



Genie Action Toolbox

Designing an interactive digital toolbox for academia to increase user actions toward gender equality

Master's thesis in Interaction Design and Technologies

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Gothenburg, Sweden 2024

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Cover: Final prototype of the Genie Action Toolbox

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Abstract

Despite the increasing focus on gender equality in recent years, women remain underrepresented in academia. To support Chalmers' efforts to address this issue, this thesis designs and evaluates an interactive digital toolbox aimed at increasing user actions toward gender equality in academia. Using an iterative design process grounded in the design thinking framework, the high-fidelity Genie Action Toolbox prototype was developed, with a focus on the mobile interface. The research highlights key UX considerations, essential interactive elements, and strategic design guidelines, providing valuable insights for future development of digital tools focused on advancing gender equality in academia.

Keywords: User Experience, Gender Equality, Design for Behavior Change, Interaction Design, Mobile Interface Design, AI Chatbot.

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1

Introduction

Gender equality has been a global focus in recent years, as it is also one of the Sustainable Development Goals (SDGs) proposed by the United Nations (2015) to be achieved by 2030. However, as of 2023, advancements have been reported as too slow (United Nations, 2023). Specifically, despite some improvements, women remain underrepresented in science, technology, engineering, and mathematics (STEM) occupations (Shauman et al., 2017; World Economic Forum, 2023). As a technical university, Chalmers fundamentally values efforts in gender equality (Chalmers, 2023). Building on this commitment, the Gender Initiative for Excellence (Genie), funded by the Chalmers Foundation, serves as the product owner of this thesis project. Genie aims to enhance the university's success through concrete actions toward gender equality (Chalmers, 2022). M. W. Nielsen (2017) suggested that bottom-up activities in gender equality, in addition to top-down governance strategies, can keep the topic relevant and visible. Such an approach resonates with Sweden's distinctive feminist movement, reflecting a key national characteristic that also influences the country's academic system in gender equality-related initiatives. This highlights the need for individual awareness and empowerment in gender equality, demonstrating where the toolbox could be particularly useful in initiating and supporting actionable changes.

Existing toolkits within academic settings primarily consist of text-based documents or websites. Although these provide extensive information, their text-heavy formats demand considerable cognitive effort and can be monotonous, leading to underutilization. The Genie Action Toolbox, which this project seeks to enhance, faces similar challenges. Currently, it consists only of a long list of texts about actions hidden on a Canvas page, which also suffers from low user engagement. Recognizing the need to bridge this gap, this project aims to develop more interactive and user-friendly solutions.

To address these challenges, the goal of this research is to transform the Genie Action Toolbox into a more engaging, accessible, and intuitive digital resource. As Genie's goal is to deliver behavioral changes that support gender equality, we draw inspiration from scientific literature demonstrating that incorporating UX design (Seppala et al., 2020) and advanced technologies (Rapp & Boldi, 2023) can enhance the effectiveness of behavior change. Therefore, this research employs strict scientific methods to design the Genie Action Toolbox not only for aesthetic and

functional improvements but also to facilitate more actions by individuals toward achieving gender equality. Such enhancements are expected to increase the toolbox's utilization at Chalmers University and hopefully, expand its impact across the wider academic community.

1.1 Aim and Research Questions

The aim of this Master's thesis is to design and evaluate the mobile interface prototype for the improved digital toolbox to increase user actions toward gender equality in academia. The development of a more user-friendly interface involves systematically organizing and integrating all necessary materials and content provided by Genie. Although both desktop and mobile interfaces have been identified by users as necessary in this study, the focus will primarily be on mobile interface, which was also more favored by participants during workshops, in accordance with the product owner's decision to enhance accessibility.

Based on the context above, the problem statement is:

Identifying design strategies in an interactive digital toolbox for academia to increase user actions toward gender equality.

To address this problem statement, following research questions will be explored in this thesis:

1. What should be considered from an UX perspective when designing the digital toolbox to support user actions toward gender equality in academia?
2. What interactive elements in the digital toolbox are needed to increase user actions toward gender equality in academia?

1.2 Stakeholders

In this section, stakeholders involved in or potentially influencing this project are introduced.

Genie: As the product owner, Genie aims to achieve structural and cultural changes toward gender equality at Chalmers (Chalmers, 2022). This goal requires involvement from as many individuals as possible to take action toward it. Thus, the key question is not just how to initiate action, but also how to provide concrete lists of actions to take in specific situations. Their current action plans are effectively implemented at the departmental level, showcasing significant progress. The new Genie Action Toolbox will serve as a strong companion, collectively offering good practices and tools to help users actively participate in gender equality efforts. To achieve this common goal, Genie will provide all the content for the toolbox, support participant recruitment for pre-study and evaluation phases, collaborate in co-design process, and offer assistance throughout.

Genie Representatives: Genie representatives are Chalmers employers from each department actively work to engage faculty toward Genie’s goals. They will not only be the users of the new Genie Action Toolbox to facilitate change but also contribute to the dynamic content of the toolbox.

Genie Members: These are employees at Chalmers, a larger group interested in Genie’s work and part of the mailing list. They are potential users of this digital toolbox, as they are aware of the issue and likely to advance gender equality in their daily work. The toolbox’s interactivity and accessibility will support their efforts to engage with these issues effectively.

Chalmers University of Technology: This master’s thesis is conducted at Chalmers University of Technology, benefiting from its resources, guidance, and academic environment. The development of this digital toolbox could further support efforts to build an excellent research and teaching environment, making the university more attractive and successful. Additionally, it would strengthen its standing in gender equality within the academic community.

1.3 Limitations

Given the relatively short time frame of this project, this research is executed with some limitations that we would like to note. This thesis project will only result in a prototype, code implementation and follow-up measures to assess whether the toolbox will make any long-term positive changes will not be covered. Additionally, although the desktop interface was preferred by some users, the design will primarily focus on the mobile version and will not include the desktop interface in this research.

Another aspect worth mentioning is that an chatbot has been employed as an interactive element in our design solution. Maximizing the beneficial outcomes of the chatbot requires contributions from diverse stakeholders to address ethical issues (Stahl & Eke, 2024). However, our evaluation primarily explored the overall performance of the toolbox since the chatbot itself was not the main focus of this thesis. As specific research about the chatbot was not conducted, potential limitations arising from the emerging technology in terms of acceptance and effectiveness may impact the outcomes.

While the toolbox is designed for academia, with the goal of including everyone interested in contributing to gender equality as potential users, the user tests in our design process primarily involved individuals who are already motivated to support Genie’s efforts, either as Genie representatives or members. However, individuals who remain unaware of the issue, or those who should be using the Genie Action Toolbox, have yet to be introduced to this technical innovation. The limited test group might potentially result in a higher perceived effectiveness of the toolbox due to the participants’ friendly stance toward gender equality. Additionally, since the toolbox is currently only available in English and most tests are conducted in English, limitations regarding cultural diversity might arise.

