidelines to help designers with this thinking process, then including this in design education could also help to create more accessibility awareness for older adults.

## CHAPTER 3 RESEARCH DESIGN AND METHODOLOGY

### 3.1 OUTLINE OF RESEARCH PARADIGM

This applied qualitative study was conducted among a small sample of older adults to identify and examine the minor disabilities that older people face and the obstacles these present in their daily interactions with ordinary objects. The aim was to derive generalisable guidelines to designing more user-friendly / accessible objects for older people. Crouch and Pearce (2014) explain that qualitative researchers are interested in how human beings interact with the world in natural settings. The approach to the analysis of data were inductive, meaning that a theory or general guidelines was formulated based on the data that was collected and analysed.

The research problem was framed in a critical realist paradigm. The researcher, as a critical realist, aims to identify guidelines to improve design for older people, while engaging with people's lives as a part of the design process (Crouch & Pearce, 2014). Firstly, by identifying in the literature the obstacles that older adults face while interacting with products, and secondly by means of a user-centred lens involving senior participants with research in context as well as a generative session, design will be challenged. The studio project arising from this research solved a design problem by involving the users directly in the design process thus addressing their needs and desires.

### 3.2 DETAILED EXPLANATION OF THE RESEARCH PROBLEM AND RELEVANT RESEARCH QUESTIONS

The primary research question is:

What are the obstacles faced by elderly people in their everyday interactions with man-made objects and how might we improve their comfortable interaction through (graphic) design?

Senior citizens find certain products and objects created by designers difficult to use or access due to the minor disabilities. This research set out to examine the obstacles older people have to overcome in their daily interactions with objects as a result of

these disabilities, in order to identify generalisable guidelines for designers to design around these disabilities and render certain objects more user-friendly for older people. To achieve this aim, specific secondary questions had to be examined first:

- Firstly, the researcher had to identify the most common “disabilities” among older adults and how they present obstacles in their daily interactions with man-made objects.
- Secondly, the researcher needed to understand how these obstacles impacted their daily lives.
- Then, the researcher examined available literature to discover what guidelines and legislation are in place internationally to guarantee accessibility for older adults.
- Contextual research was used to examine the impact of these obstacles and how they affected participants’ experience of and feelings about the interactions and the objects themselves.
- Next, the researcher examined how older people overcome these obstacles.
- The generative sessions that formed part of the research design as discussed in chapter 3 were especially useful and offered insights into how participants overcome obstacles, which, in turn, contributed to understanding how design can assist in reducing or removing obstacles to interactions with certain objects.

The answers and data gathered from the above questions, were analysed to compile general guidelines for herself (and other designers) to design products that cater for the common disabilities that older adults face.

The data collected, data analysis and research findings that answer these questions are discussed in detail in Chapter 4.

### 3.3 RESEARCH DESIGN USED TO INVESTIGATE THE PROBLEM

Research design is the term referring to the research plan and the outline of all the research to be implemented. This research was conducted in three phases:

Firstly, the researcher used assumptions based on her own observations of older people, supported by a review of current literature to identify the most common

disabilities faced by older people and the obstacles these create to interactions with everyday objects.

For the next two phases of the research, context mapping, a specific research tool, developed by Visser and Stappers (2003) was used. This tool was developed in order to gather information from people's everyday lives and experiences for inspiration and ideation. Context mapping can be divided into 5 steps:

### **Step 1. Preparation**

Firstly, it was necessary to identify 'disabilities' that older adults may face, such as diminished vision or hearing, reduced dexterity or movement and impaired memory. A mind map was created from the information in the literature and a sensitising diary was designed.

### **Step 2. Sensitisation**

This phase created awareness about how "disabilities" impact on their interactions with objects and to understand the frustrations and unmet needs resulting from this. The participants were asked to visually document such objects and note how it made them feel when the product accessibility does not fulfil their needs.

Participants were given a diary to complete at home over seven days. The purpose of the diary was to document their experiences with objects that posed issues. Participants were instructed to reference the products and send the images via WhatsApp where possible. Participants were required to keep samples of the products for the group session and document how they felt about that product. This diary enabled the participants to reflect on their experiences prior to the group sessions and allowed them to become more aware of their interactions with objects.

### **Step 3: Group Sessions**

This is where ideas were collectively created through generative tools. This was the 'make' phase which inspired a deeper exploration into the user experience (Sanders & Stappers, 2016).

Participants met in a group and received generative activities to complete. Participants expressed their own ideas and feelings through creating a collage of images and

discussing them with the group. Participants were given images of products and different coloured star stickers, pens and sticky notes (figure 3.13). They marked up different feelings and rated the different images on the collage.

Participants were asked how they would “improve” the objects they identified in the collage so that they would become easier to use.

#### **Step 4: Analysis**

Data collected from the diaries, toolkits and images were analysed through common issues and patterns that were presented by the participants.

#### **Step 5: Communication**

Results were turned into guidelines, which will serve as a general guide for designers. The product that was designed as part of the studio project was then revised according to the outcome of the generative session and improved to suit the user’s needs.

Initially contact was made with potential participants to explain the research taking place and to ask if they would be available for the group session. An interview was then set up where all research was explained, and they were briefed about the sensitising diary. Confidentiality and anonymity were explained as well as the option to withdraw at any time should they wish. Once they were happy to proceed they were provided with a consent form which explained the nature of the research, instructions, the risks and confidentiality. Participants signed this form but indicated that they had no desire to remain anonymous, which is why the researcher felt free to use their faces in some of the photographs.

A mind map (Figure 3.1) was drawn to show the obstacles the older person faces as found in literature and assumptions – these are shown in black. The second blue layer was added after analysing the sensitising diaries and the third red layer was added as information that needed to be collected from the group session.

## MIND MAP

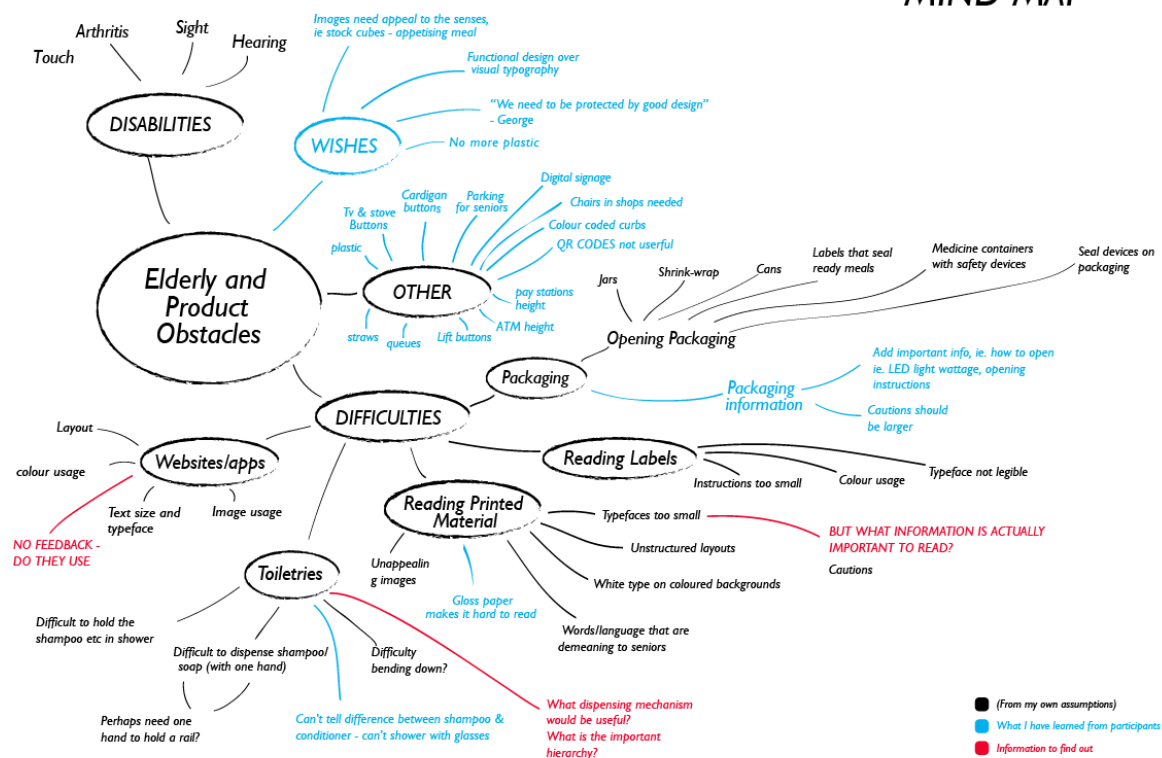


Figure 3.1: Mind map

Firstly, the researcher used sensitising diaries (Figure 3.2) to create the awareness of potential obstacles in preparation for the generative session.



Figure 3.2: Sensitising diaries

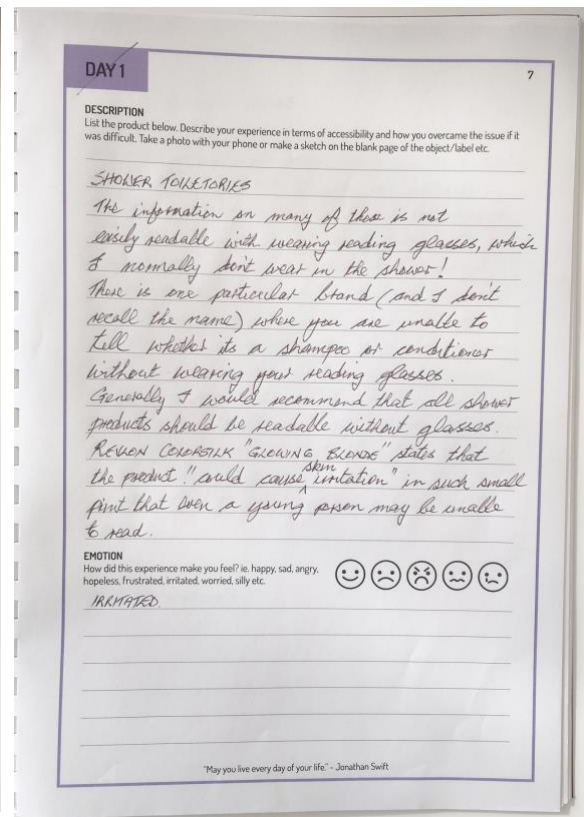
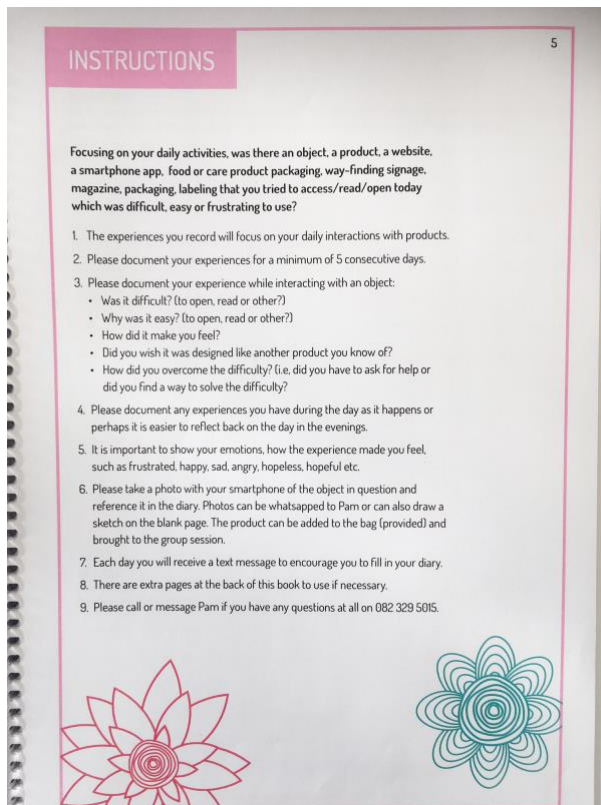


Figure 3.3: Instructions in the sensitising diaries

Figure 3.4: Pages in Sensitising diaries

These diaries were designed, printed and spiral bound for each participant. Each diary used a different theme in order to easily distinguish between them and create more interest for the user. The diary showed full instructions of use (Figure 3.3) and participants had the choice to WhatsApp any images that they found or paste or sketch them in the diary. Each page was headed day 1 to 7. Below the area where they could list the product or obstacle, they had the opportunity to write how the experience made them feel (Figure 3.4). The purpose of the diary was to make the participants aware of the obstacles in their daily lives prior to the group session. This helped them to understand the essence of the research in order for them to speak more freely at the group session. Two weeks later the diaries were collected and analysed. Participants were required to bring with them any products that they listed in their diaries to the group session.

