DNB311 - Capstone

RESEARCH REPORT

Promoting Technology Adoption of Mobility Aids Amongst Older Adults In Community Living

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4301 words

AUTHENTICITY STATEMENT

This is to certify that to the best of my knowledge, the content of this report is my own work. This report has not been submitted for any subject or for other pruposes. I certify that the intellectual content of this report is the rpdouct of my own work and that all the assistance received in preparing this report and sources have been acknowledged.

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07/09/2025

AI USE STATEMENT

I have utilised Generative AI in this report (Claude) to assist in various ways. The way I have used AI includes gathering source material, cleaning up raw datasets, coding the interview transcripts (Atlas.ti) and guiding the inferential data analysis process.

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EXECUTIVE SUMMARY

This project aimed to further understand the demographic of elderly people 75-90-years-old dwelling in personal residences, specifically regarding the lack of mobility aid adoption amongst this group. Elderly adults' adoption of mobility aids is becoming increasingly vital to national and international welfare because of its influence on healthcare system demand.

Existing literature identified the strongest adoption barriers as perceived benefit, unintuitive design, low AT literacy, perceived threat to user's identity, and discomfort from use. The leading adoption models, the Technology Acceptance Model (TAM), does not consider the influence of human emotions on a user's choice to adopt or reject products. A research gap was identified between mobility aid usage by elderly adults within their homes.

Primary research was conducted through surveys and interviews of end-users and field experts respectively. This aimed to bridge the research gap and gain better understanding of the types of emotional experiences elderly adults have with mobility aids. Key findings were the impact of social perception on adoption, their innate fear of aging stigmas further promoted through aesthetics and a lack of mobility aid education within the demographic. Furthermore, design implications included designing for social perception, physical ergonomics, spatial considerations (particularly storage), and developing older adults' education of mobility aids. Focus here has the ability to positively impact elderly safety and reduce healthcare demand.

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Introduction
Background
Benchmarking

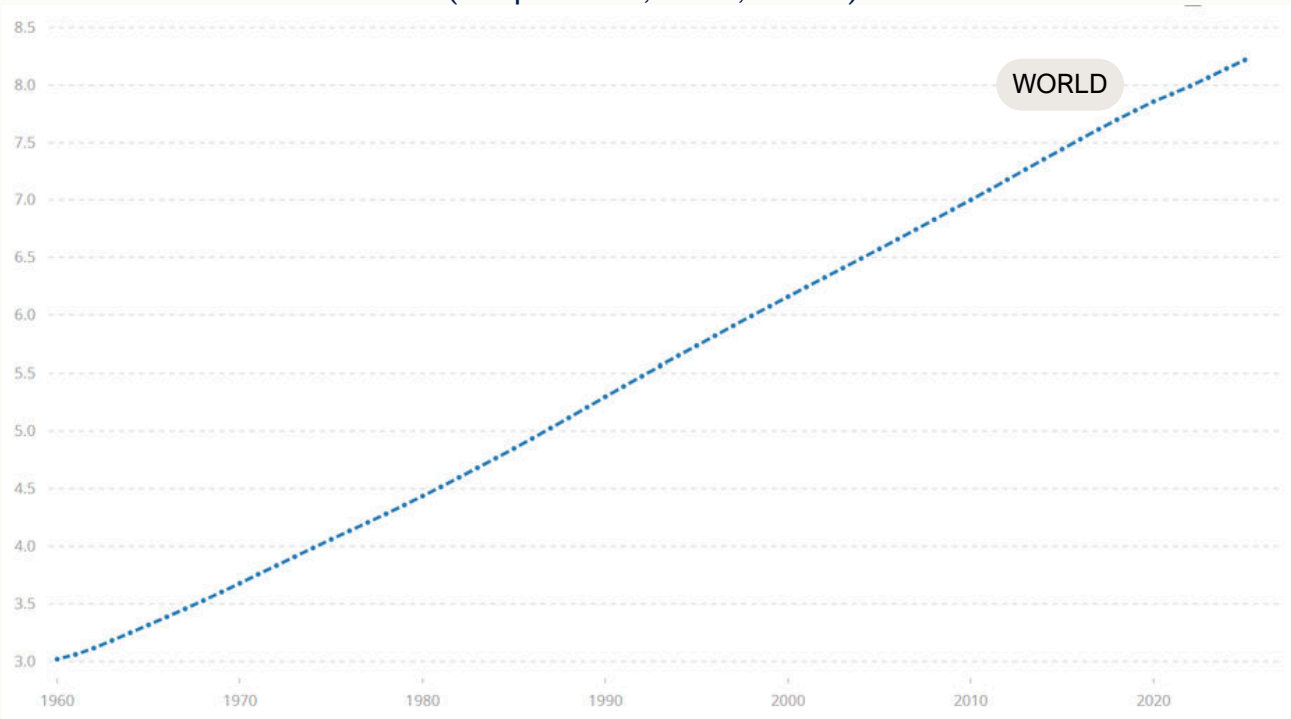
SECTION 01

INTRODUCTION

Since the Industrial Revolution, the global population has been rapidly increasing (Figure 1). Since 1960, an increase in 1 billion in the world population is taking 10-15 years (United Nations, n.d.) and in turn also increases the elderly population. Fall rates amongst the elderly continue to rise within Australia; between 2019-2020 there were 133,000 fall-related hospitalisations in elderly people (65+). This demographical reality poses a significant threat to the overall quality of life of elderly adults ("Falls in older Australians 2019–20: hospitalisations and deaths among people aged 65 and over," 2022).

Figure 1: World Population, 1960-2025

("Population, Total," 2025)



Further investigation into prevention methods and successful adoption of them has the potential to have significant health impacts on the elderly demographic, as well as their supporting systems (hospitals, specialised care, etc.). Specifically for the general older population, mobility aids have a pivotal role in allowing them independent mobilisation and reduced pain caused by movement ("Mobility aids," 2026). The interaction between the physical and psychological experience from mobility aid use is uniquely escalated, with current adoption levels being low. Given the projected estimation of 3.5 billion people requiring mobility aids by 2050, interventions into mobility aid rejection is required to promote personal safety ("Assistive technology," 2024).

Therefore, the aim this project is to develop understanding of adoption barriers and facilitators for mobility aids amongst elderly adults in domestic environments.

PROJECT OVERVIEW

SECONDARY RESEARCH

Literature Review

Benchmarking

PRIMARY RESEARCH

Interviews

Surveys

Data Analysis

Findings

DISCUSSION

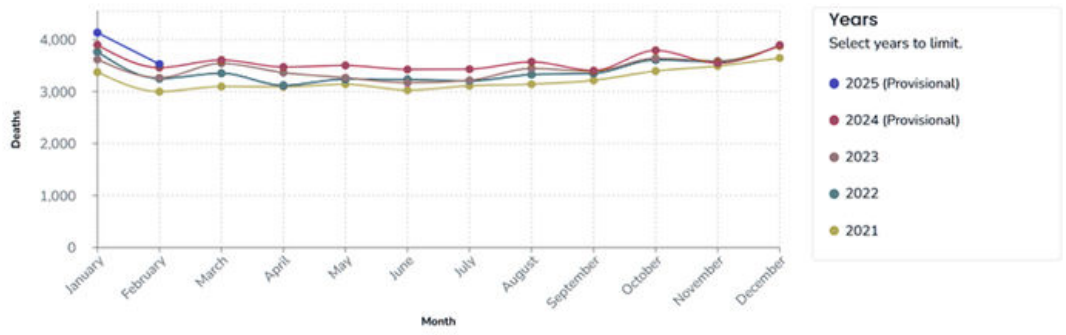
Discussion

Design Implications

BACKGROUND

There has been a gradual climb in “unintentional older adult falls” (Figure 2), resulting in inundated healthcare systems that cannot keep with the increased demand (["Assistive Technology for Elderly Care: An Overview," 2021, p. 92420], [Jaana et al., 2025]). This is due to lacking strategies in place in order to handle the surge of demand in both acute and chronic physical co-occurrences, as well as mental health issues. Consequently, healthcare systems globally are unable to provide the level of service this population needs through its lacking in resources, finances, medical management and service delivery ([Khan et al., 2024], [Alireza Hajizadeh et al., 2025]).

Figure 2: Unintentional Older Adults Falls (Age 65 and Older) (“Older Adult Falls Data,“ 2026)



A large portion of the hospitalised fall visits can be attributed to the low adoption rates of assistive technology (AT) by older adults, which is no longer keeping up with the AT development rate (Astell et al., 2019). It was established that the emerging barriers to adoption from existing research is perceived benefit, unintuitive design, low AT literacy, perceived threat to user’s identity, and discomfort from use ([Jaana et al., 2025], [Weck & Afanassieva, 2023], [Felber et al., 2024], [Yusif et al., 2016], [Malden et al., 2025], [Thakur & Han, 2020], [Astell et al., 2019], [Pinjatela, 2024]).