1.4 Ethical Consideration

This research involves a wide range of stakeholders in the pre-study and evaluation processes. Essential to our approach is taking care of user consent and data privacy. Before starting each process, it was necessary to ensure that all participants were fully informed about the objectives and the types of data that would be collected, and to obtain their agreement. After the data were obtained, they were securely stored and could only be accessed for research purposes. Additionally, data retained anonymity within the context for participants' privacy.

As part of the prototype, a customized chatbot built on GPTs (OpenAI, 2023) is used during the evaluation phase. This chatbot has been configured to ensure that data collected during interactions are not used by OpenAI to improve their models. We are committed to transparency and data protection: participants are clearly informed that they are interacting with an AI, not a human, and that no sensitive or personal information are to be communicated to the chatbot. Access to the inputs and conversations generated is strictly limited to authorized personnel only. Participants also have the full right to withdraw from the study at any point if they have concerns about the reliability or use of the AI.

We also need to ensure copyright protection for this toolbox. Since the final implemented toolbox could potentially be accessed by a wide audience, it will not host full versions of academic resources on gender equality directly. Instead, users will be directed to these resources through links. Additionally, all statistical data displayed within the toolbox are published by Genie, the product owner. These measures guarantee compliance with copyright restrictions.

1.5 Thesis Outline

This thesis is organized into nine chapters, starting with the introduction that sets the scope and objectives of this project. The subsequent Chapter 2 provides an introduction to the background of the project, including its context and related works. Chapter 3 explores the theories applied to this project. In Chapter 4, the methodologies anticipated for implementation are detailed.

Building on the theoretical and methodological base established in the previous part, the thesis shifts into the practical approaches of this research. The design process, its execution, analysis, and results at each step are discussed in Chapter 5. Chapter 6 presents the final design outcomes and addresses the research questions as well as the problem statement through results and evaluations. Chapter 7 covers discussions on the process and results, ethical considerations, and suggestions for future research. The thesis concludes with Chapter 8, which synthesizes the findings and implications of this research.

2

Background

In this chapter, gender equality in academia will be explored, focusing on both global perspectives and the context of Sweden. Before introducing Genie, the initiative around which this research revolves and its current toolbox, the three closely related toolboxes will be thoroughly examined. Subsequently, Table 2.1 will present a listing of all the explored toolboxes, and lastly ending the chapter with a conclusion.

2.1 Gender Equality in Academia

The underrepresentation of women in STEM persists, even though significant progress has been made (Shauman et al., 2017). In the *Women in Science* fact sheet No. 60 (UNESCO, 2020), global female researcher representation averages 30%, compared to 32.9% in North America. Noteworthy disparities exist, with Central Asia reporting the highest representation at 48.5%, while South and West Asia exhibit the lowest at 23.1%. In Sweden, the percentage of women among researchers is 32.6%, with Tunisia having the highest representation at 56.1%, while Japan has the lowest at 16.2% (European Commission, 2021). In the *Global Gender Gap Report 2023*, Iceland, Norway, Finland, New Zealand, and Sweden are ranked as the top five countries out of 144 based on the Global Gender Gap Index (World Economic Forum, 2023).

Although Sweden is widely recognized as one of the world's most gender equal countries, the proportion of women professors at Swedish universities continues to be low (Saline et al., 2021). This is particularly evident in the Computer Science and Engineering (CSE) department, where there was only one woman professor throughout 2018-2021. Holman et al. (2018) explored authors in STEMM (Science, technology, engineering, mathematics, and medicine) from over 100 countries and concluded that the gender gap may persist for generations. Without further interventions, gender parity will not be achieved this century. The 2022 Global Gender Index projected that, based on the current rate of progress, achieving full parity and closing the overall gender gap on a global scale would require 132 years (European Commission, 2023). For Europe, North America, and East Asia and the Pacific, the projected time frames are 67, 95, and 189 years, respectively (World Economic Forum, 2023). This is where all the initiatives across the world become significant, including Chalmers University.

2.2 Benchmarking

Three most related works will be presented in detail in the following section. Starting with Genovate and GENERA which are European initiatives, followed by University for All, an initiative from University College Dublin, Ireland. Then, all relevant toolkits explored during benchmarking will be presented followed by a conclusion.

2.2.1 Genovate Toolkit

Genovate (<https://genovate.cdt.ltu.se/>) was initiated by the European Union under the Seventh Framework Programme (FP7) for Research and Technological Development and lasted from 2013 to 2017 (CORDIS, n.d.). It is a collaborative project involving multiple universities and research institutions across Europe. Genovate aims to address gender inequalities in research and innovation by exploring and implementing effective strategies to create a more inclusive and gender-equal working environment.

This toolkit caters to both experienced and novice innovators, offering valuable insights for individuals seeking to deepen their understanding of how gender and diversity considerations can foster innovation in daily life (Fältholm et al., 2016). The Genovate toolkit comprises of eight methods and tools to promote sustainable change, one of which is the unique "Gender App", where the actions are presented in the form of checklists. Unfortunately, the app is no longer available (<http://www.gdtoolbox.eu/toolbox/tools-and-methods/gender-app/>). In contrast, the checklist in the outdated app is presented as a bullet list on the toolkit's website and is not interactive or anything of the sort.



Figure 2.1: The Gender App interfaces.

2.2.2 GENERA Toolbox

GENERA (<https://www.genera-network.eu/genera-toolbox>), Gender Equality Network in the European Research Area, a Horizon 2020 initiative funded by European Commission under the call GERI.4.2014, focused on supporting research organizations in implementing gender equality plans in 2015-2018 (GENERA, n.d.). Recognizing gender equality as a priority within the European Research Area (ERA), the project forms a consortium with the goal of enhancing gender equality, particularly in physics research, with potential applicability to other scientific disciplines (Baraban, 2016).

A part of the project was to generate a toolbox encompassing various measures and activities to assist partners in implementation of gender equality plans, considering the unique requirements of their respective organizations. However, it was developed to accommodate all stakeholders in gender equality, spanning from individuals with minimal understanding of the subject to those deeply engaged with gender issues. The measures and actions in the toolbox, are presented in a list and are organized alphabetically based on their titles. In the revised toolbox from 2018, color coding was utilized to differentiate the six categories of Field of Actions (GENERA, 2018). The toolbox can be downloaded as a PDF file on their website. Baraban (2016) stated that it was planned to create an online tool of this toolbox to raise awareness of gender and to ensure maintenance, even after the conclusion of GENERA. The planning was realized, and access to the online toolbox is available via this link: https://www.genera-network.eu/toolbox_list-of-measures. The online toolbox is structured as an interactive matrix (Fig. 2.2), and color coding has been retained. Concrete actions for each measure were not identified, as the aim of the toolbox was not to be exhaustive (GENERA, 2018), see figure 2.3.