Subsequently, based on an analysis of the data collected through the sensitising diaries, participants were invited to attend a generative workshop where they were

asked to compare and rate products in order to further explore patterns and themes identified in the data collected from the diaries. The data collected in the workshop were compared with data from the diaries and analysed to examine how participants overcame, or proposed to overcome, obstacles and frustrations identified in the diaries.

All products from the diaries were collected for the group session to trigger memories of using these products and probe responses. Images of all of these products were printed out and pasted onto A2 boards. There were four boards in total; two for Readability (Figures 3.5, 3.6 and 3.7), one for openability (Figure 3.8) and another for visual appeal (Figure 3.9).



*Figure 3.5: First readability collage*

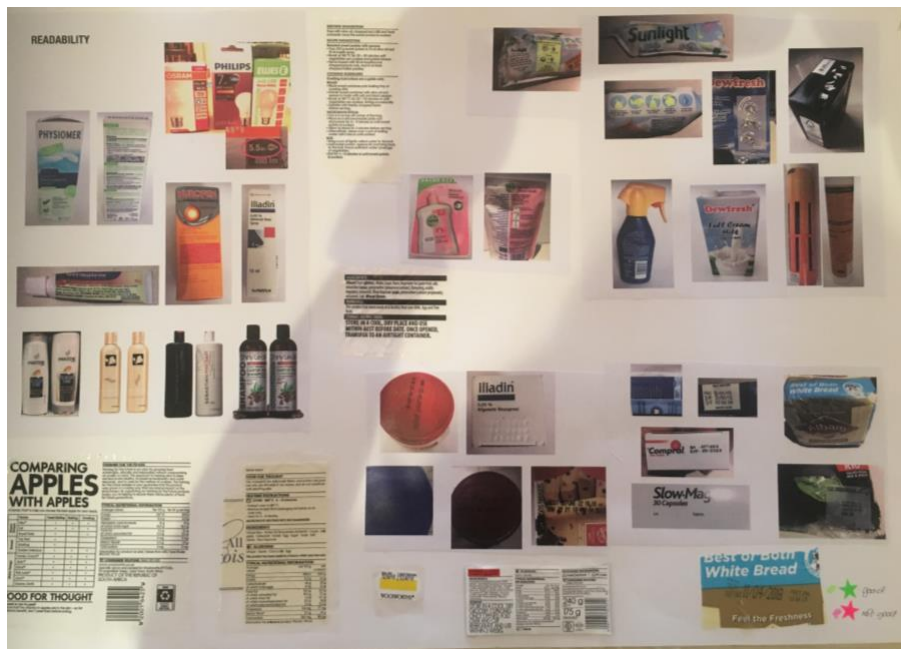


Figure 3.6: Second readability collage

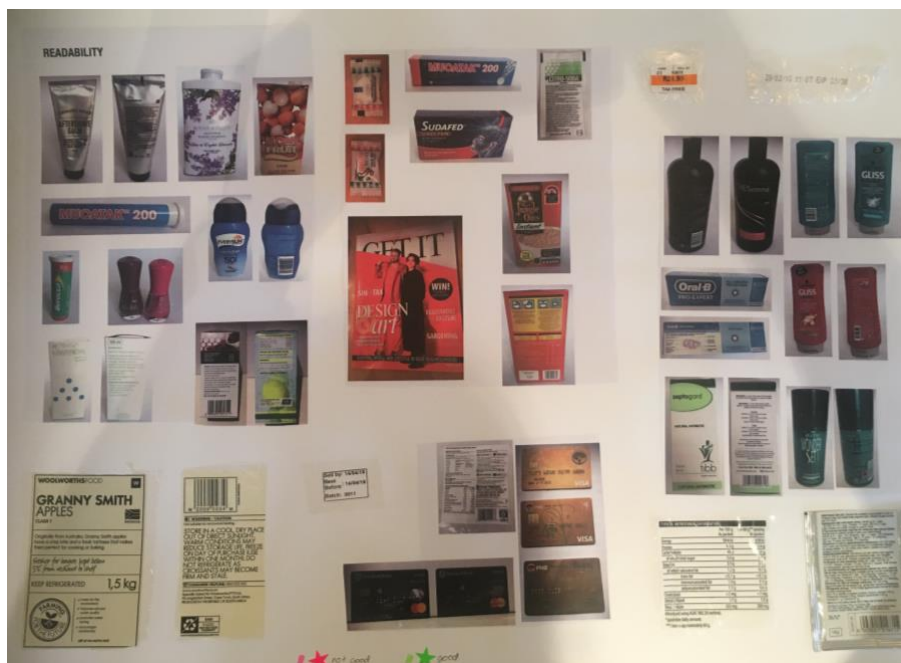


Figure 3.7: Third readability collage



Figure 3.8: Openability collage

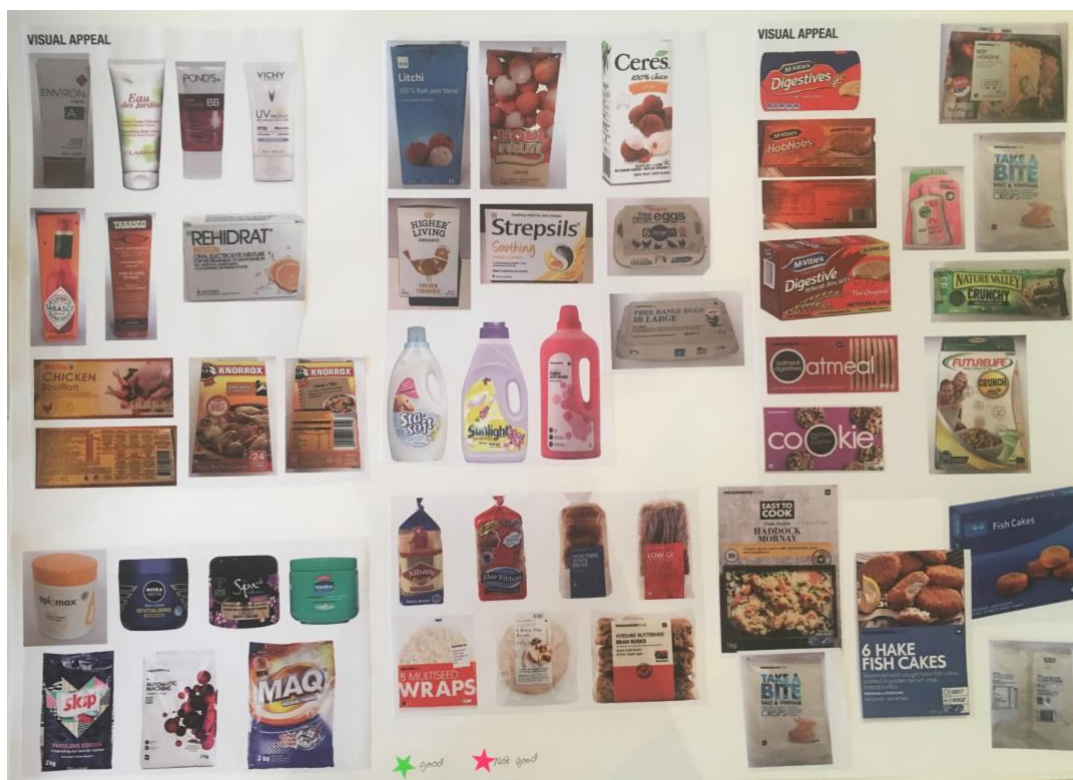


Figure 3.9: Visual appeal collage

Participants worked in pairs and were given a pink and a green highlighter, pink and green neon star stickers – pink for bad product and green for good. Pens and sticky notes were also provided for participants to take notes and rate the products that were on the boards (Figure 3.13). Participants could look at the actual product and then make notes next to the image on the board (Figure 3.11 and 3.12). Most of the notes were actually discussed rather than noted and some participants started making notes with other colour pens and it was difficult to convince them that they needed to work in green and pink only.



*Figure 3.10: Work table for group session*



*Figure 3.11: Participants and researcher in group session*



*Figure 3.12: Participants interacting with collages*



*Figure 3.13: Tools used in the group session*

*The Convivial Toolkit* (Sanders & Stappers, 2016) proved to be a useful guide for my research as the process and methods of context mapping, generative research and co-design were explained in detail through examples and case studies.

### 3.4 POPULATION AND SAMPLING METHOD USED

Non-probability sampling was used as only a few participants were chosen to participate, not an entire population. Participants with similar characteristics were carefully chosen in order to obtain the relevant information. This method, called purposive sampling, ensured that all participants selected could provide the researcher with relevant information (du Plooy-Cilliers et al, 2014, p.143). The initial number of participants approached for the sensitising diaries was nine. Of these, two could not make the generative session. Regrettably, the researcher and facilitator of the generative session fell ill and the session had to be rescheduled twice. This resulted in two participants not being able to make it to the session while another participant fell ill. The total number of participants who attended the generative session was five.

### 3.5 ETHICS

Before participants were interviewed and briefed on the sensitising diaries, they were made fully aware of the fact that this study was voluntary, that they had the right to remain anonymous and that confidentiality was a key factor. There was no point in forcing or questioning a participant if they were not able to attend the session. All participants signed the consent form but had no desire to remain anonymous (Appendix C).

### 3.6 DATA ANALYSIS

Due to the 'messy' data produced from this generative research, the inductive "analysis on the wall" method was implemented (Sanders & Stappers, 2016). Data were analysed using indexing textual units; this means that data were grouped into categories and coded by patterns, using colours and notes. Participants 'coded' their mood boards with pink or green stars and highlighters which helped the process of identifying patterns and themes at the analysis stage. Fracturing of data (du Plooy-

Cilliers et al, 2014) means that the categories were broken down into different areas of similarity and rearranged into meaningful categories.

Content and contextual analyses was done by implementing “analysis on the wall” (Figures 3.14 and 3.15) (Sanders & Stappers, 2016). “Analysis on the wall” is described as light analysis (Sanders & Stappers, 2016). All the generative research boards from the workshops, the mind maps and transcripts were placed on a wall so that everything could be seen together. Different colour pens were used to identify patterns and similarities and post-it notes helped to note all the text about the products that was generated from the group session. By applying “analysis on the wall”, connections were made linking the data, similar to a large spreadsheet. This helped to provide information from the data as well as further inspiration. Being able to view all the data on one wall made analysing simpler. Thereafter, the mind map was revisited to include all the new categories from the analysis (Figure 3.16). Indexing and textual units were used (Sanders & Stappers, 2016); data were grouped into categories and coded by similar words with colours (Figure 3.17).