While there have been multiple adoption models that have been hypothesised in modern research, the technology acceptance model (TAM) remains the leading design theory applied to elderly technology adoption (Technology Acceptance Model, n.d.). The main concepts are perceived ease of use (PEOU) and perceived usefulness (PU) augmenting the user's attitude toward using (Davis, 1987). However, a variety of literature criticises this model ([Felber et al., 2024], [Knowles & Hanson, 2018], [Jaana et al., 2025]), identifying that the model lacks awareness of the complexity of human emotions as part of acceptance, one specifying that the emotion of 'distrust' does not necessarily lead to non-use (Knowles & Hanson, 2018).

The Australian mobility aid market has been growing in the past decade with annual revue being in 2026 $763.5m (44.5% by users 65+) (Figure 3), with it forecasted to grow an additional $200m in the next 5 years. In Figure 4, Aidacare was responsible for 29.5% of this revenue, making it the most dominant company in mobility aid stores. Additionally, wheelchairs had a product market share of 39.5% in 2026 making it the largest revenue point for this industry. Walking frames, sticks and canes were the largest by volume with 880,000 units sold.

Figure 3: Mobility Aid Revenue
(Richardson, 2026)

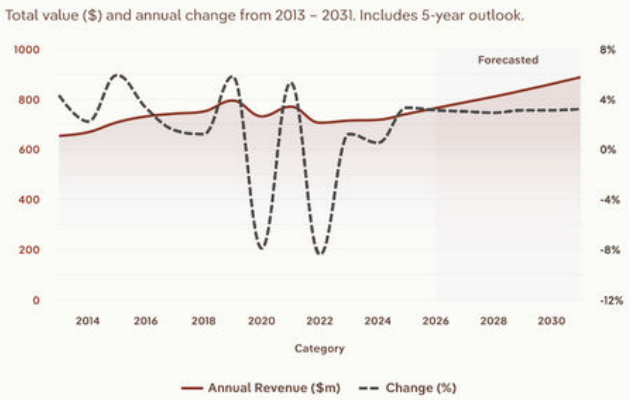
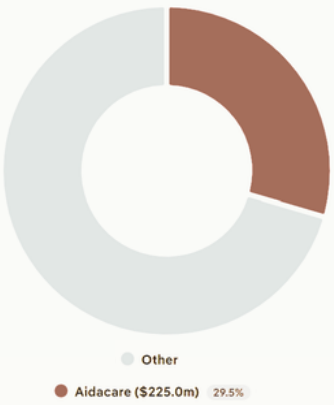


Figure 4: Major Companies
(Richardson, 2026)



There is a variety of research available on mobility aid usage in urban areas, and digital aid adoption within homes. However, there is a research gap, where an unexplored area is mobility aid adoption within the homes of elderly adults. Given 53% of elderly falls occur at home ("Falls in older Australians 2019–20: hospitalisations and deaths among people aged 65 and over," 2022), this is a critical area to explore through research.

BENCHMARKING

There are a range of products (pragmatic to visionary) underneath the umbrella industry of mobility aids, with key products worth analysing in order to identify market gaps. To analyse each product, they will be evaluated based on the five rubrics: usability, ergonomics, aesthetics, value (price), and customisability (Appendix 1).

Regarding wheelchairs, Figure 5 represents the general market and shows the most well-rounded solution to be Layer Design's Go Wheelchair ("GO," n.d.). While it performs strongly in most areas, this specific product is 3D printed and custom, thus escalating the price significantly and making unaffordable for most of the mobility aid market users ("Bringing Wheelchair Design Into the Digital Age," 2016). For the ASPIRE Evoke 2 SP, it is respectable in the areas of aesthetics and customisability, through the height and footrest adjustability ("Aspire evoke 2 wheelchair | Lightweight & adjustable manual wheelchair," n.d.). However, it lacks in the other three areas, most notably ergonomically with that is evident from its flat seat. Lastly, the ASPIRE Vida Folding Manual Wheelchair is strong in its usability, with folding functions and a lightweight design ("Aspire Vida folding manual wheelchair - Attendant propelled," n.d.). The other four areas, while not necessarily abnormal compared to the current market range, still have scope for development, particularly, for customisability as the product currently can only adjust the leg rests.

Figure 5: Manual Wheelchair Spider Graph

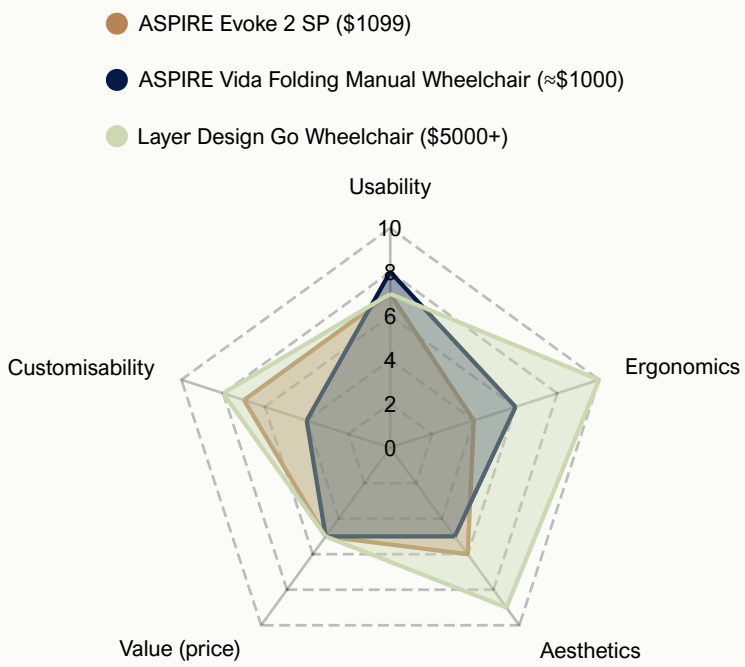
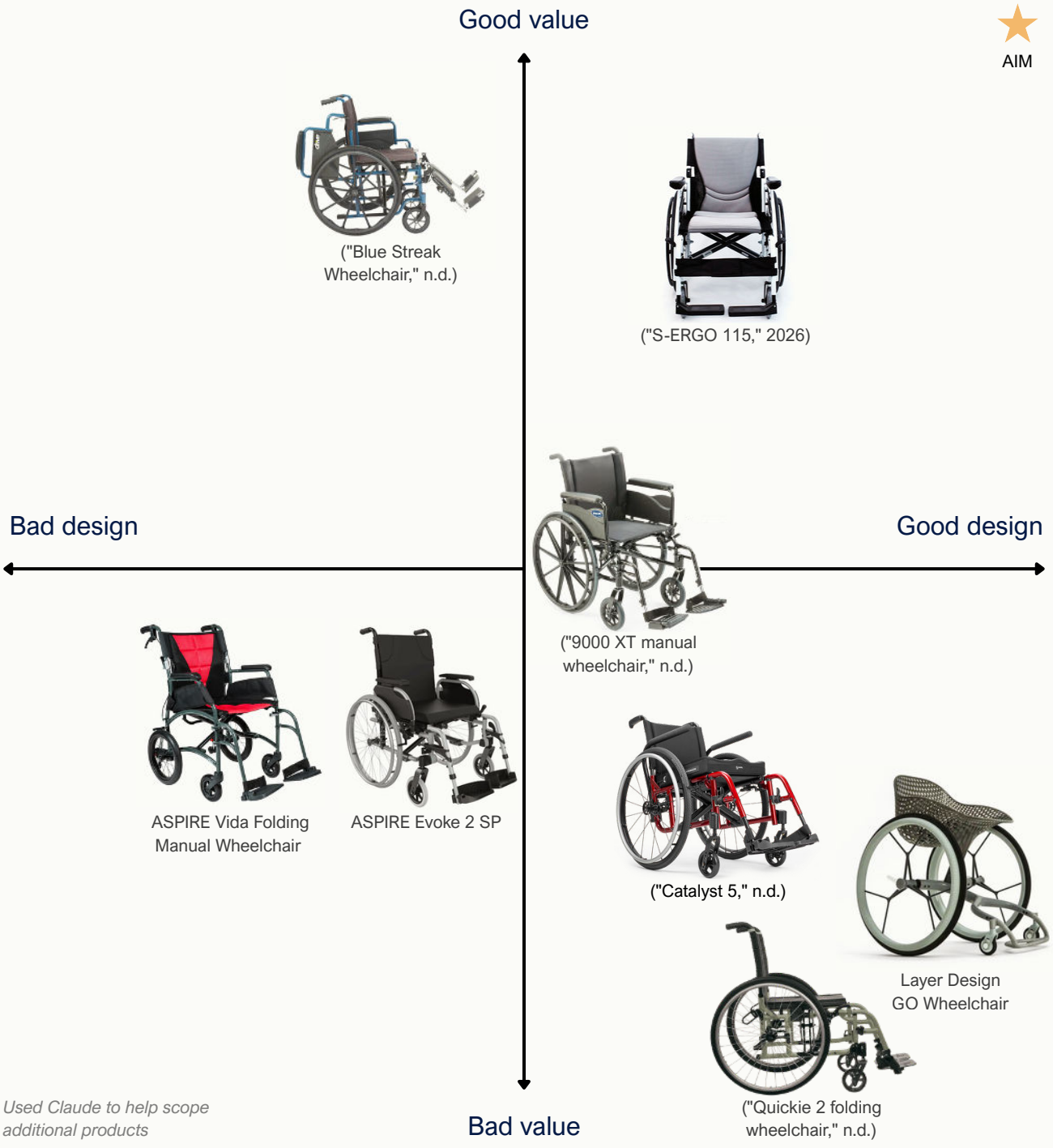


Figure 6: Benchmarking Matrix of Additional Wheelchairs



Used Claude to help scope additional products

From the analysis of Figure 5 and 6, it is evident that the overall cost of wheelchairs is very high, with each of the analysed products being over $1000AUD. Additionally, the graph demonstrates that ergonomics comes at a high price, which majority of the population cannot afford even if they need the functional benefit.