List of measures and instruments

Show Copy Excel CSV Print Search:

	Implementation	Structural Integr. of Gender Equality	Engaging Leadership	Flexibility, Time and Work Life	Presence and Visibility	Gender-inclusive/ Gender-sensitive Organizat. Culture	Gender Dimension in Research and Education
120% support Grant	💡						
5-yearly Review of Employment Conditions at CERN	💡						
Advice by International gender experts	💡						
Anonymized Application Procedures	💡						

Figure 2.2: The GENERA toolbox - matrix of measures with color coding.



Title:	Do STEM - exhibition
Implementation	
Field(s) of Action:	<ul style="list-style-type: none"> * Presence and Visibility * Gender-inclusive/Gender-sensitive Organisational Culture * Gender Dimension in Research and Education
Objectives:	<ul style="list-style-type: none"> * Recruitment * Presence and visibility * Inspiration for women in STEM fields
Target Group(s):	<ul style="list-style-type: none"> Pupils Students (undergraduate and graduate) PhD students, PhD candidates and research assistants Postdocs and mid-career scientific personnel Women in STEM fields, female high school and college/university students
Description:	<p>The travelling exhibition portrays eleven women and their successful careers paths in STEM fields. The work and study in STEM fields can be very interesting and exciting. The female scientists report on their work experience. Furthermore it engages and encourages girls and young women with science and its career in STEM fields.</p> <p>The exhibition can be booked for various locations and is designed for all people interested in a career</p>
More information:	<p>Koordinierungsstelle für Frauen- und Geschlechterforschung Sachsen-Anhalt (Germany)</p> <p>Website:  http://www.kge-sachsen-</p>

Figure 2.3: The page of "Do STEM - exhibition"-measure.

“This toolkit is an essential resource to enable higher education institutions to move the diversity and inclusion conversation from concept to reality.”

— Professor Andrew J Deeks
 UCD President 2018
 (Kelly & Padden, 2018)

2.2.3 Toolkit for Inclusive Higher Education Institutions

The University for All initiative was initiated in November 2017, accompanied by a targeted institutional promotional campaign (Kelly et al., 2023). After a few months, it was evident that there was a gap in available resources – while there were numerous mission and vision statements on inclusion, practical tools to operationalize these principles were lacking. That marked the commencement of the development of the Toolkit for Inclusive Higher Education Institutions. It currently encompasses over 140 self-assessment statements, actions to consider, possible challenges and suggested solutions, examples of good practice, and resources lists.

The development of the Toolkit for Inclusive Higher Education Institutions was motivated by the necessity for a comprehensive institutional approach within the higher education sector to address the access, participation, and success of underrepresented students in higher education (University College Dublin, n.d.). In 2020, amidst the global response to the COVID-19 pandemic, Irish higher education transitioned to online and remote modalities. This shift prompted institutions to swiftly reassess their strategies for implementing University for All and explore the potential of the Toolkit to support these efforts (Kelly et al., 2023). Now that the online toolkit is fully customizable (<https://www.ucd.ie/universityforall/resourcehub/toolkit/>), it

has been utilized in all implementation workshops since June 2020. The online interactive toolkit consists of only the self-assessment statements (Fig. 2.4), unlike other modern toolkits that are usually fully digitized. The analogue toolkit is provided in PDF format and is also accessible via the link above. Despite this initiative being relatively new, there is no dedicated website for the toolkit.

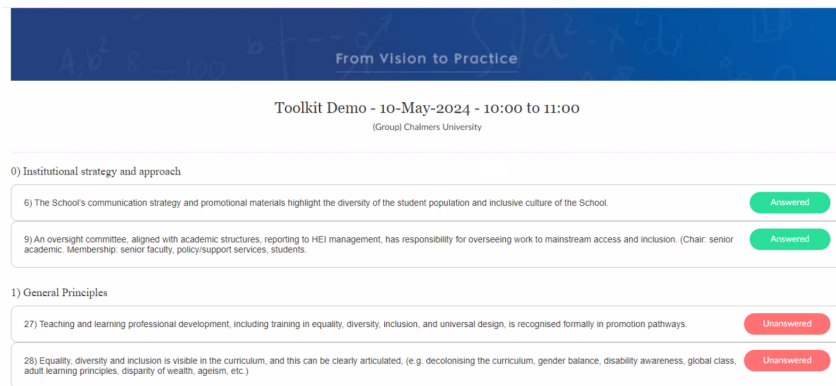


Figure 2.4: The statements to be evaluated.

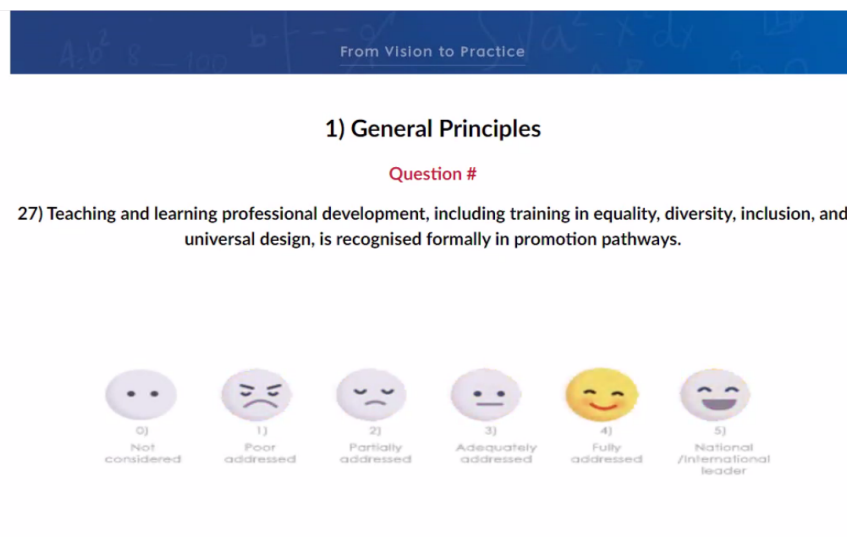


Figure 2.5: Scoring of the statement.

2.2.4 Other Toolboxes

All gender equality toolboxes identified during our benchmarking will be listed, highlighting their user interface features and possible takeaways. Compared to the preceding descriptive texts, the table below does not include background information.