*Figure 3.14: Analysis on the wall*



Figure 3.15: Analysis on the wall with further notes for coding

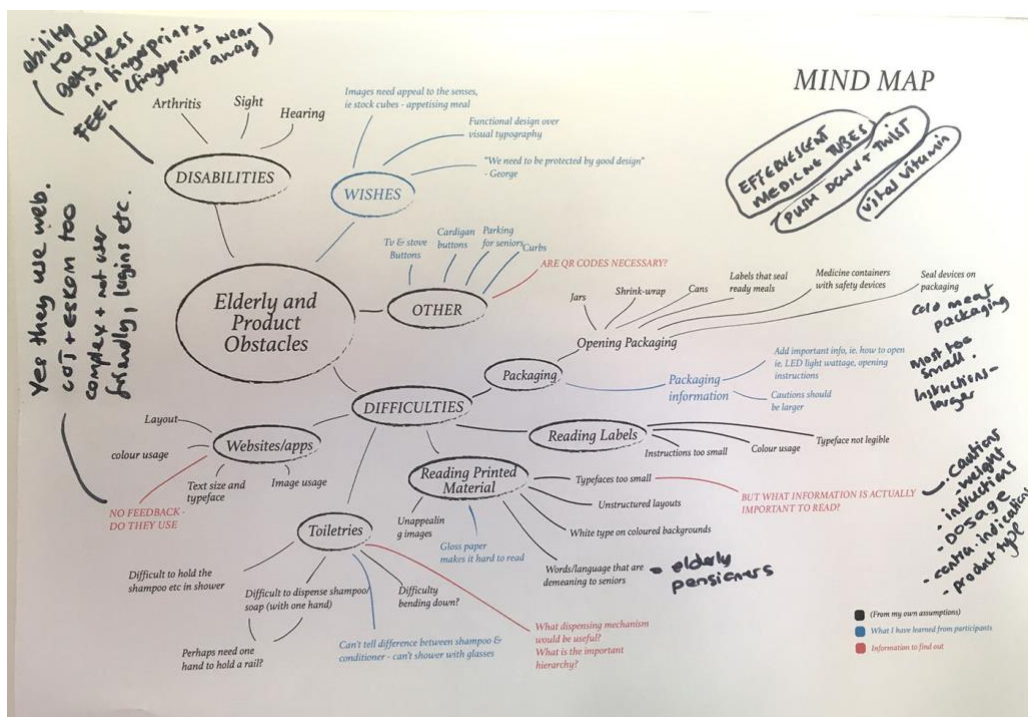


Figure 3.16: Mind map with extended notes

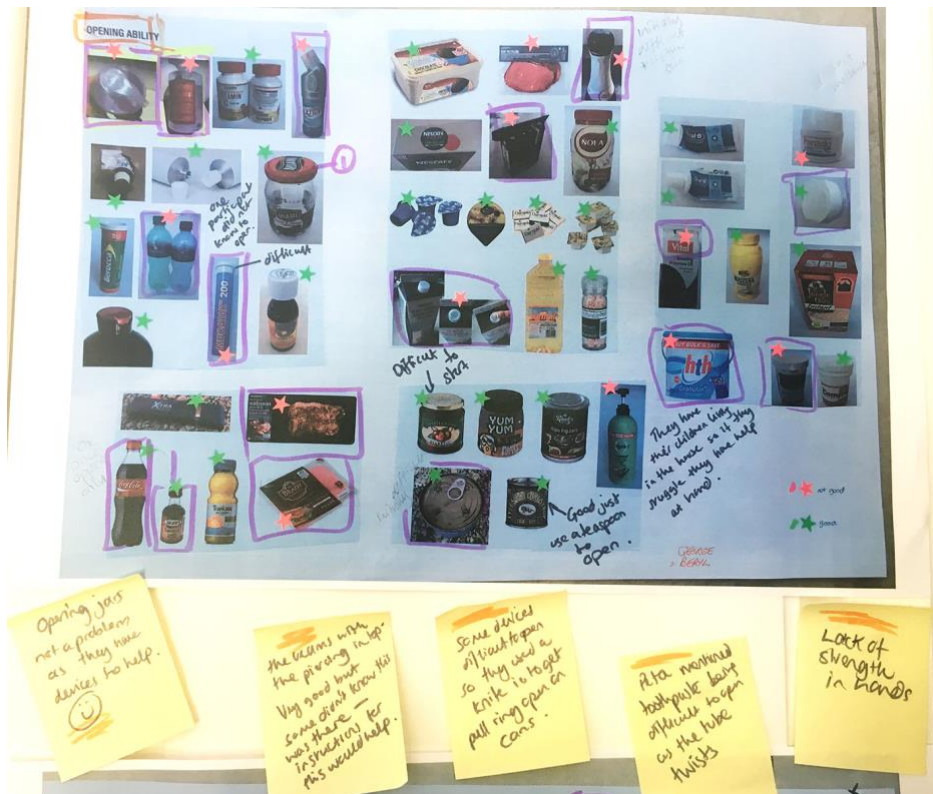


Figure 3.17: Coding through colours and notes

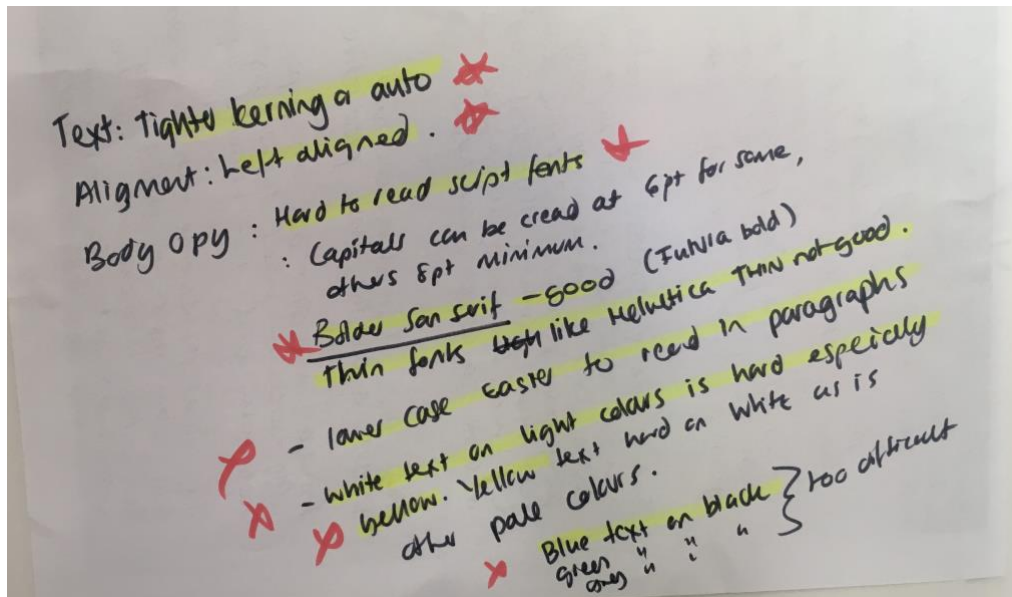


Figure 3.18: Coding through colours and notes

From the common data that were coded, guidelines for designers were then drawn up based on the results combined with references from the guidelines in 3.2.

## 3.7 CONTEXT-MAPPING APPLICATION, RELEVANCE, STRENGTHS AND WEAKNESSES

### 3.7.1 Application

Context mapping was used in the discovery phase of the design process to understand a deeper level of experiences, emotions and memories. By examining the obstacles participants faced and how they overcame them, the researcher was able to identify obstacles that design can focus on, and can develop potential solutions for. This information was useful to provide insights and construct guidelines to improve older people's interactions with objects, thereby improving their quality of life. This process of discover, define, develop and deliver is also known as the "Double Diamond" (Design Council, 2015; Chapter 1, Figure 1.1). Through the sensitising diaries and the generative session, problem areas were discovered. From this information, guidelines were listed and solutions developed in the form of guidelines for designers.

### 3.7.2 Relevance

As mentioned in Chapter 1, context mapping was a tool developed by Visser and Stappers (2016) in order to understand the users' interaction with products within the users' own context in order to elicit their real experiences and emotions. Generative tools are used in order to probe the users' perceptions to inspire design. In this study, the aim was to gain information from the users in their own context and identify their feelings and frustrations while interacting with daily objects. This method proved to be the most relevant method for the aim of this research.

Emotional responses were gained from the users themselves. By identifying the obstacles through literature and interviews, only so much can be learned, but through involving the users directly, it was possible to get the real answers to their needs. Within these participants was a hidden wealth of information and expertise from their own experiences.

### **3.7.3 Strengths**

This method of data collection pertains to the real information that I was able to extract from the user from their own personal experiences. There is no better source of expertise than the users themselves. The workshop gathered momentum as the participants inspired each other with memories and insights. This research method also empowers participants as it gives them a direct say in the solutions that they believe will best work for them. It is highly transparent, because ideas and insights are shared between participants and the researcher as they occur. Unexpected insights resulted from the process.

### **3.7.4 Benefits and Challenges**

The main challenge of this method was that it was extremely time-consuming. The preparation in itself and the expense of creating sensitising diaries was high, and preparation for the generative sessions was also time-consuming and costly. Trying to arrange a session with everyone involved and a suitable time and place was also challenging. This method also required the designer to put her personal assumptions, preferences and ego aside to really listen to participants. Nevertheless, the benefits counteracted the challenges as working with a small group of participants created a comfortable atmosphere for the participants to share their deeper emotions and experiences.

## **3.8 PURPOSE OF THE DESIGN PROJECT AND HOW IT RELATES TO RESEARCH**

The aim of this research was to identify and examine obstacles faced by older people during their interactions with everyday objects in order to construct guidelines that can be used by the researcher to design more user-friendly / accessible objects. Therefore, the studio project formed a logical extension of this research, affording the researcher the opportunity to complete the design process by testing and evaluating her own guidelines.

During an initial interview with one of the participants, it was mentioned how frustrating shampoo bottles are to use in the shower. Firstly, he could not shower with his glasses

on and the product names were too small and bottles too difficult to differentiate between them. This was taken on as a relevant project for this research as the users could be directly involved in designing a new shampoo product, thus proving the usefulness of user-centred design together with adherence to the newly created guidelines.

In order to create a generative session for researching this product, once the participants had completed the initial boards showing products they found difficult or easy to use, they were asked to work on the shampoo board. This consisted of exploring a few different and simple typical shampoo and conditioner text designs, various opening mechanisms and different designs for visual preference. Participants were required to pick their choices out of the three categories and paste them on a 'mood' board.

Prior to the generative session, a shampoo design had been produced based on a literature review and the researcher's personal assumptions of what would benefit older adults. A dispenser type shampoo and conditioner bottle were designed that suctioned to the wall of the shower. Once this was purchased, it would only be necessary to purchase the refill which is in the form of a bag which is inserted into the dispenser. However, through the generative session and empowering the users with their own expertise in the form of their experience and needs, a solution was reached that was far from the original design. By applying the guidelines that were formulated from the research, we could improve the design completely and design a new concept with the values of the seniors as they wished it would be.

By applying the guidelines and involving the users from the start, the research proved to run a full circle. Once the guidelines were applied, the design of the product became higher in user value. This result proved the necessity for user-centred design and generative research as a valuable and successful tool.

### 3.9 DOCUMENTATION OF THE STUDIO WORK

Firstly, areas on the mind map were highlighted in pink which were relevant assumptions and references from literature on what the seniors' obstacles potentially are (Figure 3.19).