Moreover, rollator walkers are a commonly used mobility aid for both indoor and urban use. There are product solutions available for both standard and indoor specific use.

One of Australia's best-selling rollator walkers is the ASPIRE Classic 6" Mobility Seat Walker ("Aspire classic 6" Seat Walker," n.d.). While generally well-rounded in majority of the well-rounded in majority of the rubric areas, it most notably lacks in aesthetics (Figure 7); the current design conforms to the stereotypes and images people have of walkers and therefore its connotations.

TGA Mobility's Rollbuddy was generally well-rounded, however the product's inherent lack of customisability negatively impacts usability, ergonomics and value ("Rollbuddy," 2026).

The ASPIRE Vogue Indoor Walker has positive ergonomic and usability outcomes, but it has a lack of focus on customisability, which dampens it value compared to its price. Fine detail focus in the aesthetics is also absent ("ASPIRE Vogue indoor Walker," n.d.).

Figure 7: Rollator Walker Spider Graph

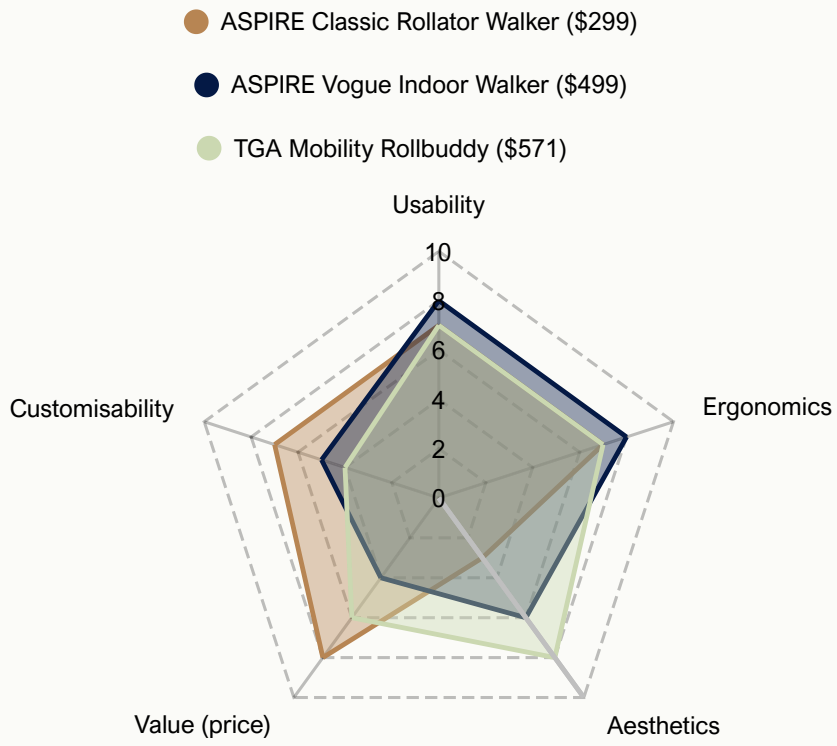
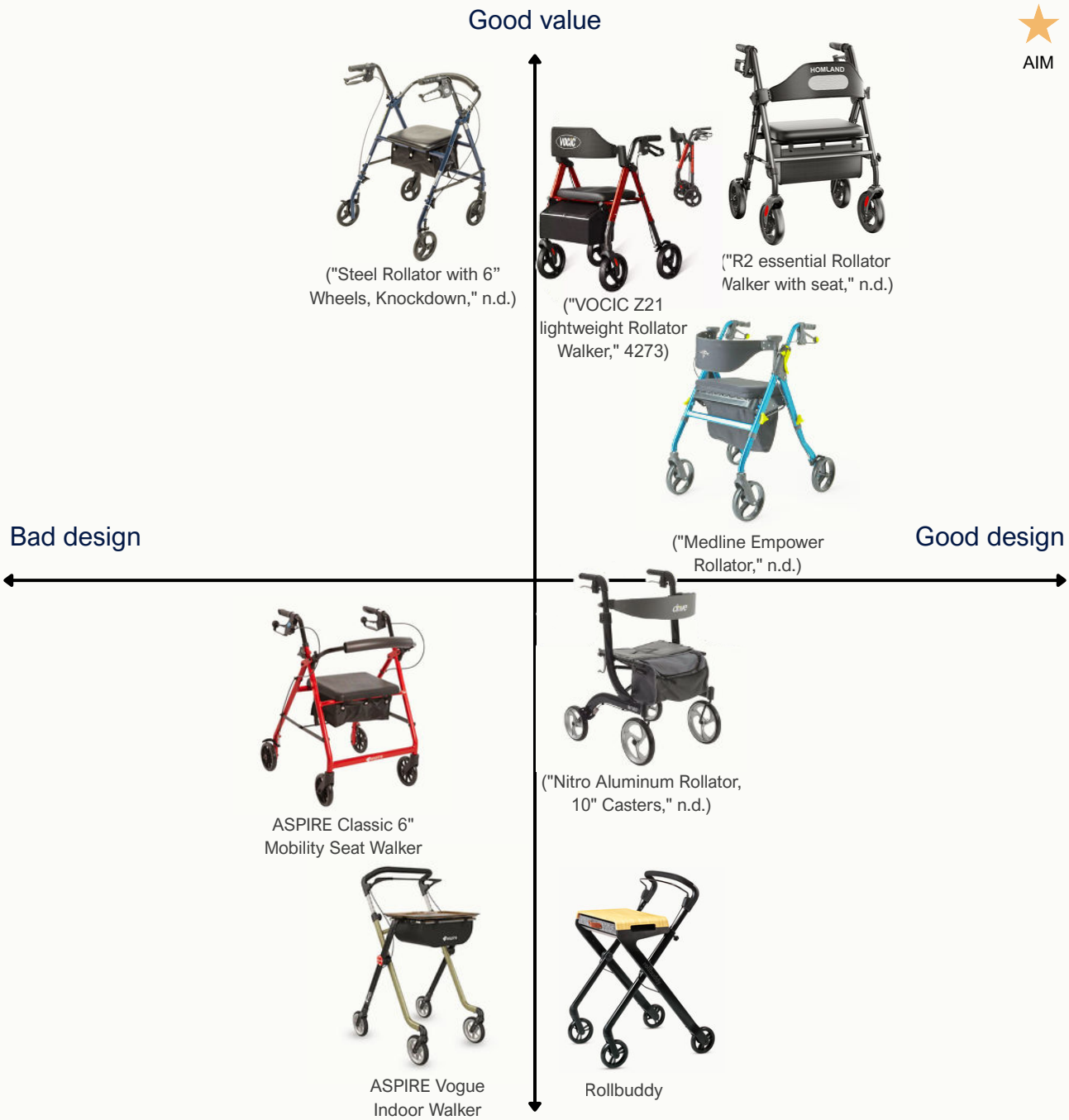


Figure 8: Benchmarking Matrix of Additional Walkers



Used Claude to help scope additional products

Overall, rollator walkers fare better against these criteria than wheelchairs, but none of the products analysed are able to balance all five well, as further demonstrated in Figure 8. This is increasingly evident in the area of aesthetics, which has the most inconsistency of the criteria.

The third product, walking canes, is a key product in relation to usage by elderly adults due to their versatile usage (Figure 9)

The T Handle Walking Stick is the most common cane product being sold nationally ("T handle walking stick," n.d.). It has the basic functionality to drive usability and is inexpensive to manufacture and therefore sell. However, as it appears to price optimise, customisability is not considered enough, effecting ergonomics, and neither is aesthetics.

A slightly innovated model is the Hugo Offset Cane with QuadPod tip ("Hugo offset cane with QuadPod tip," 2026), which works to improve usability. The handle shape improves it ergonomically and aesthetically; however, it is minimally customisable and significantly higher in price than the T Handle stick.

The Michael Cane Quickfold aims to prioritise usability and ergonomics, through easy deconstruction and customisable height. It has well thought out aesthetics, however, is the most expensive solution of the three, reducing its value for price.