	Name & Origin	User Interface & Features	Identified Requirements
1	Gender Equality Toolbox US	<ul style="list-style-type: none"> • Menu tabs • Why-section • Card design • Downloadables • Showcasing case studies • Interactive element 	<ul style="list-style-type: none"> • Combine tabs if one tab only has one item • Short paragraphs • Consistent design • Navigation arrows for longer pages
2	Athena Swan Charter UK	<ul style="list-style-type: none"> • Massive menu with many items • Much text • No difference between page anchors and links to other pages • Partnerships • Accessibility • Descriptive illustration • Small body dimension 	<ul style="list-style-type: none"> • Expandable menu • Moderate with text • Hierarchical list • Carousel with automated animation with scrollable feature • Inclusive design • Hover state to hide excess information • Utilize body dimension
3	SAGE (Systemic Action for Gender Equality) EU	<ul style="list-style-type: none"> • Minimalistic design • Downloadables • Quizzes 	<ul style="list-style-type: none"> • Symbols for format (doc, image, Power-Point) • User engagement
4	Gender Equality Toolkit for Universities (GENOVATE) EU	<ul style="list-style-type: none"> • Almost invisible menu • Ebook link • Menu tabs are the same as the bullet points in landing page • Harmonic color palette 	<ul style="list-style-type: none"> • Color contrast • Embed ebook • Card design

5	Gender Bias Learning Project US	<ul style="list-style-type: none"> • Playful and messy design • Games/activities • Many external short clips • Low contrast on navigational buttons on video frame 	<ul style="list-style-type: none"> • Gamification • Embed clips • Consistent design • Color contrast • Interactive elements change cursor
6	Unisafe-toolkit EU	<ul style="list-style-type: none"> • Data visualization • Video guide for this toolkit • Card design • Top bar navigation • Consistent color 	<ul style="list-style-type: none"> • Card organization • Theme color • Statistics • Font style contrast
7	Tools for change in STEM US	<ul style="list-style-type: none"> • Tailored content for different target group • Contrast color theme • Video based tool • Top and left side navigation 	<ul style="list-style-type: none"> • Color contrast • Target group identification • Card design
8	Gendered Innovations US	<ul style="list-style-type: none"> • Text based • Consistent color theme with institution • Fixed left side navigation 	<ul style="list-style-type: none"> • Navigation fix on screen • Content organization hierarchy • Consistent color theme with institution
9	Gender Equity Toolkit US	<ul style="list-style-type: none"> • Timeline organization • Figure aid text • Link to PDF • Gallery view of tools 	<ul style="list-style-type: none"> • Figure aid text • Content organization by stages

10	GEAR action toolbox EU	<ul style="list-style-type: none"> • Left side navigation • Content under topics • Tab to differentiate format • Accordion that expands/hides content 	<ul style="list-style-type: none"> • Consistent color theme • Multi-format content • Reduce page clutter
11	GENERA toolbox - good-practice Gender Equality measures EU	<ul style="list-style-type: none"> • Explanatory texts • Table of contents • 2 downloadables with different styles • Navigational list on the left side 	<ul style="list-style-type: none"> • Floating table of contents and navigational list • Consistent design • Better placement of elements to enhance their relationship
12	Toolkit for Inclusive Higher Education Institutions Ireland	<ul style="list-style-type: none"> • Animated emojis (Fig. 2.5) • Color coding • Very large header • Input text fields for actions 	<ul style="list-style-type: none"> • Interactive emojis and statements • Utilize space • Moderate use of vertical scrolling

Table 2.1: Analysis of the 12 toolboxes

Exploration of initiatives from global contexts has laid a solid groundwork for the analysis of Chalmers University’s current action toolbox. Before delving into the toolbox, an introduction to their initiative, Genie, will be presented.

2.3 Genie - Gender Initiative for Excellence

A substantial investment totaling SEK 300 million over a decade has been allocated to the Gender Initiative for Excellence (Genie), marking a significant commitment by the Chalmers University of Technology Foundation from January 2019 to 2028. To the best of Chalmers’ knowledge, this is the most substantial individual investment in gender equality endeavors among universities (Chalmers, 2022). The objectives of this initiative are to increase female faculty members, dismantle structural and cultural barriers that impede women’s career advancement, and establish a working environment characterized by diversity, inclusivity, and support, thus facilitating excellence in both research and teaching.

Genie’s endeavors comprised two areas: implementing concrete and tailored action

plans to drive long-term cultural and structural changes within departments, and providing direct support to increase female faculty members. Subsequent efforts will emphasize the enhancement of leadership development across all levels, alongside centralized initiatives aimed at supporting researchers and fostering environments conducive to excellence.

2.3.1 Current Genie Action Toolbox

The Genie Action Toolbox currently operates on the Canvas platform and is therefore restricted to users within Chalmers. However, even for users within Chalmers, accessing the toolbox poses a challenge as it cannot be directly found on Canvas. Instead, access requires an invitation to the Canvas course page, which undermines the objectives of Genie. Despite the expressed wish to expand its accessibility to everyone interested in gender equality, the toolbox has thus far been solely used by employees of Chalmers.

The course page serves as their file sharing channel, and shares the same structure as other course pages. The current toolbox is located within a module on the page. Due to the limited functionalities within Canvas, the toolbox has neither been maintained nor is it planned to do so. The project coordinator and the Genie representatives are dissatisfied with the current toolbox, making it not used. The toolbox itself is a single page with a long list of actions in bullet points, which is perceived as overwhelming. Furthermore, the most important aspect with the toolbox is to provide concrete action plans to address gender inequality in academia, which it currently lacks. Although a list of actions is available, it fails to translate into actionable strategies. For example, "Learn how to write ads for open positions in a gender balanced way" does not tell you exactly how you write such ad.

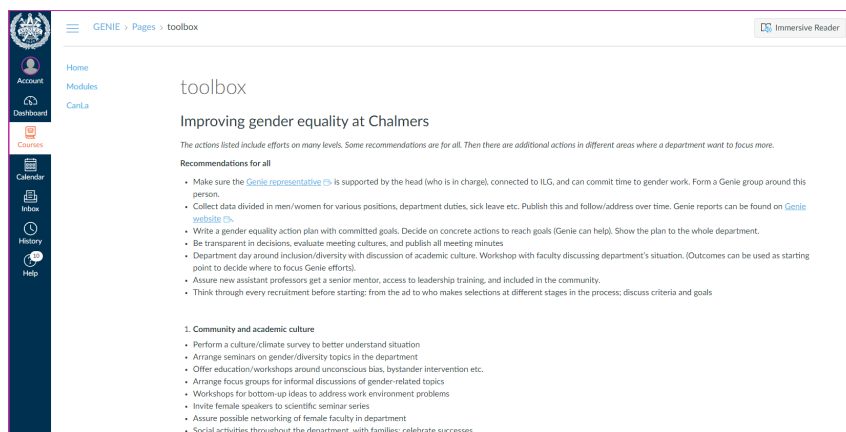


Figure 2.6: View of the current Genie Action Toolbox.