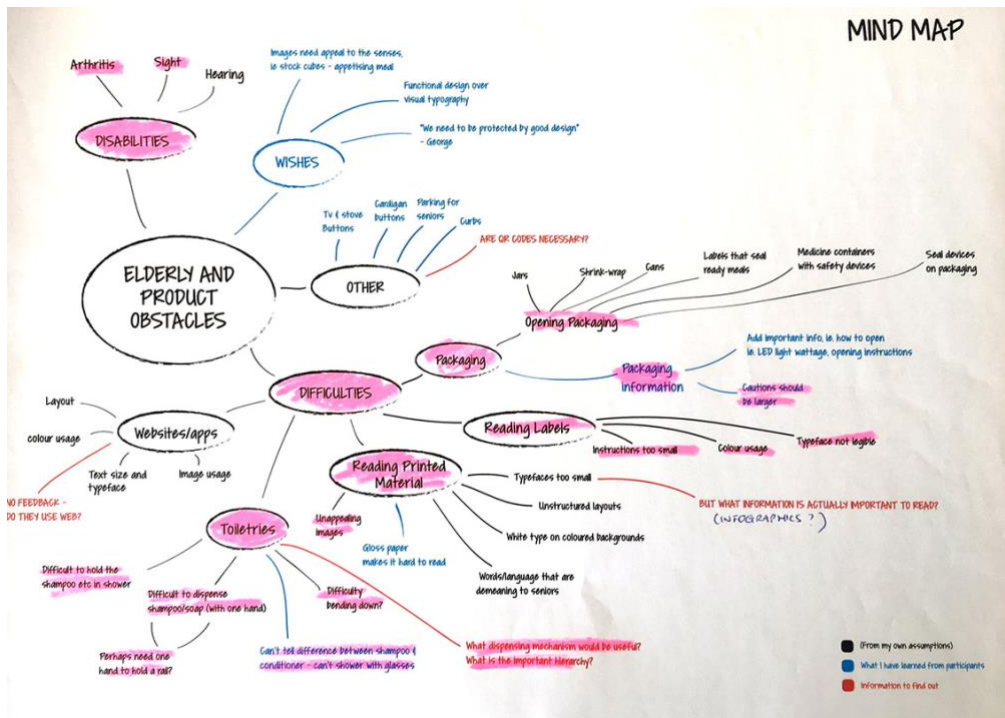


Figure 3.19: Mind map

Once the workshop was complete for the research material, another session for the shampoo product was generatively facilitated. Participants were given images with three categories in which to make up a mood board (Figure 3.20). They were required to choose a dispenser device, appealing designs and text.



Figure 3.20: Collage elements for shampoo design

A refillable dispenser was proposed that suctioned onto the wall and required very little effort to operate (Figure 3.21). In the generative session, some participants discarded any fancy dispensing mechanism. Discussions began on what the most important was factor to this group.



*Figure 3.21: Proposed dispenser style based on an existing design*

The outcome of the session for the shampoo design, stemmed from a nostalgic point of view. It would not be possible to guess these ideas had the users not been involved from the start. By applying the research principles that evolved from this research, it was possible to improve the product, redevelop and produce a product closer to the guidelines. This provided the full circle which completed this research.

The initial design of the dispenser was appealing to some participants until the group pulled the design apart. What was unexpected was their desire for no plastic to be used at all. Participants were worried about the plastic waste and were not convinced that packaging was in fact being recycled; they believed it could be discarded in the ocean. They rather wanted packaging that would biodegrade or easily break down. Cost was an issue, but at the same time they wanted a good product. It was also important that they were not tied into one brand. The high-tech dispenser was thrown out as an idea when a participant mentioned soap-on-a-rope. As the conversation evolved, they could all relate to this from nostalgic memories from their past as well as all the household detergents being in the form of a bar. The fact that the packaging could be in the form of paper and a natural material for the rope made them feel really happy and excited. They felt it was important that the “hair product on a rope” was

launched by a large and trusted brand such as Dove. This would create trust in this new form of shampoo.

The reflection on this is that by assuming what our users' needs and desires are, we can sometimes miss the boat completely. By generating ideas from the users themselves, as the experts knowing what their own needs, values and desires are, the result could not have been more different from that which was assumed would suit them.

## CHAPTER 4: CRITICAL ANALYSIS AND DISCUSSION

### 4.1 INTRODUCTION

This chapter covers the analysis of data collected from the diaries and the generative session. The results address the previously identified obstacles of openability, readability and usability and the preference of visual appeal. Other unexpected results are also discussed. This analysis is linked to literature reviewed in Chapter 2. This chapter also briefly addresses the issues of validity and trustworthiness and concludes with a critical reflection on the studio work.

### 4.2 DATA ANALYSIS

From the initial mind map created in Chapter 3 (Figure 3.11), further findings were added, categories were restructured, and further subcategories added as they were discovered. Connections were made between the categories, subcategories and results (Figure 4.1). Results were added in layers on the original mind map as they were collected (Figure 4.2).

As shown in Figure 4.1, the three main areas that this research focussed on were disability, obstacles and preferences. The five main disabilities identified were sight, hearing, arthritis, touch, and mobility. The three main obstacles that senior citizens have to overcome as a result of these disabilities include openability, readability, legibility and usability. Lastly, categories of everyday objects that present these obstacles were identified.

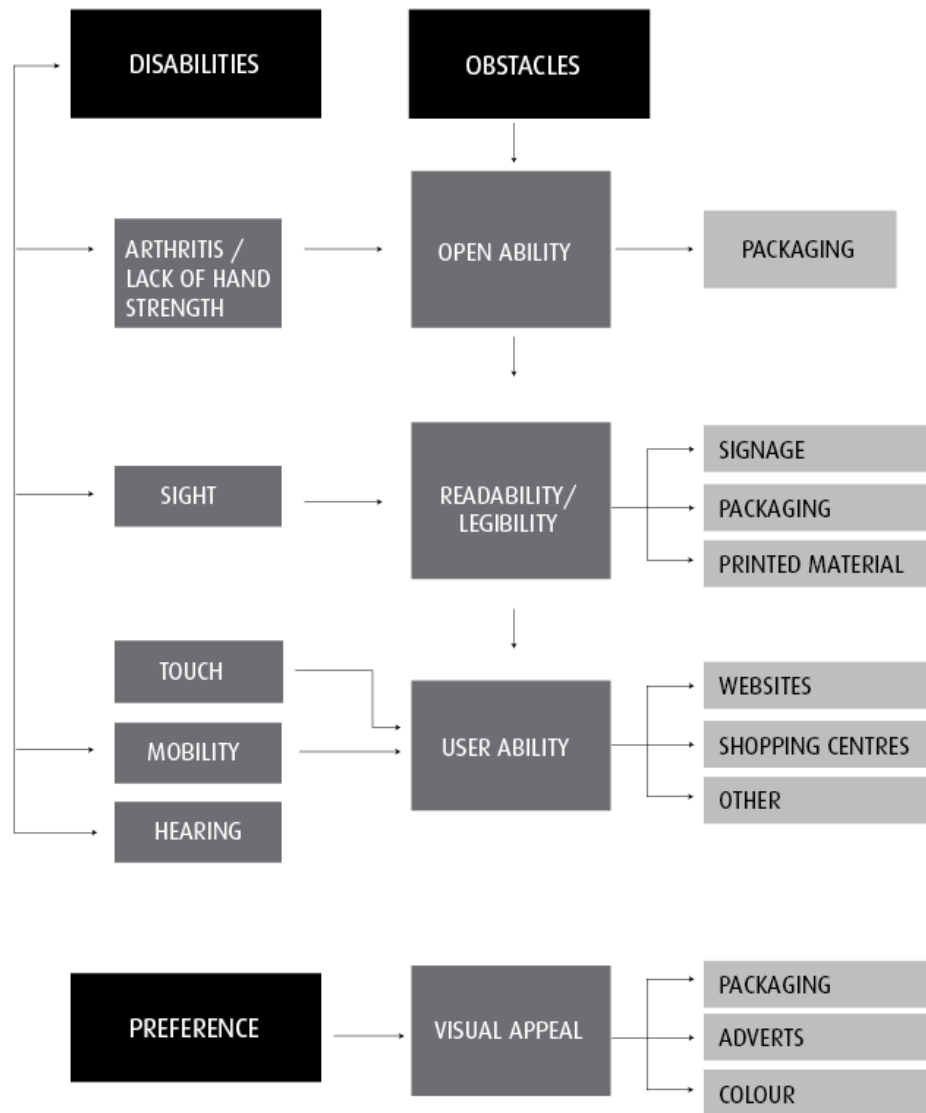


Figure 4.1: Categories and connections

## MIND MAP

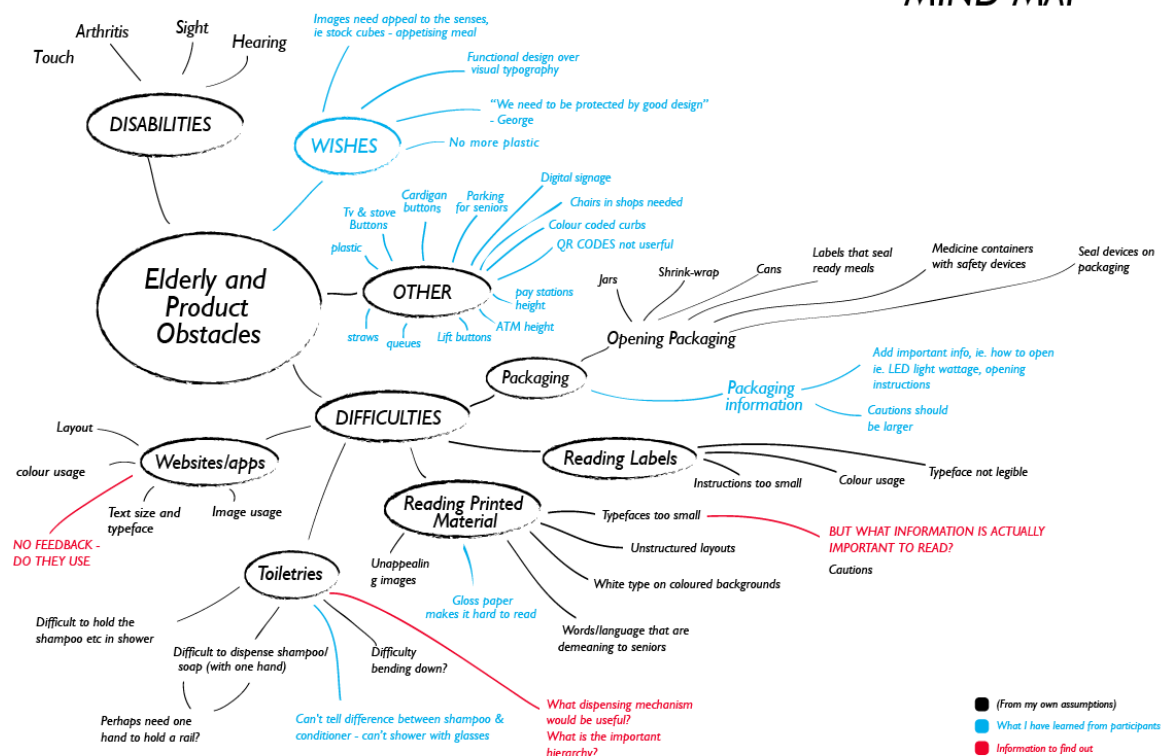


Figure 4.2: Extended mind map

### 4.2.1 Interpretation and Discussion of Insights into the Findings

The literature review (Chapter 2) revealed specific areas where design may cause obstacles for seniors. These included web interfaces, medicine labelling, and packaging. The initial findings from the diaries did not include web design, but it was probed during the group session and these results are discussed in this chapter. User experience, defined as the experience the user has while interacting with any product or service was identified and discussed.

#### 4.2.1.1 Introducing the participants

In the group session, an ice breaker was used to introduce participants. They were required to introduce themselves, name their favourite colour (Figure 4.4), where they lived (Figure 4.5), where they shopped (Figure 4.3) and how many children they had. In Figure 4.4, participants primarily shopped at Pick 'n Pay, Checkers and Spar, while 90% also shopped at Woolworths. Favourite colours were predominantly blues with

greys and a surprising orange from one participant. Participants all lived within a 15km radius in Johannesburg (Figure 4.4).