Figure 9: Walking Cane Spider Graph

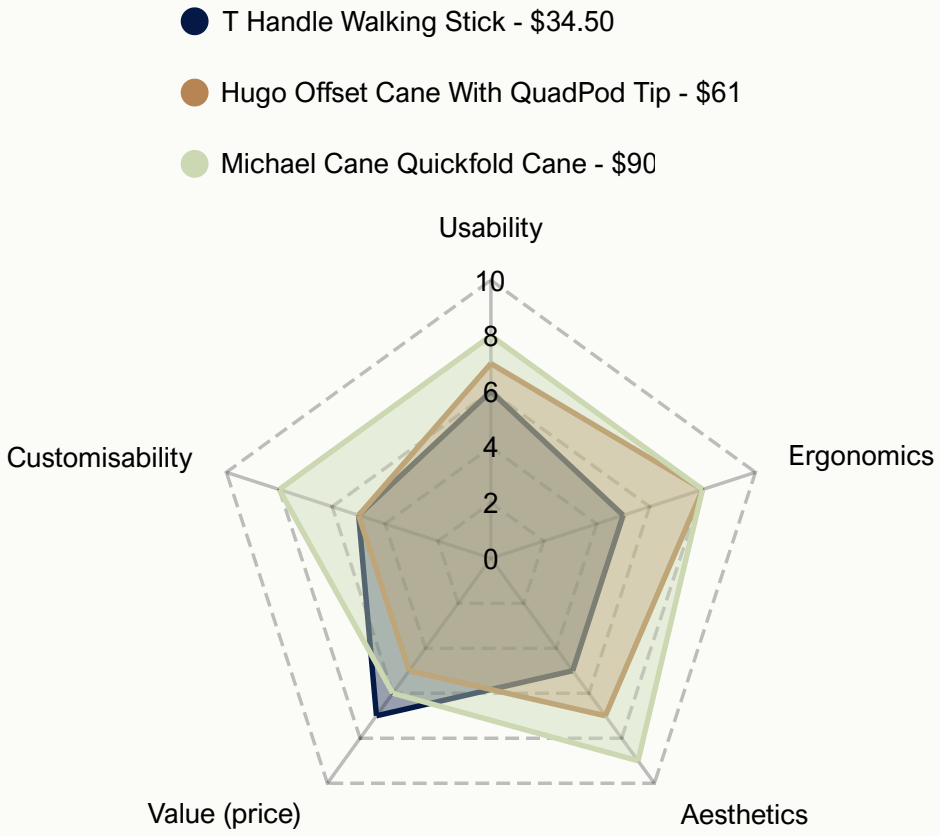
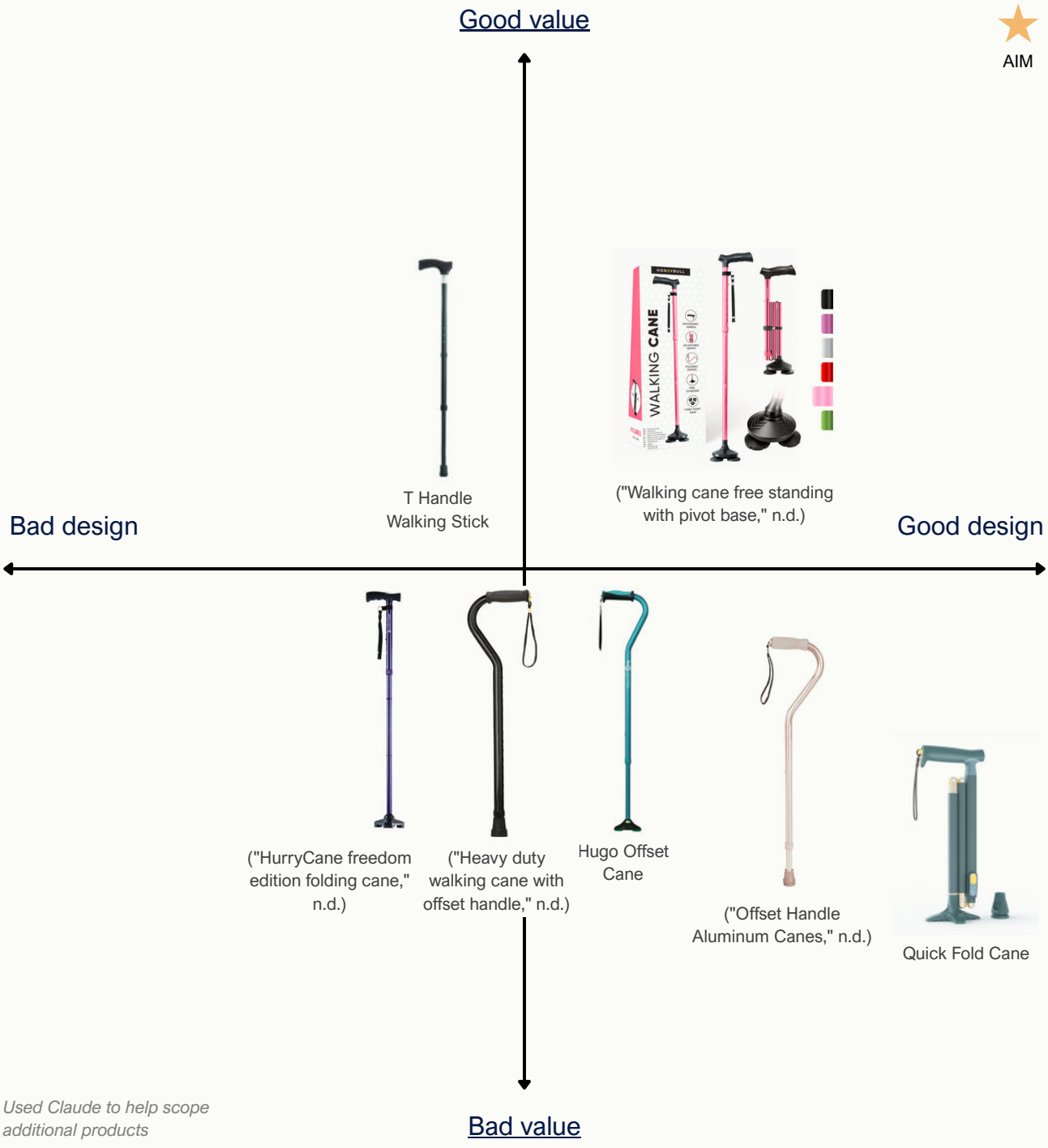


Figure 10: Benchmarking Matrix of Additional Canes



Used Claude to help scope additional products

Comparatively, canes are the strongest product overall given the rubric (Figure 10). However, it can be seen that the walking sticks that optimise customisability, usability, ergonomics and aesthetics come at a price that many people would not be willing to pay given the other market options.



Research
Analysis & Findings

SECTION

02

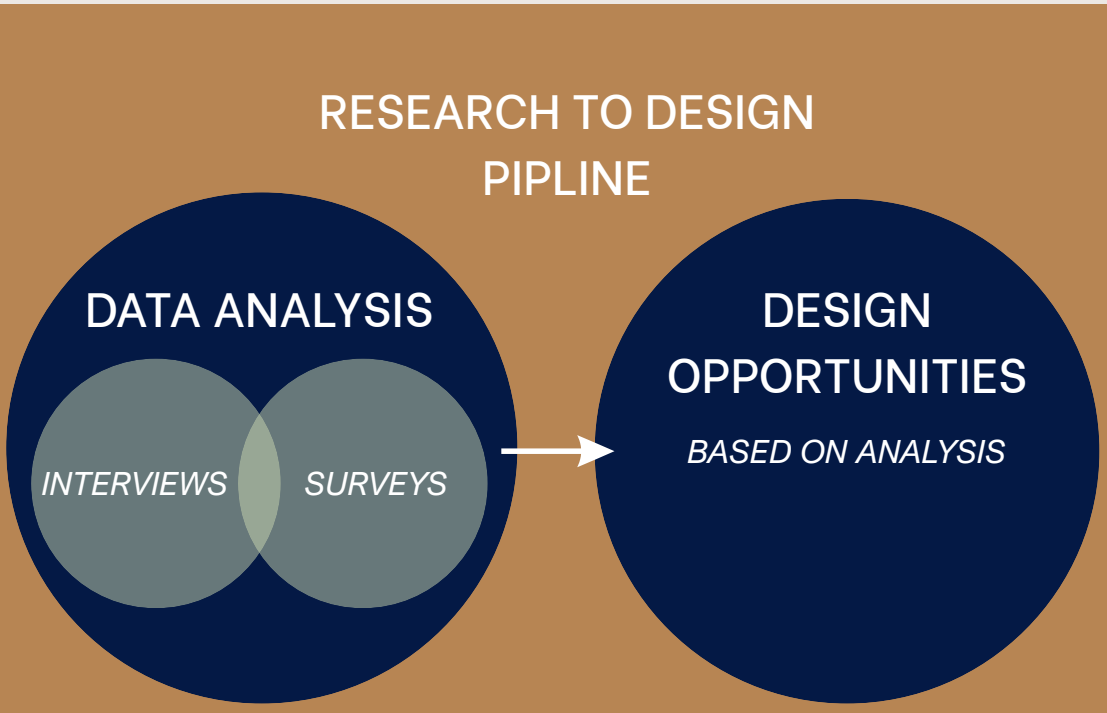
RESEARCH

The conduction of research is a crucial procedure in design because of the symbiotic relation between the two. The uncovering of human experiences, existing problems, and contextual opportunities inform meaningful design outcomes ("The link between design and research," 2023). In addition, design research restructures the existing assumptions on the investigated topic, ensuring that the product is responsible, sustainable, meaningful and valuable to the wider population (Rodgers, 2024).