Conclusion

Numerous toolboxes or toolkits have been developed to address gender equality issues across different domains, particularly within higher education. While initiatives, like SAGE and Tools for change in STEM, compile their measures into

2. Background

downloadable documents, others such as Genovate, utilize platforms for information storage and retrieval, making it easily accessible. Nonetheless, a fully interactive solution in this domain is not there yet.

3

Theory

This project focuses on the design of the mobile interface for an interactive digital toolbox, which is firmly grounded in the principles of Interaction Design. As described by Sharp et al. (2019), Interaction Design is *about creating user experience that enhance the way people interact*, highlighting the critical role of user experience. This fundamental aspect is initially examined in this section, emphasizing its significance. Furthermore, Sharp et al. (2019) noted that Interaction Design intersects with multiple disciplines, such as cognitive ergonomics. This project draws on principles from various relevant fields, integrating information architecture for intuitive content organization, and utilizing behavioral models to analyze and change user behavior. Additionally, techniques like nudging and chatbot technology are used to enhance interactivity and improve communication, ensuring a user-friendly design solution.

In the upcoming sections, theories relevant to this project will be introduced. First, user experience will be explained. Then, the principles of information architecture will be examined, followed by explorations of behavioral models as well as nudging theory. Finally, theories related to chatbot will be discussed.

3.1 User Experience

User Experience (UX) plays a crucial role in the success of a product, which is why we prioritize it in our theory chapter. The scope of UX is broad and complex, leading to various definitions of the term. According to Law et al. (2009), the International Organization for Standardization (ISO) defined UX in 2008 as *"user's perceptions and responses that result from the use or anticipated use of a system, product, or service."* The authors argued that this definition is promising but requires further explanation, particularly the term *anticipated use*, and noted that it omits mention of the user interface where interactions occur, according to their survey. The 2019 update from ISO (2019) clarified that *user's perceptions and responses* encompass perceptions, emotions, preferences, beliefs, comfort, achievements, and behaviors that occur before, during, and after use. It also lists three factors that influence user experience: the system, the state of the user, and the context of use. Roto et al. (2011) defined UX as *"the experience(s) derived from encountering a system,"* where *encountering* could involve either actively interacting with or passively being

confronted by the system, further clarifying the interaction between users and the system. Norman and Nielsen (1998) described UX as "*all aspects of the end-user's interaction with the company, its services, and its products,*" emphasizing that *system, product, and service* do not independently exist when being interacted with. Additionally, UX can be understood as the comprehensive effect felt by a user due to interacting with and the context of using a system, device, or product. This includes how usability, usefulness, and emotional impact during the interaction influence the user, as well as the lasting memories formed after the interaction (Hartson & Pyla, 2012a).

Despite the absence of a universally accepted definition, several key elements of UX are widely recognized and agreed upon. The first and most important distinction is that UX is not equivalent to usability (Hartson & Pyla, 2012a; Norman & Nielsen, 1998; Roto et al., 2011). While usability focuses primarily on the efficiency and ease of use of a system's functions, it is included within the broader concept of UX, which also encompasses the user's emotional responses. Secondly, UX varies significantly depending on the individual's perception of use and anticipation (Hartson & Pyla, 2012a; ISO, 2019). It is an internal feeling influenced by the user's internal and physical state, personal characteristics, and the context of use. Another important aspect is that UX is dynamic and not limited to the period during use (Hartson & Pyla, 2012a; ISO, 2019; Law et al., 2009; Roto et al., 2011). It also extends to the time before and after the interaction. According to Roto et al. (2011), UX can be further broken down by time span into *Anticipated UX* (before usage), *momentary UX* (during interaction), *episodic UX* (after a specific usage episode), and *cumulative UX* (the overview after using it for a while).

3.1.1 User Experience Models

Although UX cannot be designed in a prescriptive way because it depends significantly on the user's perceptions, emotions, and context, several models can guide the design process to enhance UX. These models provide frameworks and principles that help designers focus on key aspects of UX, ensuring that the end product meets both user needs and product owner's objectives.

Five Levels of UX

This model, proposed by Garrett (2011), structures the UX design process from abstract to concrete into five planes: *Strategy*, *Scope*, *Structure*, *Skeleton*, and *Surface*. The *Strategy* plane defines user needs and product owner's objectives, while the *Scope* plane outlines feature requirements. The *Structure* plane organizes information architecture and interaction design, followed by the *Skeleton* plane, which focuses on layout and navigation. Finally, the *Surface* plane addresses visual design. This layered approach ensures a comprehensive user experience from concept to final design solution.

UX Honeycomb

Morville (2004) identifies seven key facets essential for creating a successful user experience and fits them into a honeycomb: *Useful, Usable, Desirable, Findable, Accessible, Credible, and Valuable*. These facets ensure that the product goes beyond usability, addressing both functional and emotional user needs. The modular dimensions of the honeycomb also enable prioritization and provide more flexibility in development, allowing designers to focus on different aspects of UX as needed.

Three Facets of UX

Hassenzahl and Tractinsky (2006) outline three key perspectives on user experience. *Beyond the Instrumental* highlights that designed systems involve more than just usability and functionality, addressing deeper aesthetic and holistic aspects. *Emotion and Affect* discusses the potential to design for emotion and affect both as antecedents and consequences of product use. *The Experiential* emphasizes the contextual and temporal aspects of technology use. These perspectives advocate for a comprehensive understanding of UX that considers the system, user, and context.

Pragmatic and Hedonic

In product characteristics, pragmatic attributes are associated with the functionality and usability of a product, while hedonic attributes relate to emotional and aesthetic aspects (Hassenzahl, 2018). Although these two types of attributes are independent, they are perceived as a whole by users. For example, when buying a new laptop, users will consider not only pragmatic qualities, such as processing ability, but also hedonic attributes like brand and appearance that can bring pleasure. Since user perceptions are subjective and vary greatly among audiences, a combination of both strong pragmatic and hedonic attributes is desired in design. A product with strong pragmatic but weak hedonic attributes is task-oriented, while one with strong hedonic but weak pragmatic attributes is self-oriented. Sometimes, a strong attribute in either category can create a good user experience, but both weak attributes are undesirable. Hassenzahl (2018) introduced two types of situations in which users use a product: goal mode and action mode. In goal mode, users have specific goals to achieve and take actions towards these goals, which is suitable for task-oriented products. In action mode, users initiate actions first, and then some goals might appear and be achieved as a result, which is suitable for self-oriented products. Since the same product will be used by users in varied situations, it is vital to incorporate characteristics that support both modes for a better user experience. This model offers a balanced approach to UX design, addressing both usability and emotional satisfaction.