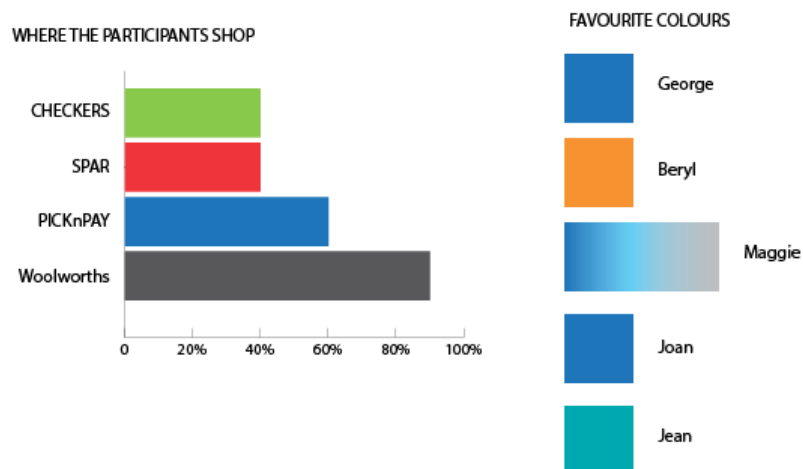


Figure 4.3: Where participants shop

Figure 4.4: Favourite colours

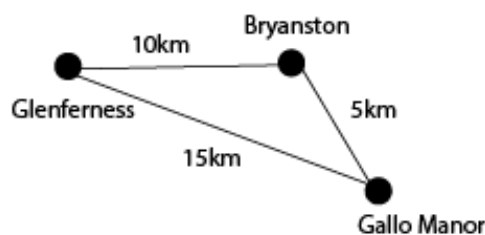


Figure 4.5: Demographic

#### 4.2.1.2 Categories

- Disabilities and obstacles faced by the elderly

These participants are still active but suffer from the common age-related disabilities such as sight impairment, lack of strength or arthritis in their hands, slower mobility, hearing impairment, reduction in the ability to feel with fingertips and worn-down fingerprints. The seniors' emotions when confronted with obstacles during interactions with objects were predominantly irritation, frustration and anger. They indicated that they often required the help of another person to overcome obstacles. With many packaging items, they would use a sharp knife to get around the accessibility issue which is potentially a safety risk.

As a result of the disabilities, the obstacles seniors face when interacting with objects are open-ability, readability and legibility. The connections are shown in Figure 4.1.

- Openability

Most of the participants lacked strength in their hands resulting in the difficulty of opening many types of packaging. While they were extremely frustrated by medicine safety devices, they also understood the need for such safety mechanisms. The results are shown below in Figure 4.6 and listed in detail in Figure 4.7.



Figure 4.6: Openability collage

Table 4.1: Analysis from openability

## OPENABILITY

| Type of opening              | Image                                                                               | Outcome (percentage)                                                                                      | Emotion                       | How did they overcome it?                                                  |
|------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------|
| Dispensing pump              |    | 100% liked it once it was open, but difficult to open initially as they didn't know which way to turn it. | Frustration<br>Irritation     | Asked someone to help otherwise just kept twisting                         |
| Push down & turn safety lids |    | 100% very difficult, but understood the safety of the device.                                             | frustration but understanding | Asked a younger family member to help                                      |
| Squeeze & turn safety lids   |    | 100% found it difficult.                                                                                  | frustration                   | Don't buy it out of frustration or have to ask for help.                   |
| Tamper proof tubs            |   | 67% Found ice cream tub difficult.<br>100% found the larger tub difficult.                                | Irritation                    | Use a knife to break the seal and some can open while others ask for help. |
| Jars                         |  | 100% found jar difficult initially, but with opening device it's easy and once open it was no problem     | frustration                   | use a jar opening device.                                                  |
| Twist lids                   |  | small twist lids 100% found it too difficult<br>larger twists 67% found it ok.                            | frustration                   | Have to ask for help or don't buy it.                                      |
| Seals                        |  | 100% found these difficult                                                                                | Irritation                    | pierce with a sharp object.                                                |

| Type of opening                        | Image                                                                               | Outcome (percentage)                                                                                    | Emotion                                      | How did they overcome it?                    |
|----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|
| Can ring pull device                   |    | 67% found this difficult                                                                                | irritation                                   | use a spoon or knife to pull the ring up.    |
| Effervescent tubes seal & flip off lid |    | 100% found these difficult                                                                              | frustration                                  | break the seal with a knife.                 |
| Perforated opening strips on boxes     |    | 100% easy<br>100% would not keep in container as it doesn't seal and due to weasels, so seems pointless | happy and dissatisfied                       | Used a sealable container to store the oats. |
| Press down opener shampoo bottle       |   | 100% found this easy                                                                                    | Happy                                        | Could not get last drop out!                 |
| Vitamin seal and opener                |  | 100% found this difficult                                                                               | irritation                                   | used a knife                                 |
| Perforation on sealed cartons          |  | 100% found it difficult to open on perforation                                                          | irritated that they put a perforation there. | Cut it with scissors                         |
| Peel corner                            |  | 100% found it difficult                                                                                 |                                              | Cut with a knife                             |

- Readability and legibility

For this category, it is important to understand the difference between legibility and readability.

Legibility is defined as text that can easily be read due to the designer's choice of font (RGD Ontario, 2010). In the group session, participants were asked to rate typefaces and their attributes as easy or difficult to read. A slightly heavier weight of Futura proved to be legible for most. The uppercase text of Museo Sans also showed high levels of legibility at small point size but not for large amounts of text.

Readability as defined as the way type and graphics are combined in a layout and the effect it has on the reader's ability to digest the information (RGD Ontario, (2010). For instance, type over images is difficult to read. Use of different colours can make readability challenging. The participants' boards from the group session are shown below in Figures 4.7, 4.8, 4.9 and 4.10.

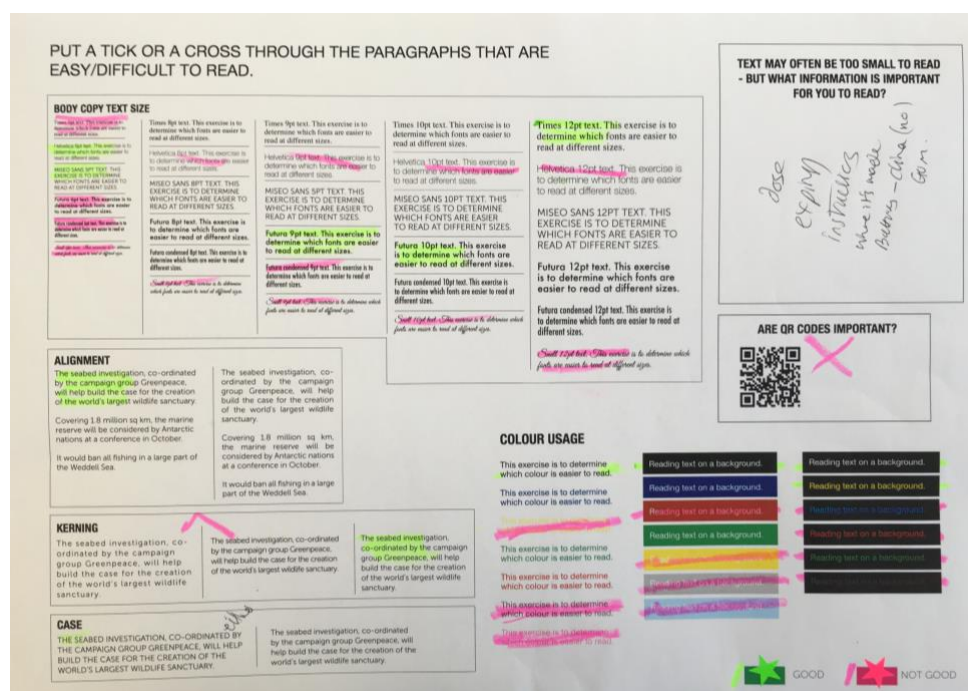


Figure 4.7: Readability and legibility worksheet



Figure 4.8: Readability collage coded by participants

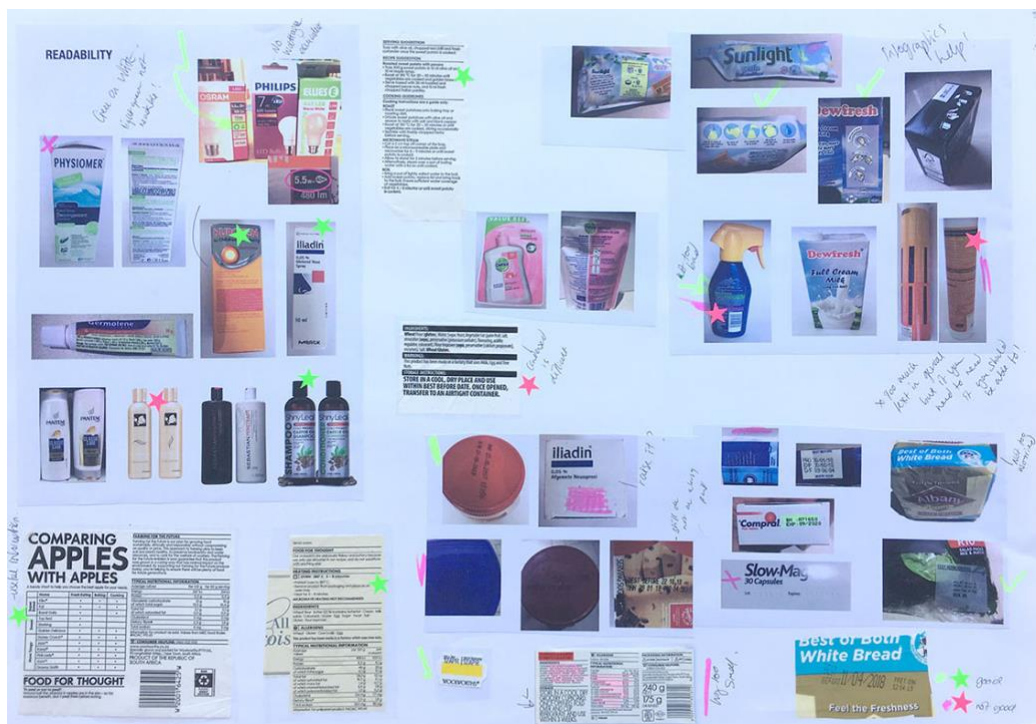


Figure 4.9: Readability collage 2



Figure 4.10: Readability collage 3

- Colour and text

Figure 4.11 below indicated results from text and colour usage. Helvetica Neue Regular was used at 10pt for this exercise. The lighter the background with white text, the harder it is to read. Light backgrounds such as yellow were identified as the most difficult to read. Black text on white background is the easiest to read. Yellow or white on black was also identified as easy to read. Darker colour text on white was found to be the easiest to read while lighter colours were found to be more difficult to read on white. One of the examples of very poor legibility was on specific bank cards, where raised gold writing on the gold card made it impossible to read the number.

## COLOUR READABILITY



Figure 4.11: Readability colour results

- Typeface and font sizes

Six typefaces were provided on A3 worksheets during the generative session (Figure 4.7). Futura Medium was identified as the most legible typeface in upper and lower case. The least readable sans serif font was Helvetica Neue thin. A condensed sans serif font was not favoured or easy to read, while a script font such as Snell Roundhand was criticised as being generally illegible. Any font in uppercase is legible from 6pt upwards. Overall, a slightly bolder sans serif font is more readable for seniors, especially with important information in uppercase (Figure 4.12).