Qualitative research will be used for this report; its purpose is to ascertain deep and rigorous insights into phenomena that is often complex and multi-faceted. A large portion of qualitative research delves into user experience (UX) within the identified context, focusing on human emotions, varying perspectives and nuances that would else remain untranslated (Lim, 2024). This is a key consideration for user-centred design (UCD), which is anchored in the verified wants and needs of the investigated user group (in this case, the elderly population) ("What is user centered design (UCD)?," 2016).

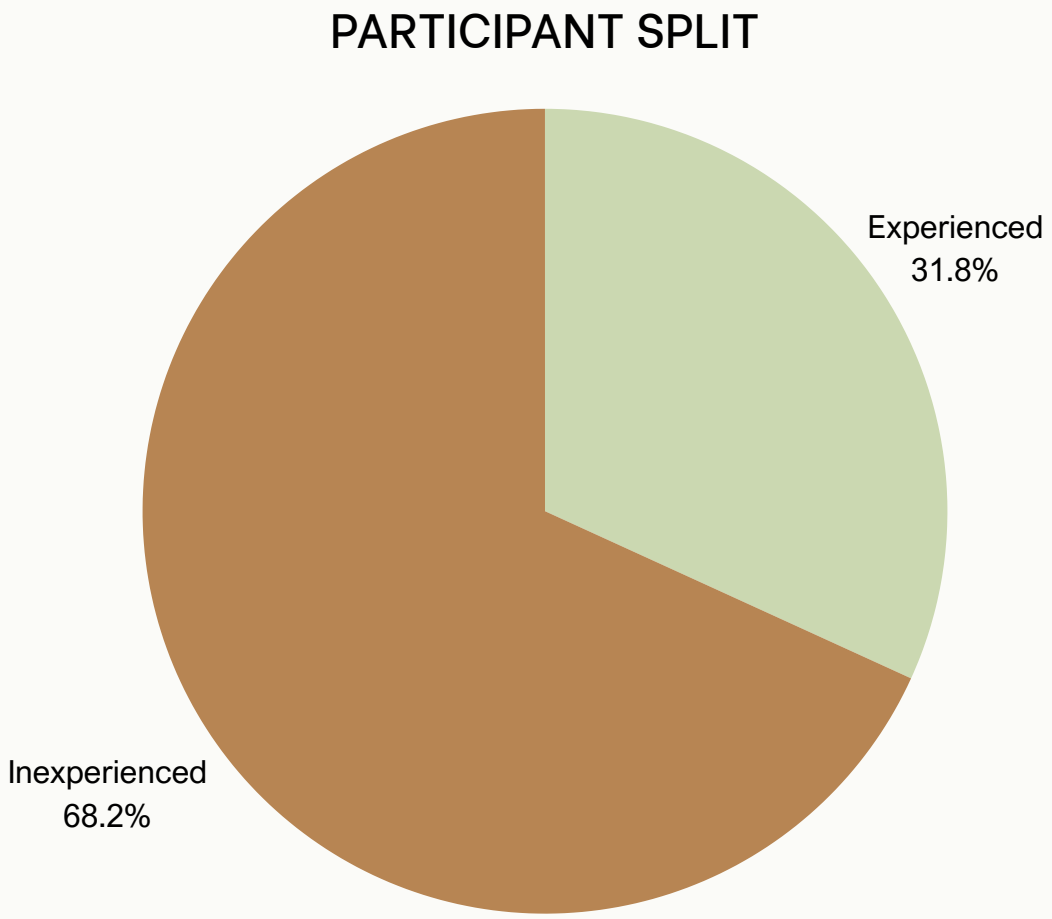
The specific qualitative research method being utilised is triangulation, that uses more than one approach to explore a problem or question without bias or data deficiencies (Heale & Forbes, 2013).

There are multiple research methods to triangulate with, including focus groups, surveys, observations, interviews, focus groups and archival observations. The two selected methods for this topic are surveys of end-users and interviews with experts.



Surveys were chosen to gain insights from the end-users, elderly people 75-90-years-old. This age bracket was chosen based on research identifying 75-90 as age groups with higher incidence rate of starting, 11.7% for 75-84-years-old and 18.8% for 80-89-years-old (Liu et al., 2023). Surveys can be defined as “the collection of information from a sample of individuals through their responses to questions”, a sample referring to a subset of people from the population to give a generalised overview of the population (Check & Schutt, 2012). They are highly regarded for their versatility, efficiency and generalisability. Surveys were selected for this demographic because they efficiently capture insights from a larger sample of the target population. The sample in this project was recruited by word of mouth. A key consideration for the survey was that often all the desired information cannot be obtained, emphasising the importance of triangulation ("Questionnaire design," 2023).

The survey was designed to balance quantitative and qualitative data, where the first half required indubitable information and the second half prompted for emotion and experience-based responses. This was intended for the forthcoming data analysis in which demographical findings in conjunction with experiential data will informs qualitative conclusion. The tools used were printed survey forms as well as Google forms for those unable to be engaged with in person. After it was drafted, both survey formats were tested on multiple colleagues.



In addition to surveys, interviews were the chosen medium to conduct expert research. By examining experts in fields involving 75-90-year-olds, any biased data from the survey can be elucidated. Interviews are a methodical, formal conversation that aims to provide in-depth information based on participants' experiences and viewpoints ("Appendix: Qualitative Interview Design," 2022). Its format can be structured, semi-structured or open-ended depending on the data being derived. Interviews are also efficient but in contrast to surveys, interviews are highly regarded for their ability to explore experiences and attitudes.

The specific experts interviewed were chosen due to their allied health experience working with elderly people, whether formal or informal. This led to the selection of an OT for their work in the 'post adoption' phase, a BlueCare nurse for their pertinent experience medically caring for end-users in the home context, and an informal carer for their continuous and demanding experience in elderly care. A semi-structured interview was selected in order to ensure the endeavoured data is collected but also allowing for personal experience to influence the conversation. The base structure of each interview was grounded in 8 questions (Appendices 10), 2 being rapport questions and the other 6 exploring areas such as contextual technology acceptance, caring difficulties, and design suggestions. These were developed based on suggestions regarding the influence of social skills (Strategies for Qualitative Interviews, n.d.). Depending on the depth of the participant's answers, the interviews leant more structured or open-ended.

EXPERT INTERVIEWEES



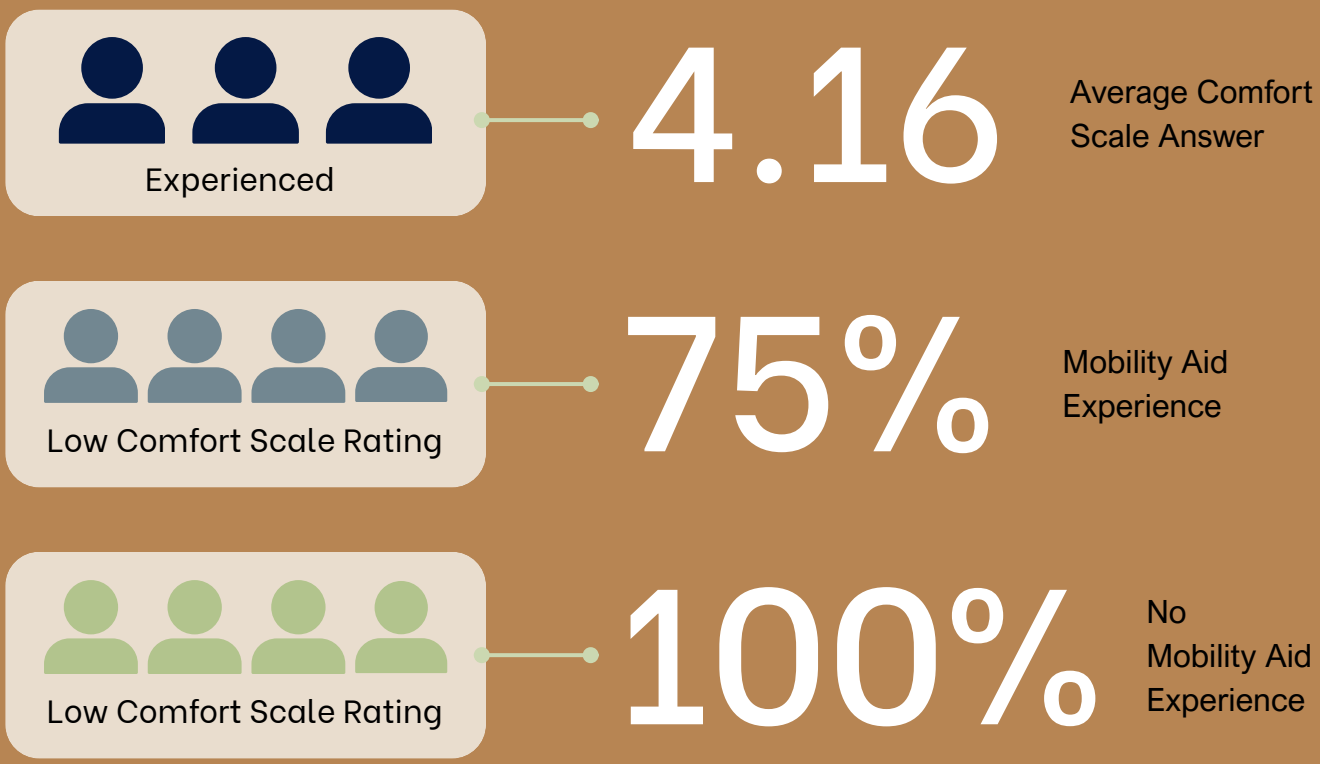
Expert 1	Expert 2	Expert 3
Occupational Therapist	*BlueCare* Nuse	Informal Carer