To summarize, the listed models focus on different aspects of UX, with the Five Levels of UX providing a guide for the design process, while the other three mainly discuss the evaluation of attributes. The Pragmatic and Hedonic model is particularly suitable for our research project, complemented by the Five Levels of UX for a reliable process. Although the UX Honeycomb outlines key facets of user experience comprehensively, its focus on high-level attributes makes it more suitable for later improvements rather than the development of this project. The Three Facets of UX

offers a broader theoretical perspective, lacking the specific, actionable framework required for our project. The Pragmatic and Hedonic model has a balanced focus on both usability and emotional satisfaction in system design, making it practical.

However, due to the intangible and multifaceted nature of UX, assessing the impact of design decisions on user experience remains challenging, and there is no widely accepted method for comprehensively measuring UX (Roto et al., 2011). It needs to be evaluated from various specific perspectives, such as usability and emotions, using both qualitative and quantitative methods to capture the full depth of user interaction and satisfaction. The AttrakDiff questionnaires, discussed in section 4.5.4, were developed by Hassenzahl et al. (2008), the creator of the Pragmatic and Hedonic model, to help address these challenges. These questionnaires provide a reliable method for measuring both pragmatic usability and emotional satisfaction, enhancing the accuracy of UX performance evaluation and making the model selection more appropriate.

3.1.2 Information Architecture

Under the broad scope of UX, efficiently structuring information has become a vital component, where Information Architecture (IA) plays a crucial role. In the model proposed by Garrett (2011), IA is identified as one of the key elements of UX, responsible for translating content requirements into visually appealing and functional designs. By ensuring that information is organized intuitively, IA enhances the overall UX by making content more accessible and easier to navigate, which is why it is an essential element in our theoretical framework.

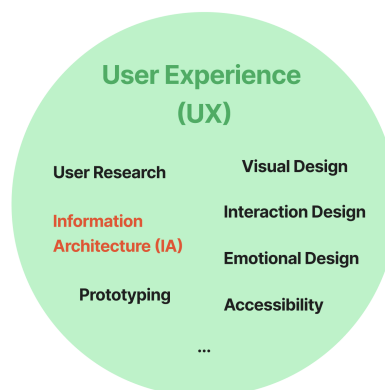


Figure 3.1: Key Components of User Experience (UX).

Building on this understanding, IA refers specifically to the organizing, structuring and labeling of information in a digital environment to enhance usability. In our case, a good IA design aims to enable users to find information quickly and easily when using our website. To develop an effective IA, Rosenfeld et al. (2015) proposed a model called “information ecology” that considers the interdependent nature of three key elements: user, content and context.

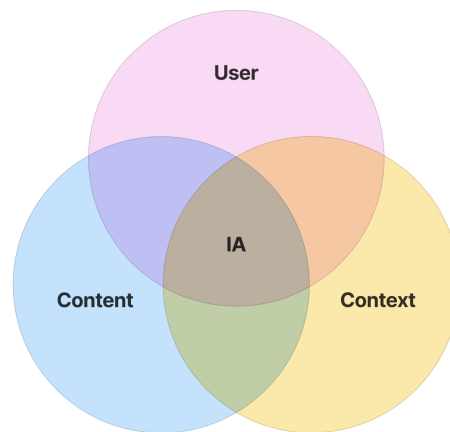


Figure 3.2: Information ecology.

For users, we need to identify the target audience, understand their expectations and behavior when seeking information on our website. In terms of content, it is essential to clarify what information is available, how it relates to each other, and its relevance to users. Regarding context, we need to understand the goals of this project, as well as when and on which platform, and on what channels users will interact with the content (Interaction Design Foundation - IxDF, 2016b).

There are four primary systems that serve as the main components in IA: organization, labeling, navigation, and searching (Rosenfeld et al., 2015). Information is categorized in the organization system, represented by the labeling system, and users can browse information through the navigation system, or look for more specific ones in the searching system.

3.2 The Behavior Model

Since the objective is to design for increasing action, which involves behavior change, the behavior model has been incorporated into our literature review process. The Fogg Behavior Model (FBM) is a psychological model developed by Dr. BJ Fogg (2009) to understand human behavior. The FBM identifies and defines three factors that influence behavior: motivation, ability, and triggers. This model is particularly relevant for those engaged in the study of persuasive technology, as it provides designers and researchers with a structured approach to understanding the factors driving behavior change.

According to the FBM, for a particular behavior to occur, an individual must possess sufficient motivation, adequate ability, and an effective trigger. These components must happen simultaneously for the behavior to manifest. While both motivation and ability are necessary, simply increasing motivation is not always the most effective strategy; enhancing ability by simplifying the behavior is often more impactful. The third component, triggers, is indispensable. Even with high levels of motivation and ability, a behavior will not occur without an appropriate trigger. Triggers

can take various forms, such as alarms, text messages, or physical sensations like hunger. Effective triggers share three characteristics: they capture attention, link the trigger to a specific behavior, and occur when the individual is both motivated and able to perform the behavior. Triggers, also known as prompts, cues, or calls to action, are essential in guiding individuals to engage in a behavior. A key insight from the FBM is that timing is a crucial but often overlooked element in behavior change. The optimal moment for behavior execution arises when both motivation and ability are above the activation threshold. In Fogg’s perspective, when individuals are above this threshold, a well-timed trigger is sufficient to prompt the desired behavior. Thus, understanding and leveraging the interplay of motivation, ability, and triggers, along with the precise timing of these elements, is fundamental in designing effective persuasive technologies.

While the FBM has been found to be useful and straightforward in the health domain (Agha et al., 2019); (Agha et al., 2021), it falls short in several key areas upon closer examination. The model oversimplifies human behavior, failing to account for its multifaceted nature and not considering the influence of environmental and contextual factors. Additionally, it focuses on the immediate occurrence of behavior but does not provide a clear framework for sustaining long-term behavior change. Long-term sustaining of a behavior often requires continuous motivation, ability adjustments, and triggers, which the model does not elaborate on.

As we explore methods to drive action, we incorporate both nudging and chatbots as practical applications of FBM principles. While nudging subtly guides behavior by adjusting the environment or prompts without limiting freedom of choice, chatbots offer a more interactive approach, providing personalized assistance that enhance user motivation and ability, making it easier to initiate desired actions.

3.2.1 Nudging

Nudging is a concept that originates from the field of behavioral economics. A nudge is defined as “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any option or significantly changing their economic incentive” (Thaler & Sunstein, 2008). Since Kahneman (2011) has explained that various cognitive biases and mental shortcuts can affect humans’ decision-making processes, the aim of nudging is to utilize subtle features to guide people towards making positive decisions without prohibition. For example, making stairs resemble piano keys to make them more fun can encourage more commuters to choose stairs over escalators, promoting a healthier lifestyle. For users, nudges should ensure transparency, ease of opting out, and societal benefit. According to Caraban et al. (2019), this idea has also been adopted into HCI and applied in a technology-mediated way.