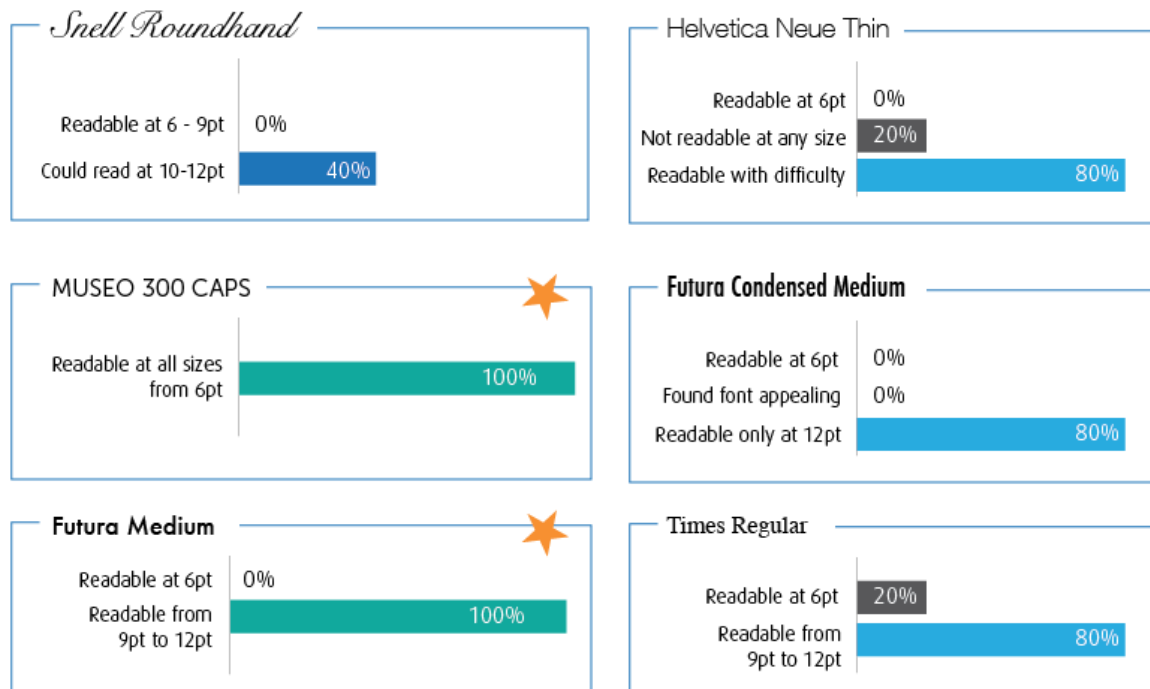


Figure 4.12: Legibility

- Text alignment

Left alignment was found easier to read for body copy using sentence case (Figure 4.13). No participants favoured uppercase for body copy (Figure 4.14), so this should only be used for small amounts of text. Interestingly, slightly tighter kerning was favoured over auto kerning. 100% of participants found loose kerning difficult to read. (Figure 4.15).

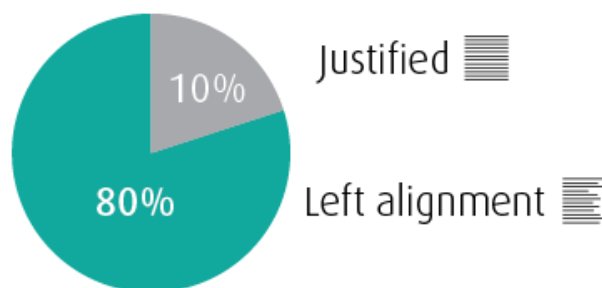


Figure 4.13: Text alignment



Figure 4.14: Case

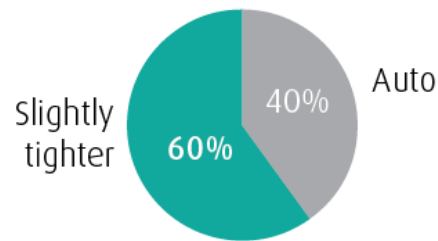


Figure 4.15: Kerning

- Important information

The participants had an issue with large amounts of small text on many packaging items. Much of the information may be mandatory, so in order to attempt to solve this problem, participants were asked which information would be most important to them to be able to read. Figure 4.16 identifies expiry date, dosage, cautions, instructions and weight as the most important information, while ingredients were important for people with allergies. Participants felt that too much space was taken up on the front of packaging for design, and proposed using the front for important information. Their reasoning is very practical in terms of design. They did not necessarily want the products to be larger. Quick Response (QR) codes (Figure 4.17) were probed as a solution to storing some of this information elsewhere, but the participants did not use QR codes;

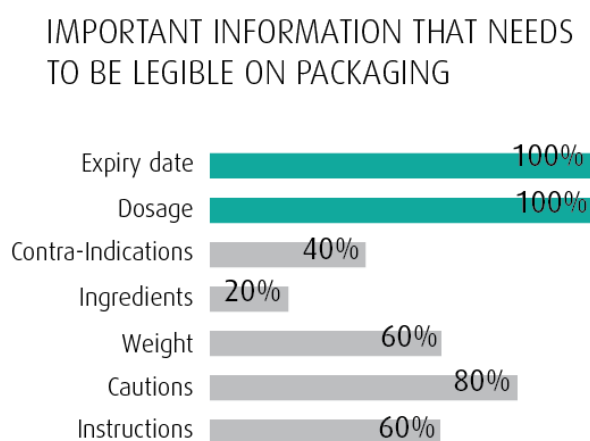


Figure 4.16: Important information

## QR CODES



0%  
FOUND THESE  
USEFUL

Figure 4.17: QR codes

- Terminology

Advertisements for pensioners' discounts were shown to the participants. They did not find the image of the photo of the pensioner offensive (Figure 4.18) but found the term 'pensioner' offensive. Firstly, it sounded really old and secondly, some were still income-earning and not pensioners. Elderly was the worst term according to them.



Figure 4.18: Pensioner advertisements

- Paper and surfaces

Text on glossy paper and surfaces was identified as more difficult to read than matt paper due to the glare.

- Signage

Signage was probed in the group session but may present an area of consideration for further study. One participant, however did mention how difficult it was to read digital signage where the colour blue is used for text.

- User experience

As defined earlier, user experience refers to the experience the user has with interacting with any product, object, building or service.

No information about website user experience was mentioned in the diaries; however, this was probed during the group session. The participants confirmed that they used the internet for utility bills, family history websites and, in one participant's case, for business. The only significant issue that arose was the user un-friendliness of City of Johannesburg (COJ) and Eskom websites. COJ asks for various logins on multiple pages and it is very difficult to understand how the website works.

- Unexpected information

Involving the user in the design process yielded unexpected and surprising insights. The most unexpected insight was the importance to this group on the reduction of plastic due to its harm to the environment. With the current exposure in the news of plastic polluting the ocean, the participants not only wanted to eliminate plastic but they were sceptical about recycling and therefore feel it was better to minimise packaging.

- Touch

Seniors mentioned that as their sense of touch has decreased with age, they struggled to operate tv buttons on the tv itself because these were not separate buttons as such. Interestingly, fingerprints also wear down with age.

- Clothing

Buttons on cardigans are sometimes too small to use and require the help of someone else.

- Environment

The environment and plastic became a topic of discussion revealing that these participants were passionate about the effects that plastic is having on our environment. They would like to see minimal use of plastic in packaging. They would like to see more environmentally-friendly ways of purchasing fruit and vegetables, for instance, using minimal packaging and even eliminating the need for packaging by bringing one's own bags or containers.

The concern these seniors have for the environment is perfectly summed up by Papanek (1971) "Design must become an innovative, highly creative, cross-disciplinary tool responsive to the true needs of men. It must be more research-oriented and we must stop defiling the earth itself with poorly designed objects and structures". This age group feels strongly about meaningful design and is irritated and angered by poor design that pollutes the environment.

#### *Quotes from Participants*

- "We should be protected by good design." George
- "Images need to appeal to our senses." Beryl
- "Design should be functional and not fussy." George
- "Plastic is becoming a dirty word." George

- Visual appeal

The research revealed that, although visual appeal cannot be classified as an obstacle, it is nonetheless important to senior citizens. Participants preferred a simple layout with imagery that appeals to their senses. See Table 4.2 for full details.



Figure 4.19: Visual appeal

Table 4.2: Results from visual appeal

| Image                                                                                           | Result                                                                                        |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1            | 100% preferred the simple layouts with mainly white backgrounds                               |
| 2            | 100% like the eye-catching design of tabasco                                                  |
| 3 Stock      | 100% found the Spar chicken stock totally unappealing. They liked the look of a cooked meal.  |
| 4 Cream tub  | 100% did not like the dark and busy design of Spa while they all preferred the simple designs |

| Image                    | Result                                                                                                                      |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|                          |                                                                                                                             |
| <p>5 Washing powder</p>  | <p>100% did not like the Woolworths brand washing powder – too abstract and meaningless.</p>                                |
| <p>6 Fruit Juices</p>    | <p>100% did not like the first or second design. Ugly and unappealing. 100% loved the third design.</p>                     |
| <p>7 Frozen fish box</p> | <p>100% found the first design very unappealing. They liked the second as the images were appealing.</p>                    |
| <p>8 Bread</p>           | <p>100% found the first design appealing. 100% found last 3 designs too simple</p>                                          |
| <p>9. Biscuits</p>       | <p>100% digestive packaging, traditional. 67% like the simple layout of the second design with the clear product image.</p> |
| <p>10. Eggs</p>          | <p>67% preferred simplicity of this brand.</p>                                                                              |
| <p>11. Softener</p>      | <p>100% did not like the abstract image of the last bottle, it did not show the softness.</p>                               |

| Image                                                                                                    | Result                                      |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------|
|                         | 100% liked Stay Soft – baby depicting soft. |
| 12. Throat lozenges<br> | 100% appealing design                       |

#### 4.2.2 Findings linked to Literature

StasSA (2011) indicates that the disabilities seniors face include sight impairment, arthritis, hearing and mobility amongst others. New information collected from this research showed that tactile sensitivity also decreases with age and may present an obstacle in interactions with objects that rely on one's tactile abilities. One participant still earns an income and supports his children and grandchildren. He contributes to the economy daily and felt that design should serve his needs better. By adhering to the guidelines produced in this report, seniors will be granted easier accessibility to products. Achieving this, would better align many design solutions with Buchanan's (2012) requirement that design should add value to lives of others.

- Readability and legibility

Surprisingly during the data collection, it was found that many participants could read smaller text in a clear font. This is contrary to the guidelines for the visually impaired that suggest 16-24 pt body copy. Large font-sizes can be impractical resulting, for example, in large sizes of books. Careful consideration of the choice of typeface may therefore present a better solution than simply increasing font size.

Guidelines relating to vision impairments as identified by Farage, Miller, Ajayi and Hutchins (2012), such as simplicity of visuals and avoiding visual clutter, supported the findings of this study. These guidelines also suggest that valuable information should be in the central visual field, large and bold. Uppercase is good for highlighting valuable

information but only for shorter blocks of text. Decorative fonts and backgrounds should be avoided.

- Openability/packaging and medicine

The guidelines by Wenk et al (2012) identify the physical transformations during ageing such as decrease in muscle strength and mass, loss of strength and dexterity, restricted mobility of the joints, impaired vision and changing cognitive aspects as age-related disabilities. Jars and peelable trays that require a two-handed process are the most challenging. Difficulties identified in the literature include poor gripping, slippery packaging, necessity of tools, exertion of force needed and risk of injuries.

Design principles (Farage et al, 2012) concur with the research findings of this study. The participants in this study are predominantly active and do not perceive themselves as being old. They wish to remain independent and socially accepted by society. These adults appreciate clear, structured design that is easily accessible and easy to use. Design, in this regard, provides better quality of life which is why designers should be encouraged to design with older adults in mind.

#### 4.3 VALIDITY AND TRUSTWORTHINESS

In line with the generative research method of context mapping, trustworthiness is discussed in this section.

##### 4.3.1 Validity

The Double Diamond design process (Design Council, 2015; Chapter 1, Figure 1.1) was followed. This design process identifies four stages in the design process, discover, define, develop and deliver. The context mapping method based on the research of Stappers and Sanders (2016) was used for the discover and define phases of the design process in this study. Generative research tools were constructed based on the theoretical framework of Stappers and Sanders (2016). The generative sessions yielded results that correlated with various published guidelines rendering common findings and therefore proving validity.

### **4.3.2 Credibility**

Credibility is defined as an important trustworthiness measure to ensure the accuracy of the description of the research (Schurink, Fouché, & De Vos, 2015).

In order to insure credibility, the following measures were taken:

- The underlying framework of the research method is discussed in detail in chapter 2.
- Qualitative approach was used in conjunction with the Double Diamond model (Design Council, 2015).
- The data were analysed and presented in Chapter 4 in accordance with the methods of Sanders and Stappers (2016).