ANALYSIS & FINDINGS

SURVEY

The response window for surveys were two weeks, in which 22 responses were collected. All respondents were screened to be in the targeted demographic. The data was then downloaded and polished in Excel before applying descriptive analysis to it, particularly for the quantitative data in the first half of the survey. Inferential statistics was applied to the comfort scale questions and the use-based questions. Then, basic thematic coding was applied to the qualitative data with an emphasis on the short response questions. Reoccurring themes were extracted here which was analysed against the interview codes (Appendix for processes).

Majority of respondents (68%) report to have never used any mobility aids at all compared to 7 who had experience. Three participants reported they are currently using mobility aids, with only one stating that they felt like they should have used mobility aids more (Q7). Four people in total answered YES to Q7, 75% had experience using mobility aids and 100% rating the comfort scale questions (Q8, 9 and 10) on the comfortable side of the scale (3-5 on a 5-point scale). Those who rated the comfort scale questions low mostly had experience using mobility aids. Those who rated the comfort scale questions quite high all had no experience with mobility aids, except for one.



Regarding frequency of use between the participant or their spouse, majority of responses outlined that the mobility aids were used everyday in order to be able to live daily life (5+ per day) (Figure 11). The product with most user experience is canes, with 10 participants indicating previous use (Q4). Walkers was the second highest with 4 participants having experience with them; 2 participants reported experience with wheelchairs, and 1 participant reported experience with walking frames (Figure 12).

Figure 11: Frequency of Use (Filtered)

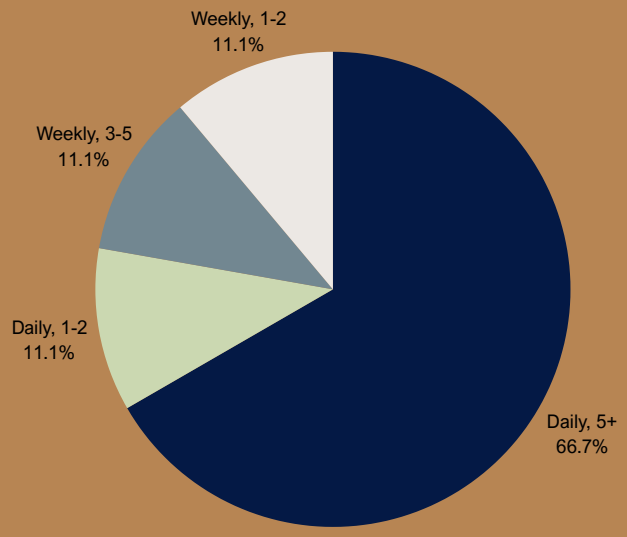
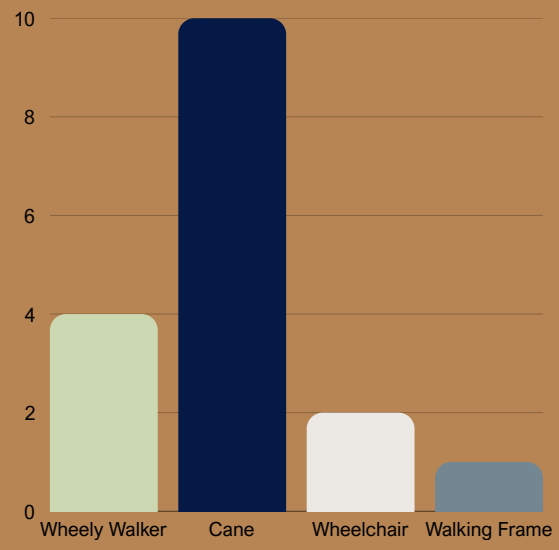


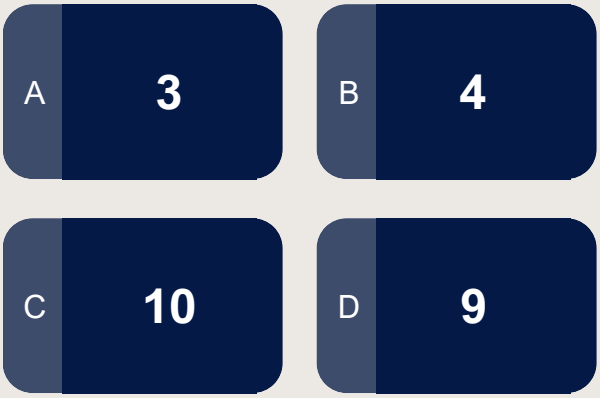
Figure 12: Product Type Experience



The most selected improvement option (Q12) was to design for ergonomics and physical pleasure during use (15). Next to this, reducing size (7) and improving aesthetics (6) are pertinent. Additional propositions from participants included encouragement and explanation, customisation and designing for the car (2).

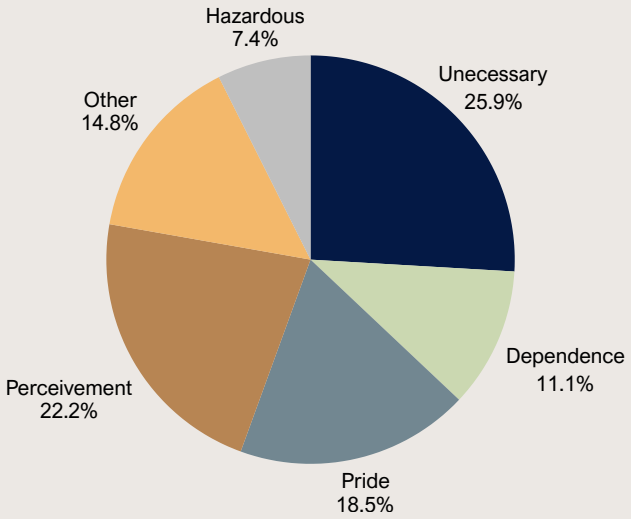
The Fisher Exact Test ascertains statistical associative significance between two nominal variables ("Fisher Exact Test," n.d.) and was calculated using an online tool (Figure 1) ("Fisher Exact Test Online Tool," n.d.). Responses saying “I have never had any level of need for one” had to get filtered out resulting is a sample size of n=13. The results of the test came back statistically insignificant.

Figure 13: Fisher Exact Test Inputs



Thematic coding was also applied to the responses. The Q6 responses indicated wheely walkers as the most associated mobility aid (8), and deteriorating mobility and health concerns as the most associated context. The most frequented reason against adoption was participants deeming mobility aids unnecessary in that point of their life (33%). Perception, both public and familial, was noted by 29%, and pride was noted by 24%. Notable hinderances to mobility aid functionality was stairs (36%) and lack of space (22.7%).