Thaler and Sunstein (2008) introduced six fundamental principles for the development of effective choice architecture:

1. **Incentives:** Offering incentives that encourage better decision-making.

- 2. Understand mappings:** Clarifying the consequences of different decision pathways.
- 3. Defaults:** Utilizing the default options effectively.
- 4. Give feedback:** Providing feedback to improve user performance.
- 5. Expect error:** Anticipating potential errors and forewarning users before they occur.
- 6. Structure complex choices:** Organizing complex choices intuitively to facilitate easier decisions.

3.2.2 Chatbot

Chatbots are introduced here as interactive tools to facilitate behavioral change. A chatbot is software that is designed to simulate interactive conversations with users through text or voice, supported by Artificial Intelligence (AI) and Natural Language Processing (NLP) techniques to understand user requests and form appropriate responses (Crowder, 2024a; Lasky, 2023). Basic chatbots are programmed to provide predetermined responses, while the development of computational capabilities enables more sophisticated responses based on a wider range of sources, such as ChatGPT created by OpenAI (2022). Advanced chatbots generate responses based on the data and patterns they have learned through training. By using targeted documents or datasets as training material, it is also possible to build customized chatbots like GPTs (OpenAI, 2023) to meet specific needs.

As summarized by Alemdag (2023), incorporating this emerging technology has several potential benefits. Chatbots allow multiple users to simultaneously access information without time restrictions, receive help and guidance immediately, and obtain content that is tailored to their individual characteristics. Additionally, they can improve the motivation and learning performance of users. To design for a pleasant user experience in human-chatbot interactions, three factors need to be considered: the relevance of the conversation content, the demeanor of the conversation which refers to how users perceive the chatbot's personality, and the flow of the conversation, particularly its speed (Skjuve et al., 2019).

While chatbots offer several advantages, they also come with inherent challenges and risks. A report from DeepMind (Weidinger et al., 2021), an AI company owned by Google, identifies six risk areas potentially arising from Language Models (LMs) that are closely integrated into chatbot technologies. These risks include: I. Discrimination, Exclusion and Toxicity, II. Information Hazards, III. Misinformation Harms, IV. Malicious Uses, V. Human-Computer Interaction Harms, VI. Automation, Access, and Environmental Harms. Crowder (2024b) argues that chatbots are data-driven, and their ability to understand and respond is based solely on the users they have interacted with and the data available for learning, which can give rise to biases such as gender bias. To address these challenges and ensure benefits, involvement is required at multiple socio-economic levels, from individual programmers to policymakers (Stahl & Eke, 2024).

To sum up, this chapter explored various theoretical approaches to establish a comprehensive framework supporting the design research. User experience emphasizes the importance of both pragmatic and hedonic attributes, ensuring usability is complemented by emotional engagement. Additionally, robust Information Architecture is crucial for effective content structuring. Fogg's Behavior Model guides the design for behavior change by balancing motivation, ability, and triggers, while techniques like nudging and chatbots boost interactivity and achieve the desired change. Combining these theories, we aim to develop a design solution that is both functionally efficient and emotionally engaging, fulfilling the requirements of stakeholders and increasing user action towards gender equality.

4

Methodology

In this chapter, methodologies used in this project will be presented. Initially, Design Thinking will be introduced as the foundational framework guiding our design process. Subsequently, the methods employed across various phases will be outlined.

An iterative, non-linear design process, Design Thinking, has been used in this research project. As introduced by Brown and Katz (2011), Design Thinking focuses on human-centered approaches that extend beyond aesthetics of products to strategic problem-solving across business and societal sectors, aligning perfectly with our objective of addressing gender equality in academia. This framework includes five phases: Empathize, Define, Ideate, Prototype and Test (Interaction Design Foundation - IxDF, 2016a). Similarly, the Design Sprint, developed by Google (2024), is a more condensed version of the design process, consisting of six phases: Understand, Define, Sketch, Decide, Prototype, and Validate. While the time-limited nature of the Design Sprint allows for quick decision-making and prototyping, it tends to have a more defined and constrained scope, which limits the depth of user research. Due to the need for diverse user engagement and a deeper understanding of the complex issue of gender equality, Design Thinking was chosen as it allows for a more flexible and iterative approach, ensuring that insights from users can be continuously integrated into the design process. Another framework similar to Design Thinking is the Double Diamond model, structured around four stages: Discover, Define, Develop, and Deliver (Design Council, n.d.). This model emphasizes both divergent and convergent thinking throughout the process, while often being illustrated in a linear format. Design Thinking emphasizes a deep understanding of users and their needs, which aligns well with the objectives of our research.

As an iterative design process, the five phases were conducted in a flexible manner, rather than in a strict cyclical or linear order, allowing for continuous refinement and improvement based on user feedback (Sharp et al., 2019). The d.school (2010) at Stanford University also emphasized that iterations can refine the scope and ensure thorough exploration of details, encouraging flexible movement between these stages throughout the project to suit our creative practice. This iterative approach ensures that the design evolves to better meet user needs.

However, challenges also arose when working with this process. Considering the relatively short research period, the need for continuous user engagement through-

out the entire process made it challenging to coordinate and schedule participants at suitable times. To address this, we planned the approximate timeline for user involvement at the outset, and we greatly appreciated the support from our product owner, Genie, in helping recruit participants. Another key challenge was the flexibility of the process, which required us to manage uncertainty that arose midway through. This uncertainty often led to unexpected changes in direction, requiring quick decision-making and adaptability to keep the project on track without compromising the quality of the outcome. To manage this, we remained open to potential changes while carefully monitoring the overall timeframe to ensure the project was completed on schedule.

Considering our context, the Empathize phase involves understanding the needs of Genie management as the product owner and sorting through existing information, as well as gathering insights from users. Next, more user research, including the structuring and synthesizing of input from Genie representatives as users, will be conducted during the Define phase. Ideas for information architecture and design choices will be developed in the Ideate phase. Different fidelity prototypes will be created in the Prototype phase and evaluated with users during the Test phase. Detailed methods used in each phase will be presented in the following sections.

4.1 Empathize

In the first phase of Empathize, four methods were utilized to understand user needs. These methods provided valuable insights into expectations and user context, forming the foundation for subsequent phases of the design process.

4.1.1 Co-creation Workshop

Co-creation is an approach to collective creativity in design, where designers collaborate with end-users or stakeholders. It involves not only designing for them, but also empowering participants from various roles by bringing them into the design process to gain insights (IDEO.org, n.d.-a). In co-creation workshops, designers act more like facilitators to encourage creativity (Sanders & Stappers, 2008). In this thesis, we will be collaborating closely with our client, Genie, to develop the action toolbox. Valuable insights gained from co-creating with Genie will ensure that requirements are met and different perspectives considered, making it more user-centric.