### **4.3.3 Transferability**

Transferability refers to the extent to which the findings might be applicable in a similar context and with similar participants. Although findings might be transferable due to the Double Diamond design process and the correspondence of the findings with the theoretical framework of this study (Schurink et al, 2015), this study focussed on specific participants within a specific context, and as is always the case with human participants, this cannot be duplicated. Nevertheless, I provided a detailed description of the qualitative data and findings (Stapper & Sanders, 2016) and supported the findings with relevant literature, which lends itself to the possibility of transferability.

### **4.3.4 Dependability**

Dependability is the alternative to reliability in quantitative research. The research process is required to be logical and well-documented in order to establish whether the findings will remain the same if the investigation is repeated later with a different group of participants with the same profile and in a similar context (Schurink et al, 2015). The qualitative approach was consistently documented throughout the entire research process from collection to the analysis of the data.

#### **4.3.5 Confirmability**

Confirmability is the alternative for objectivity in quantitative research. In other words, confirmability should ensure that the data collected confirm the trustworthiness of the findings and that the researcher's bias does not influence the research findings (Lincoln & Guba, 1985). The confirmability of the interpretations and findings in terms of the data was ensured through the triangulation design of this study (sensitising diaries, collages, cultural probes, photographs, and product models) and by leaving an information-rich audit trail for any future review (Lincoln & Guba, 1985). Researcher bias was further limited by attending to ethical requirements as well as triangulating the data in order to expose any bias. My subjectivity was controlled by continuously scrutinising and reflecting on the decisions I made as well as acknowledging my role in the research. These measures may contribute to the trustworthiness of study (McMillan & Schumacher, 2006; Merriam, 2009).

With any form of Action Research, subjectivity formed part of the research design – combining my own experience and tacit knowledge as a designer with the information gathered from users enabled me to get to valuable insights and produce a design that would ultimately enable me to meet my responsibilities as a designer to the client, user and environment.

#### 4.4 STUDIO WORK REFLECTION

Reflecting on my studio work, I have realised that placing myself as the design researcher as the expert does not result in designs that meet the users' needs and dreams for the future. Neither does it satisfy their desire for quality of life and comfortable interactions with design. By placing the user as the expert and through generative design research, unexpected results arose that would help to meet the users' needs. Involving the user provided deeper insights and empathy. The results in this study were far different from the proposed design and far simpler, stemming from familiarity and nostalgia about soap bars. Not considered in preliminary research was the deep concern these participants had for the environment and the pollution of plastic. Perhaps if we design from our own expertise, we over-complicate a design which could lead to failure as a product. The reward as a researcher to observe participants passionately contributing to the study is to see how empowered this age group feels when they realise they are an important part of the process. To inspire people who perhaps felt they had nothing to contribute was very rewarding. This was a truly fascinating and humbling experience. Nostalgia was a very interesting thread that could be further explored with these participants.

This research has taught me to collaborate with the user, to realise that creativity is found in other spaces and especially not while working alone. Creativity, in this case, is generated as knowledge from the user which contributed to the design process. Acknowledging the users' expertise allows designers to add their own tacit knowledge, apply design principles and produce a meaningful piece of work contributing to the good of society. Going forward in my design career, I will consider this type of research wherever possible, as this has created new meaning for me as a designer – a designer that can add value and make a difference in others' lives.

I have learned that this is an incredibly time-consuming research method, with most of the time spent on gathering data and analysing it. This, however, brings interesting results and has in fact restored my interest in the design industry and the potential of changing lives through design.

“Design is the human power of conceiving, planning and making products that serve human beings in the accomplishment of their individual and collective purposes” (Buchanan, 2012).

## CHAPTER 5: REVIEW, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 INTRODUCTION

This chapter discusses the reflection on the problem statement and objectives as well as discussing the limitations, recommendations and ethical issues from the research process.

### 5.2 A REVIEW OF THE PROBLEM STATEMENT AND OBJECTIVES

The objectives were met as follows:

- The first objective was to identify the most common age-related disabilities among older adults that present obstacles in their daily interactions with things. This was achieved through literature on the topic and a new factor was discovered from the group session, which was that touch sensitivity diminishes with age.
- The second objective was to investigate how these obstacles impacted on their daily lives. This was achieved through the sensitising diaries where the participants were able to document their emotions within their own contexts.
- The third objective was to understand how older people overcame these obstacles. Many participants use sharp objects to open packaging or need help from other people which resulted in a feeling of loss of independence.
- The fourth objective was to identify which design could improve accessibility. This was achieved through the group session in the form of discussion and collages.
- The fifth objective was to investigate existing international guidelines. This was achieved through a review of existing literature that identified many guidelines outside of South Africa as discussed in chapter 2.
- The sixth objective was to compile generalisable guidelines when designing for the typical disabilities that older adults face. This was achieved through the data collected.

### 5.3 CONCLUSIONS

Business and design are changing from a focus on the products themselves to a new focus on the purpose of design. Co-design is a new and useful collaborative approach

to design that allows for a focus on the users of the design by engaging designers and non-designers to work together to create solutions to large problems (Hunter, 2014). By identifying the user's needs, frustrations and desires with research and analysis, through a user-centred lens, a solution presented itself which could satisfy the users' needs. Generative tools are a means of deriving varied responses, emotions, concerns and experiences, explored in context of the user and in group sessions. Generative design research is inclusive by nature, thus presenting a perfect platform for this study.

Facilitating this collaborative design process proved to be fascinating. As an empathetic designer that was once demotivated by an industry based on aesthetics, it felt that design had lost all meaning. The participants of this age group embraced the workshop and truly enjoyed their afternoon out as well as being motivated to form a part of a meaningful generative session that they could contribute to. This was a very rewarding experience for all.

## 5.4 RECOMMENDED ACCESSIBILITY GRAPHIC DESIGN GUIDELINES FOR SENIOR CITIZENS

### 5.4.1 Colour

Colour preferences for Seniors can be exuberant and therefore garish to younger people.

### 5.4.2 Readability and Legibility

#### **Print:**

- A classic grid ensures a good structure across books and reading material; this allows for consistency which aids users with visual disabilities
- Hierarchy of text and graphics are extremely important for readability of complex information to guide the reader.
- Use of matte stock is better than glossy. Glare can also be reduced by using a warm white stock as opposed to a bright white.
- When using colour is that there should be a 70% difference in colour value between text and background.

## **Typography:**

- Sans serif fonts better than scripts and decorative fonts.
- Black text on white background is the most readable of all.
- Text on backgrounds that work:
- White or yellow text on black background.
- Similar colour text on darker shade of same colour are not readable.
- Use dark colours on a white background.
- Avoid light colours on a light background or dark colours on a dark background.
- A thin typeface is difficult to read, while a regular or medium sans serif is better.
- Script fonts are difficult to read.
- Condensed fonts are not easy to read.
- Sans serif typefaces are better than serif typefaces.
- Text at 6pt is only legible if sans serif in capitals.
- Body copy cannot be smaller than 9pt if black text on white in a sans serif font.

## **Columns:**

- Columns must not be too narrow or words be awkwardly hyphenated as it is difficult for readers to take in enough content in the path.
- Wide columns created difficulty in finding the start line for the new line of text.
- Impaired vision makes reading inappropriate line lengths very difficult.

## **Spacing:**

- Improper kerning (horizontal space between letters) can create awkward gaps and visual tension between letters making reading difficult.
- When kerning which is too tight, letters bump together making them difficult to distinguish.
- When kerning is too loose, letters appear to float, making the words difficult to recognise by their shape.
- If leading (line spacing) is too tight, the texts ascenders and descenders merge which seriously affects readability.
- Leading which is too loose can cause the reader to have trouble finding the next line.

**Alignment:**

- Left-aligned text is easier to read because in Western cultures, we read from left to right.
- Right-aligned or centred can be difficult to read due to the ragged edge. This makes it difficult to find starting points.
- Justified text can create inconsistent spacing and blank spots between words creating distracting “rivers” through the text block.

**Other typographic considerations:**

- Small or important text on packaging is good to be used in capitals letters.
- Upper and lowercase type allows the reader to recognise the shape of familiar words instead of reading individual letters as in capitals.

**5.4.3 Packaging/Print**

- Use simple instructions.
- Label icons and infographics must be intuitive.
- Avoid information overload.
- Minimum font size of 9pt for reading text in sans serif.
- Seniors are happy to compromise the design space on the front to include important information so that there is more space on the back for information at a legible size.

**Important information that needs to be easily readable:**

- Expiry dates.
- Dosage.
- Contra-indications.
- Ingredients.
- Weight.
- Cautions.
- Instructions.
- QR codes are not a necessity for this market at all and would take up unnecessary space.

#### **5.4.4 Digital/Screen**

- Warm colours are better for screen viewing.
- Blues, green, violet are the most difficult for screen.
- Motion such as 3-D flickering, rapid changing or moving stimuli is not recommended.
- White text on black background.

#### **5.4.5 Openability**

- With pump dispensers, it is difficult to know which way to turn to release the mechanism. Once open, they are very easy to use.
- Infographics on the device should be clear and printed in black not just embossed.
- Push down and turn safety lids are very difficult to open.
- Squeeze and turn safety lids are very difficult to open.
- Tamper proof tubs with plastic seals are difficult to open.
- Jar lids are almost impossible to open, but once open, they are no problem. A jar opening device makes them easy to open.
- Twist lids: larger diameters are easier to open. Smaller diameters are very difficult.
- Tamper proof seals are difficult to grab hold of and open
- Can ring-pull devices are very difficult without using a knife to pull up the ring.
- Flip-off lids are very difficult.
- Perforations on thin cardboard boxes are very easy.
- Perforations on foil lines on cartons are very difficult.
- Sealed plastic trays are impossible to grip via a small tab and an enlarged tab and peel corner should be considered.
- Two-handed opening devices are the most challenging.
- Avoid poor gripping options.
- Avoid slippery packaging film.
- Opening mechanism needs to be clearly visualised by the use of pictograms.
- Packaging should not be a completely round as it is difficult to grip.
- Opening mechanism needs an easy to grip diameter containing sufficient grooves for grasping.

#### **5.4.6 Visual Appeal**

- Packing must be designed to be simple and clear with a structured layout.
- Make things eye-catching through size, colour and contrast.
- Text should not be printed over images or busy backgrounds.
- Avoid images that are too abstract or meaningless.
- Images need to appeal to the senses.

#### **5.4.7 Terminology**

The use of terminology concerning older adults should be carefully considered. Terms like 'elderly' and 'pensioners' are not favoured at all while 'senior citizens', 'seniors' or 'older adults' are acceptable.

#### **5.4.8 Touch and Pressure Sensitivity**

- Add supporting sensory cues:
- Textured surfaces are better than smooth to supplement touch sensation.

#### **5.4.9 The Environment**

- The plastic polluting the environment is of major concern for seniors.
- Seniors would like to see minimal use of plastic or an alternative material.
- They would prefer less plastic packaging rather than recycling material as they have no real proof that recycling takes place.

#### **5.4.10 Wayfinding**

Guidelines on this can be found in the Access Ability handbook by RGD Ontario (2010).

#### **5.4.11 Other**

- Seniors are frustrated by certain inaccessible objects, but should there be a valid reason for this; e.g. for childproof medicines, they are very understanding and accepting that the tops should not be easily opened.

#### **5.4.12 Placing the User as the Expert**

A final insight into the outcome of this research is that designers should consider using collaborative design with generative techniques within the users' context. This brings about unexpected results that could provide a valuable solution to improve quality of life. By assuming what the solution is from our expertise only, we cannot fully address the needs of the senior citizens.

### **5.5 RECOMMENDATIONS FOR DESIGNERS AND EDUCATORS**

"We must be protected by good design". This was a quote from a participant which sums up how they feel about design. Just as Buchanan (2012) states that design has a responsibility to serve the people it is designed for, we as designers should be encouraged to embrace the user in the design process as the expert of their own experience with designed objects. By putting our designer egos aside and leaving the ball in the users' court, truly unexpected results can arise which can lead to successful and profitable ideas while addressing human values. This knowledge combined with the design researcher's expertise is the ultimate collaborative solution.