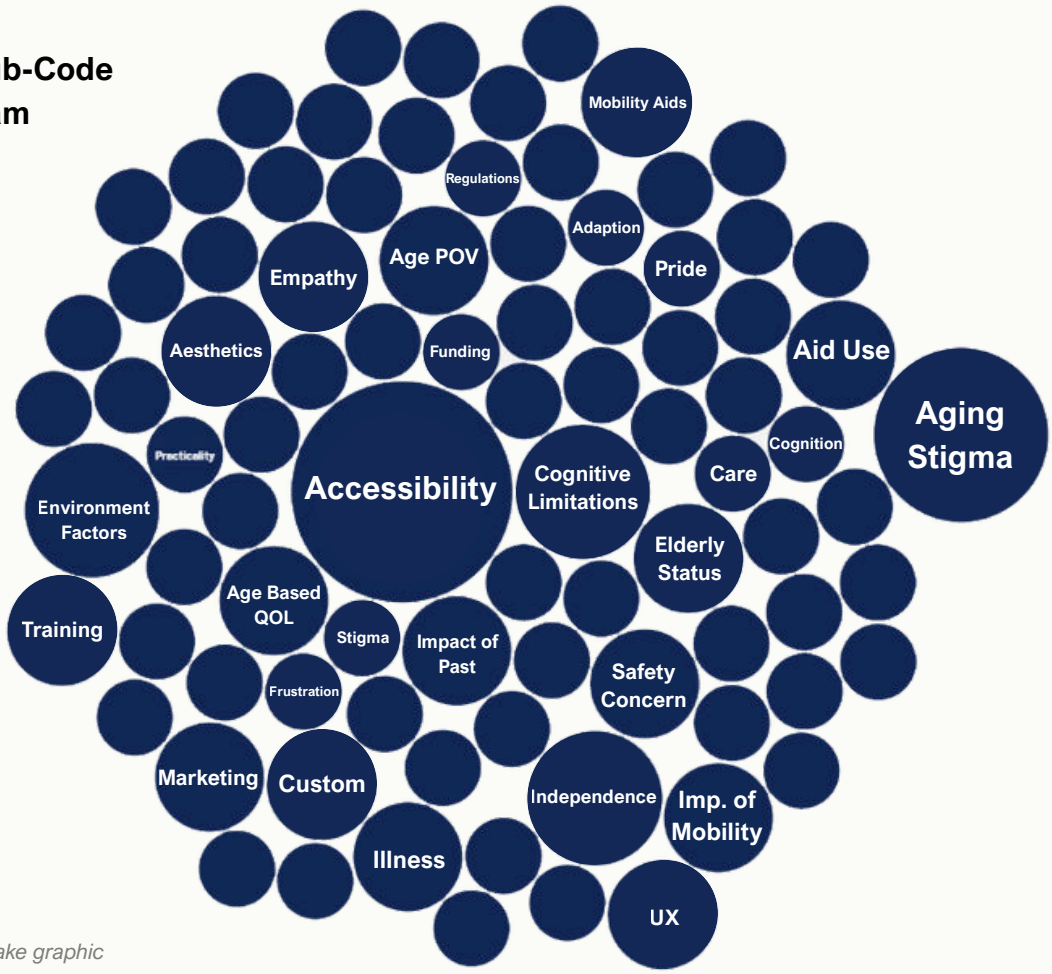
Figure 14: Q11 Themes (Filtered)



INTERVIEWS

The interviews were recorded using Apple Voice Memos, transcribed using Microsoft Word, and analysed using Atlas.ti to code all three interviews. This processed used AI to extract the main concepts (codes), as well as the sub-concepts (sub-codes), which were manually refined to have 20 codes and 81 sub-codes (Figure 15, Appendix 12)

Figure 15: Sub-Code Circle Diagram



Flouished used to make graphic

EXPERT 1

The most frequent code that came up in the first interview was **adoption barriers**. Notably from the sub-codes, the **accessibility** of mobility aids in the homes of the end-users was something in her professional career that they had deemed to be a challenge. An example of this was furnishing that hinder usage. **Cognitive limitations** was another sub-code they noted, identifying the relationship between **cognitive decline** and **mobility aid adoption** with memory being a driving force.

"People's memory to use it is important."

Expert 1 had a background in design; thus, they spent time speaking about the design challenges involved in the mobility aid industry. A sub-code of significance was **customisation**, which she linked back to the mobility aid prescription process, where OTs spend a large amount of time on.

"…wheelchairs depend on when you need the wheelchairs, whether we need lightweight… how it fits in the house and how it fits the person. There's lots of factors that influence how we prescribe a wheelchair and some things have to be made for people"

EXPERT 2

As a BlueCare nurse doing 4 days a week, Expert 2 spent a large amount of time addressing **accessibility** concerns, **aging perspectives**, and **user experience**. A key insight in accessibility was that current homes that older adults live in are not built for the future and are characterised by their narrow hallways, tight corners and abundant furniture.

"And especially the houses they're living in were not designed in those days to think about the future or to think about what they might need."

Regarding **resistance to change**, they gave many insights into the thinking behind elderly people, noting that the resistance often comes from the **fear of dependence**.

"… the number of clients that (I have saying) "I've been walking for 75 years without one, why do I need one now?""

"...they think that in using it, it will actually decrease their mobility. So like they worry that… "if you don't, like if you don't use it, you lose it"."

As a **UX/UI design** sub-code, **user experience** through **education** was emphasised. They mentioned elderly adults have a misunderstanding of the tools, resulting a large amount of misuse (**use of mobility aids**).

"… they're not really taught properly how to use it… they won't always lock their brakes properly or they'll unlock them before they go to stand up"

EXPERT 3

As an informal carer who lived with their grandparents for 5 months, Expert 3 gave a unique perspective on the daily burdens that reducing mobility has on elderly adults. Particularly, they explained the idea people in this demographic believe that using mobility aids will enforce **stigmas** of being "weak and fragile".

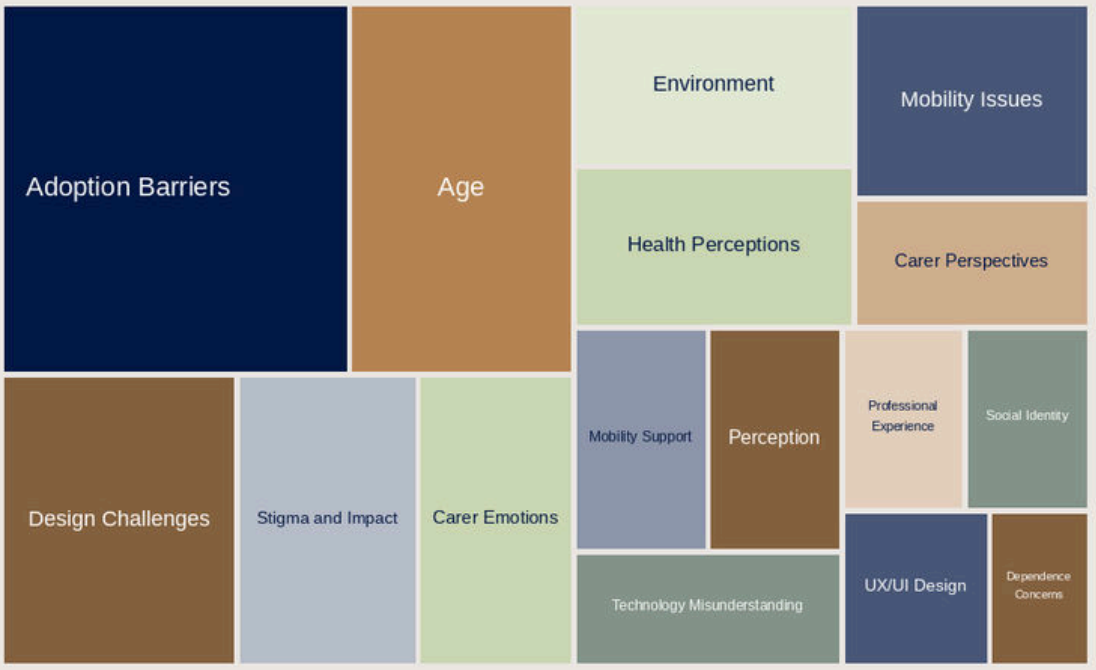
They highlighted the impact that this had on their grandfather's **mental health** given the older population coming through are a very proud generation (**pride**), particularly of their accomplishment and conquered hardships.

"I think it's a combination of shame and embarrassment and the notion that, not that it's true at all, … they're too weak and fragile".
"… they have to accept that they're getting older and they are reliant on their families"

"… the idea that there's even the weakest notion that they could be received as weak is very difficult on their mental health and I think really does impact whether they're going to choose to use a mobility aid or not"

Across the survey and interviews, the main codes were **adoption barriers**, **stigma and its impacts** and the **design challenges** of the mobility aid industry. Main sub-codes were **accessibility** (adoption barriers), **stigma around aging** (stigma and impacts) as well as **cognitive limitations** (adoption barriers), **independence/fear of dependence** (design challenges), and **environmental barriers** (environment), with a key sub-code from the survey being user experience (UX/UI design) (Figure 16).

Figure 16: Treemap of Main Codes (colouring by Claude)





Discussion
Design Implications
Conclusion

SECTION

03

DISCUSSION

The research for this aimed to investigate a research gap in mobility aid adoption within a home context. Pre-existing challenges of general assistive technology ascertained in the literature reviews ([Thakur & Han, 2020], [Malden et al., 2025], [Chen, 2020], [Pinjatela, 2024]) remain true for this specific context. The overall thesis statement of the primary research is that **reinforced stigmatisation, accessibility and fear of dependence all feed into mobility aid adoption (rejection) amongst elderly people**.

A critical finding was the level of **social consciousness** that older adults have regarding mobility aid use. This corroborates with the pre-existing literature regarding the TAM given that societal context does not correspond to any components of the model. Even domestically, users remain concerned about external perception from family and friends (Q11). However, an emerging discovery is that the types of social perception they avoid have become ideas they project onto themselves even in isolated environments. Coupled with their perspective that mobility aids are unnecessary in the comfort of their own homes, the result is a firm opposition against earlier and voluntary adoption.

It was apparent the **stigmatisation** elderly adults fear as a cohort is derived from an aging identity from both the survey and interview. Compared to the general population, this is a divergent psychological construct. Their pursuit of independence and vigorous opposition of **mobility aid dependence** nurtures decreased mobility and involuntary mobility aid dependence. Furthermore, the explicit stigmas surrounding the **aesthetics** of mobility aids fortifies this. These matters could be derived from a lack of mobility aid education that has led to demographical assumptions.

Additionally, **lack of education** has likely led to users expressing difficulty in using existing products, which was frequently noted from surveys and verified in interviews. When referencing the benchmarking section, a large portion of the products available in market designing with these themes in mind are extraordinarily expensive for the average user. Therefore, the **accessibility** of high-quality **ergonomics** is infeasible. In addition, there is a gap in the mobility aid market of domestic context consideration given that the elderly users who have adopted mobility aids are using them at a high frequency.
Overall, these findings directly reflect the identified AT adoption barriers from the pre-existing literature and provide additional insight into its impact in the daily lives of elderly adults.

LIMITATIONS

There was one unique combination having no experience with mobility aids but recording YES to Q7. Its attribution could be that the participant was the only participant conducting the survey **internationally**.

In addition, a rationale behind the Fisher Exact Test determining the relationship between use and feeling they should use more could be attributed to the **small sample size** of the survey, particularly after data filtration.

There were three participants who claimed no mobility aid experience but responded in the following question to have had experience with one of the mobility aid options. This could be due to a **misunderstanding** in one of the questions, or a different interpretation to it.

Regarding the interviews, Expert 1 only did work in hospitals and therefore, their insights are **skewed** to the post-acceptance phase of the process. Additionally, an **additional geriatric discipline** such as physiotherapy would have benefited the research.



SOCIAL PERCEPTION



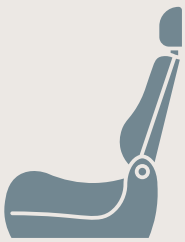
STIGMATISATION



DEPDENDENCE



LACK OF EDUCATION



ACCESSIBLE ERGONOMICS



AESTHETICS

Infographics from Canva

DESIGN IMPLICATIONS

Through survey results expounded by expert interviews, an array of design problems and opportunities were identified. Some of these have yet to have been identified in literature reviews or have been emphasised heavily in the primary research comparative to literature. These implications will inform the design realisation thereafter.

01 DESIGN FOR PERCEPTION

Older adults are profoundly protective of how they appear to society, family, friends and most importantly to themselves. As mentioned by Expert 3, independence and identity are extremely influential factors on their mental health and thus, it is functionally necessary to design for this in mobility aid design. Products that elderly users feel enhance the pre-existing stigma around mobility aids will likely be avoided and unused, posing a threat to their physical condition and safety. Specific design considerations regarding this are largely aesthetics, which was noted by Expert 1 to have the potential to allow smoother integration into their daily lives. Therefore, in the manufacturing of product aesthetics, the product symbolism is a vital element; attention cannot be deferred but it can be reimagined.

02 DOMESTIC CONSIDERATION

In the Q11 and Q13 of the survey (Appendix 2), spatial hinderances, through storage, house features and space, were the only non-emotions-based topic that emerged. Across all three interviews, concerns regarding domestic spaces were referenced highlighting a lack of future consideration in the original designs of the homes in which older adults are currently dwelling in. All mentioned furnishings, Expert 1 mentioned multi-story homes, Expert 2 mentioned hallways and tight corners, and Expert 3 mentioned sharp corners.

From this, a sub-consideration of mobility aid storage warrants distinct consideration. Most mobility aids available on the market other than canes are designed to be used in both urban and domestic environments and resultantly, mobility products are large and bulky. Thus, storing these items is becoming increasingly difficult and is deterring users. A way to rectify this issue is to reduce its size, as seem in the 33.3% of users who selected this as a design improvement in Q12.

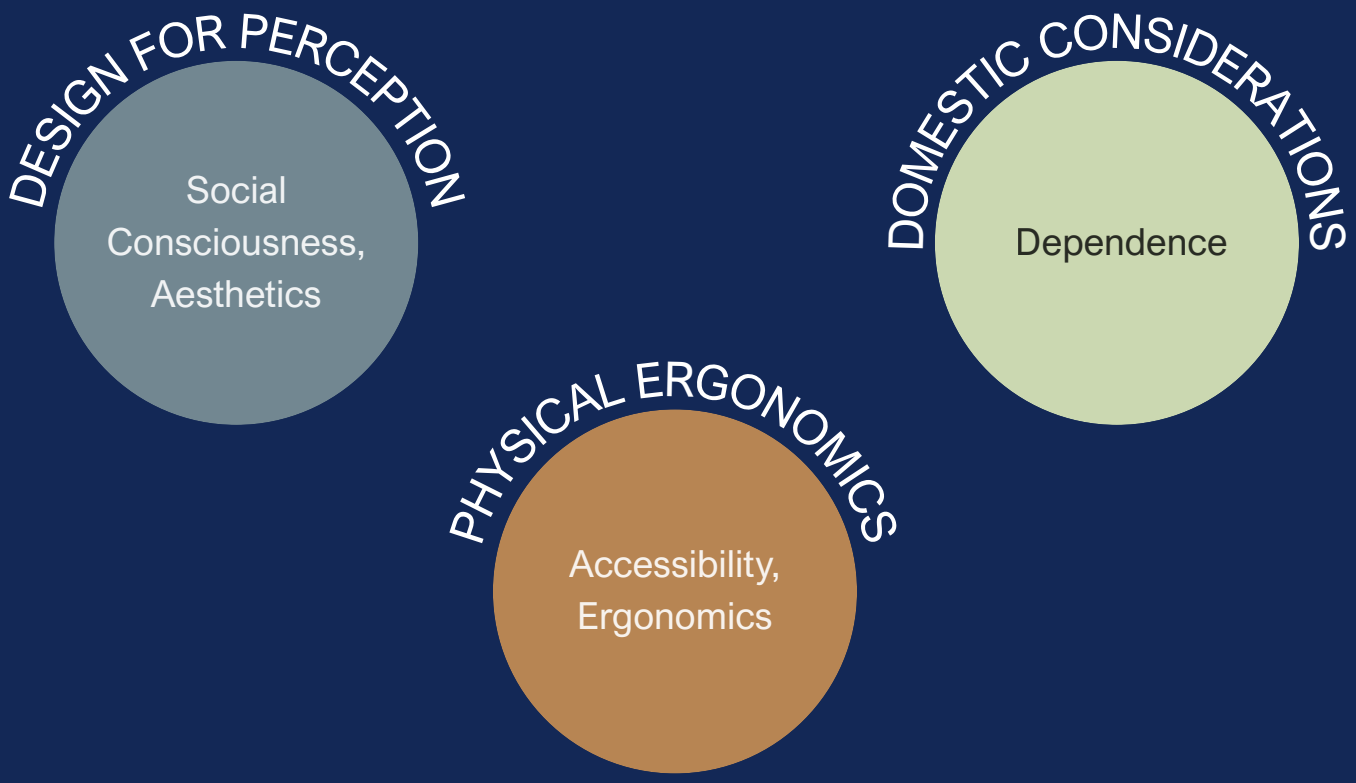
03 PHYSICAL ERGONOMICS

The area of ergonomics in mobility aid design is multi-faceted with many sub-components. The survey saw the majority of participants suggesting that redesigning the mobility aids to feel more comfortable to use has the potential to improve mobility aid adoption. Additionally, a more nuanced consideration mentioned by Expert 2 is the operational complexity of the current range of mobility aids, noting that multiple of her clients use them incorrectly. This corroborates with the Technology Acceptance Model in perceived ease of use but provides an emotional foundation.

A subsidiary point is to improve mobility aid education amongst elderly users to correct mobility aid usage and their thinking about its consequences.

SUMMARY

Overall, the design problems that surfaced in the primary are primarily emotion-based, concurring with the existing literature that the TAM does lack emotional considerations when considering acceptance. Through these research-based design challenges, products can be used as interventions for improving elderly safety and has the potential to reduce the demand on healthcare systems.



CONCLUSION

In summary, it is becoming increasingly critical for the growing demographic of older adults to be adopting assistive devices such as mobility aids in order to improve their long-term quality of life and personal safety. While existing literature has explored the emotional justifications behind assistive technology rejection, this research report aimed to bridge a gap between mobility aid usage and domestic contexts. Particularly, it had a focus on the emotional demotivation that older adults experience deterring them from mobility aid adoption.

Through the 22 end-user surveys and the 3 expert reports corroborated with existing literature, the main findings are that most influential factors to mobility aid adoption are social perception, stigmatisation, and accessibility. These factors project an erroneous idea of involuntary dependence and obscures their identities. Additionally, there is a distinct concern regarding mobility aid education, or lack of, that enhances resistance to aid adoption. These findings corroborate with pre-existing research regarding ATs and their adoption barriers, confirming that those same factors have similar effects specifically to mobility aids.

Therefore, there are key design implications moving forward that have been extrapolated from the research. Designing for perception through aesthetics, physical ergonomics and domestic consideration are needed in improving adoption amongst this demographic. Conscious design that considers these factors has the potential to optimise their later-life independence and domestic safety.

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