The future ahead should be in the hands of educators instilling such design processes in students so that our world becomes one not only of captivating images, but of true design for humanity's sake.

### **5.5 RECOMMENDATIONS FOR FURTHER RESEARCH**

While collecting data, there were other areas pertaining to older adults that could be further investigated in other studies.

- Areas such as wayfinding and web, app and mobile design were not investigated but discussed very superficially.
- Another study which I found would be of interest is to research which brands senior citizens find most accessible.
- A similar study would be interesting with a different demographic, perhaps including rural communities..



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## APPENDICES

### APPENDIX 1: CONSENT TO PARTICIPATE IN RESEARCH STUDY.

Dear sir/ madam

**RESEARCH TITLE: Developing guidelines for graphic designers to design objects that are more accessible for older adults.**

#### **1. INTRODUCTION**

You are invited to participate in a research study investigating the obstacles faced by older adults in the interactions with everyday man-made objects and products. This research will be conducted towards partial completion of a Baccalaureus of Art Honours Degree in Graphic Design at Vega School. The main purpose of this study is to gain an in-depth understanding of the physical obstacles that hinder older adults' interactions with everyday objects in order to derive guidelines on how accessibility and experience can be improved through design.

The information in this consent form is provided to assist you in deciding whether you would like to participate in this study. It is important that you fully understand what is involved if you agree to participate in this study. If you have any questions that you feel are not addressed or explained fully in this consent form, please do not hesitate to ask the researcher for more information.

The primary researcher, Pam Lansdell can be contacted on 082 329 5015 / [lansdellpam@gmail.com](mailto:lansdellpam@gmail.com). The study leader, Mrs Lizette Carstens, can be contacted during office hours at 082 566 5986 / [lcarsstens@vegaschool.com](mailto:lcarsstens@vegaschool.com)

#### **2. THE NATURE AND PURPOSE OF THE STUDY**

The primary goal of this study is to develop guidelines for designers to make everyday objects more accessible for older adults. To this end, the researcher would appreciate your participation to identify any physical obstacles present in older adults' interactions with everyday objects and to understand the emotional impact of these obstacles on their experience.

### **3. EXPLANATION OF PROCEDURES TO BE FOLLOWED**

If you decide to participate, you will be asked to document your interactions with and experience of everyday objects for 5-7 days. To this end, you will be supplied with a toolkit containing a diary to document your interactions with everyday objects and how the interactions made you feel. You will also be asked to photograph or collect the objects that you documented in a supplied bag and submit these with your diary to the researcher after 5-7 days. Thereafter you will be asked to attend a group session to share findings with other similar participants and to discuss and demonstrate how you think these objects might be changed to improve the interactions. The date for the group session will be 13<sup>th</sup> April 2018 at 9.30 for 10am. The group session will require a maximum of 4 hours of your time and will be held at 6 St James Court, Hans Crescent in Bryanston.

### **4. RISK(S) OR DISCOMFORT INVOLVED**

There are no potential risks foreseen.

### **5. POSSIBLE BENEFITS OF THE STUDY**

The benefit of this study to society will be that designers may use guidelines developed as a result of the study, to design objects that are more accessible for older adults and less frustrating to use.

### **6. WITHDRAWAL CLAUSE**

Your participation in this study will be entirely voluntary and without compensation of any form. You may withdraw at any point should you wish to without offering an explanation for your withdrawal.

### **7. CONFIDENTIALITY**

All data gathered in this study will be treated as confidential and will be stored securely and confidentially. Please note that participation will require you to attend a group session with other participants. These sessions will be recorded for the researcher's documentation purposes and will not be shared with anybody else without notifying you and obtaining your written consent. You may remain anonymous should you prefer

to. No reference will be made to any individuals by name or in any other identifiable way in the research report.

**ALL** information gathered in this study will be held in strict confidence and only the researcher will have access to the original data. Results will only be retained for as long as required for the research purpose and will thereafter be depersonalised and presented in such a way that you will not be identifiable.

## **8. CONSENT TO PARTICIPATE IN THIS STUDY**

I have read the information presented to me in a language that I understand, and I understand the implications of participating in this study.

The content and meaning of this letter have been explained to me.

I have been given the opportunity to ask questions and am satisfied that they have been adequately addressed.

I understand that I am under no obligation to participate in this study and that I can withdraw from this study at any stage without having to provide an explanation for my withdrawal.

I hereby volunteer to take part in this study.

I hereby consent / do not consent to being recorded during the group session

I choose to / do not choose to remain anonymous in this study.

I hereby voluntarily agree to participate in the above-mentioned research project and declare that I am 18 years or older and that I have read and understand all the information and conditions pertaining to this research. I have also received a signed copy of this informed consent agreement.

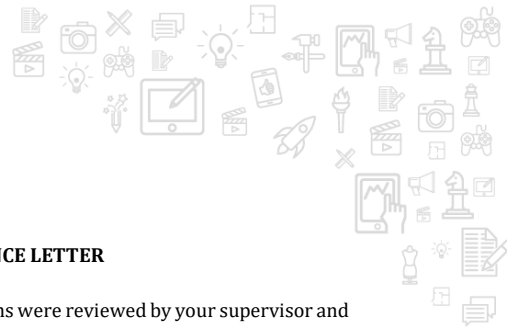
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Signature of participant

---

Date

## APPENDIX 2: ETHICAL CLEARANCE



Date 20 Febraury 2018

Dear Pam Lansdell

### ETHICAL CLEARANCE LETTER

Your research proposal and ethical considerations were reviewed by your supervisor and moderated by the campus research panel.

☐ Your research proposal posed no significant ethical concerns. We hereby provide you with ethical clearance to proceed with your research methodology.

OR

☒ Your research methods posed **MINOR** concerns (see below):  
**Please see the suggestion below:**

1 **For the focus group session:** Lizette Carstens to attend and assist. If Lizette is not available an alternative experienced supervisor will be asked to help.

2 Please note: all participants need to sign a **letter of consent**. Please show the letter to your supervisor before handing them out.

If you agree to this change then you can proceed with the fieldwork.  
Please confirm this in writing.

I agree to the changes: Pam Lansdell: Signature:.....



GRAPHIC DESIGN



MULTIMEDIA DESIGN



COPYWRITING



GAME DESIGN



PHOTOGRAPHY



FASHION DESIGN



INTERIOR DESIGN



DIGITAL MARKETING



BRAND COMMUNICATION



BRAND MANAGEMENT

MASTERS

HONOURS

DEGREES

DIPLOMAS

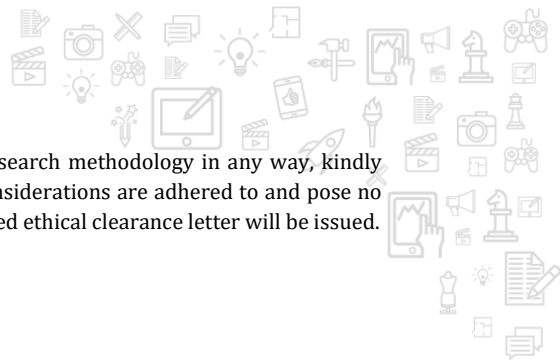
CERTIFICATES

Directors: RJ Douglas (UK) (CEO), JDR Oesch (non-executive), A Isaakidis (non-executive) | Company Secretary: D Dickson



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In the event of you deciding to change your research methodology in any way, kindly consult your supervisor to ensure all ethical considerations are adhered to and pose no risk to any participant or party involved. A revised ethical clearance letter will be issued.

We wish you all the best with your research!

Supervisor Name: Lizette Carstens

Supervisor Signature:

Campus Postgraduate Coordinator:

National Post Graduate Coordinator:



GRAPHIC DESIGN



MULTIMEDIA DESIGN



COPYWRITING



GAME DESIGN



PHOTOGRAPHY



**vega**  
SCHOOL  
DESIGN • BRAND • BUSINESS



FASHION DESIGN



INTERIOR DESIGN



DIGITAL MARKETING



BRAND COMMUNICATION



BRAND MANAGEMENT

**MASTERS**

**HONOURS**

**DEGREES**

**DIPLOMAS**

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**Directors:** RJ Douglas (UK) (CEO), JDR Oesch (non-executive), A Isaakidis (non-executive) | **Company Secretary:** D Dickson

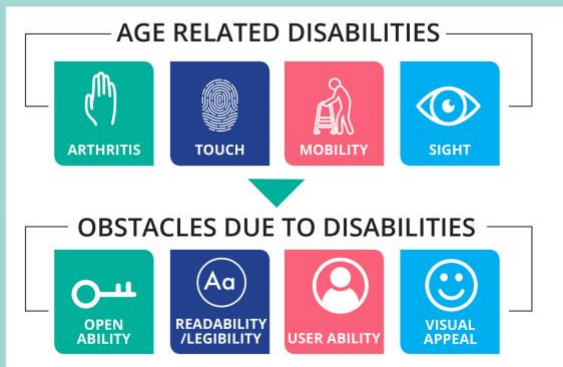


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## APPENDIX 3: RESEARCH POSTER

# ACCESSIBILITY GRAPHIC DESIGN GUIDELINES FOR ~~ELDERLY~~ SENIOR CITIZENS



### METHOD: CONTEXT MAPPING



### AIM

To investigate the obstacles faced by older adults in their everyday interactions with man-made objects in order to derive guidelines on how (graphic) design may be used to ensure comfortable interactions with these objects.

### PARADIGM

Critical Realism

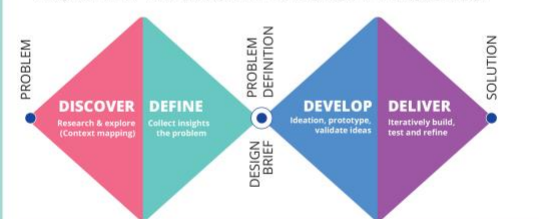
### APPROACH

Qualitative

### METHOD

Context Mapping  
Collaborative & Generative design research techniques

### DOUBLE DIAMOND DESIGN PROCESS



### NEW GUIDELINES

#### READABILITY & LEGIBILITY

- ✗ GLARE - AVOID GLOSSY SURFACES
- ✓ 9PT MINIMUM SANS SERIF TEXT
- ✓ 6PT MINIMUM SAN SERIF CAPITALS
- ✓ INSTRUCTIONS AS PICTOGRAMS

#### OPENABILITY

- ✗ PRESS DOWN AND TURN TOPS
- ✗ SMALL DIAMETER TWIST LIDS
- ✗ CAN RING PULLS

#### VISUAL APPEAL

- ✓ IMAGES MUST APPEAL TO THE SENSES AND BE RELEVANT

#### TERMINOLOGY

- ✓ SENIOR CITIZENS
- ✗ ELDERLY/PENSIONERS

#### ENVIRONMENT

- ✗ NO TO PLASTIC
- ✓ MINIMISE PACKAGING

### KEY INSIGHTS

FASCINATING  
EMPATHETIC  
REWARDING

PLACING THE  
USER AS THE  
EXPERT YIELDS  
UNEXPECTED  
& VALUABLE  
RESULTS

"We should  
be protected  
by good design."

Participant

"It means believing that the people who face these problems everyday are the ones who hold the key to their answer." (IDEO, 2011)

#### ACKNOWLEDGMENTS:

THANK YOU TO: MY FAMILY FOR THEIR SUPPORT.  
MY DAD FOR HIS SPONSORSHIP.  
MY AWESOME BOSSES FOR GIVING ME TIME TO STUDY.  
FELLOW STUDENTS FOR THEIR SUPPORT AND LAUGHS.  
MY SUPERVISOR, LIZETTE FOR HER PATIENCE.

PAMELA LANSDELL | 17600632