4.1.2 Storyboarding

Storyboards, also known as vignettes, are characterized by the presentation of a narrative through a sequence of images organized in panels, depicting the principal events of the story (Gibbons, 2020). They serve to elaborate on a specific idea and provide context to improve understanding, communication, and agreement. Stories grounded in real data serve to mitigate internal biases, facilitating an understanding of user behaviors, thereby contributing to a holistic view in designing experiences.

Storyboards can be useful in various formats such as research and discovery workshops, ideation workshops, and prioritization and critique workshops. Gibbons (2020) explains that the fidelity of storyboards may vary depending on their intended use. The recommended group size is between 1 and 6 people, accompanied by the introduction of a time constraint. Participants are instructed to fold paper to create the desired number of boxes and utilize thick sharpies to prevent detailed sketches.

4.1.3 Expert Interview

Interviews are an essential research method that involves asking participants questions, allowing researchers to gather firsthand personal narratives, including their experiences, opinions, attitudes, and perceptions (Hanington & Martin, 2019). As a specific type of this method, the expert interview is a widely used qualitative technique that aims to quickly gain valuable insights into a particular field by talking to experts (Döringer, 2021).

Understanding the complex landscape of a research area is vital for effective problem-solving. Experts can provide a comprehensive overview of the research area, share insights on recent innovations, including successes and failures, and offer perspectives from organizations as well as specific technical advice (IDEO.org, n.d.-b). These strengths make this method a powerful tool in the Identifying Problem phase, while interviews for evaluation will be discussed later in section 4.5.3.

4.1.4 Focus Groups

In recent years, focus groups have gained increased usage in user research (Interaction Design Foundation - IxDF, 2021), and are used to assist with decision-making, including capturing user behaviour insights (Krueger & Casey, 2014). The typical size of groups comprises 5 to 10 users who engage with a moderator, facilitator, or researcher. The moderator guides the group with predefined questions, and responses are recorded, either by the moderator or by designated observers. Following data collection, analysis and reporting are conducted upon completion of the process. This method is a powerful tool for identifying users' needs and expectations of the system (J. Nielsen, 1997), and it aligns perfectly with our research.

The insights gained from the Empathize phase provided a comprehensive understanding of user needs and the toolbox's contextual use, which informed the Define phase. This foundation allowed for systematic organization and prioritization of key features and requirements, which will be introduced in the following phase.

4.2 Define

The second phase of Define includes affinity diagramming and MoSCoW analysis, used to organize and prioritize insights. Affinity diagramming grouped ideas, while

MoSCoW analysis prioritized features.

4.2.1 Affinity Diagram

In essence, affinity diagramming is grouping sticky notes with similar themes generated during the postup activity (Gibbons, 2020). The author notes that the generated content is not limited to postup alone. Affinity diagramming is versatile and can be adapted to various needs. Collaborative grouping of sticky notes is most effective when the number of items is below 20 and themes are to be identified during the process. In contrast, when themes are predetermined, individuals can independently categorize the notes, followed by a group review. This approach is more suitable for scenarios involving over 20 items.

4.2.2 MoSCoW Analysis

Dai Clegg of Oracle UK Consulting, developed the MoSCoW method for use in Rapid Application Development (RAD) projects (Kuhn, 2009). The origins of the MoSCoW analysis can be traced back to business analysis and software development techniques, where it aids stakeholders in prioritizing their requirements. The combination of upper- and lower-case letters highlights the importance of keywords of Must, Should, Could, and Won't/Would. Within the Service Design phase, the MoSCoW Analysis is integral to both the Requirements Engineering activity and the selection of Service Management tools. The requirements are classified into four categories: Must, Should, Could, and Won't. Brennan (2009) provides descriptions for each category follows.

Must

Requirements in this category are crucial for the solution's success and must be fulfilled in the final deliverable.

Should

Items that are not a must, but are high-priority should be incorporated into the solution if feasible. While crucial, these requirements can be approached differently if needed.

Could

These requirements are non-essential, but considered desirable. Their incorporation depends on the availability of resources and the project's timeline.

Won't

This category highlights requirements that stakeholders have collectively decided to exclude from the current release, with the possibility of revisiting them in the future.

With a clear set of prioritized requirements established, the next phase focused on generating ideas and refining them. This process leveraged the defined needs to explore potential features and functionalities.

4.3 Ideate

In the Ideate phase, various methods were employed to generate and refine ideas. These facilitated the exploration of diverse features and the development of early interface design.

4.3.1 Postup Brainstorming

Postup is a collaborative activity where participants independently generate various forms of content, such as words, ideas, features, sketches, questions, concerns, assumptions, users, hopes, fears, research insights, and next steps, on sticky notes (Gibbons, 2020). This method is used to generate content from diverse perspectives in a time-efficient and democratic setting. Postups serve as effective strategies for managing dominant participants, fostering productive dialogue, and promoting full participation. The generated content is then reviewed with the group, documented, shared, or utilized in future activities.

4.3.2 Brain Sketching

As introduced by VanGundy (1988), brain sketching is a variant of brainwriting that emphasizes visualizing ideas through evolving sketches, rather than merely building on text among participants. Similar to brainstorming as an idea generation technique, brain sketching focuses more on connections between ideas than on the quantity of ideas. These connections further facilitate reflection within the team (Van Der Lugt, 2002). Considering the basic scope of this project identified in earlier phases, the visualization of sketches during ideation is anticipated to be more effective to communicate than plain text, likely to bring more discussion, making this technique beneficial for our project.

Having generated and refined a range of ideas in this phase, the next step involved transforming these concepts into interactive prototypes. These prototypes allowed for the development from low-fidelity to high-fidelity, facilitating iterative testing and refinement.

4.4 Prototype

After ideation, prototyping is the next key element in the design process. Prototypes concretely represent design decisions and ideas about the system, enabling interaction and evaluation by designers and stakeholders (Benyon, 2010; Sharp et al., 2019). In design research, prototypes can serve as experimental components to test specific hypotheses (Wensveen & Matthews, 2014). Prototyping can be categorized into two types based on fidelity: low-fidelity and high-fidelity.

4.4.1 Low-Fidelity

In the early stages, low-fidelity prototypes such as sketches and wireframes were used to quickly establish the structure and functions, allowing for the exploration of alternatives and ideas. These prototypes are quick to generate, cost-efficient, and free from technical complexities, making them easy to modify during exploration and iteration while still effectively communicating ideas for gathering feedback (Hartson & Pyla, 2012b). The main focus of low-fidelity prototypes is on exploration and communication of design concepts, rather than on formal design evaluation, making them particularly suitable for the initial phases of the design process (Lim et al., 2008).

4.4.2 High-Fidelity

After several iterations, low-fidelity prototypes can evolve into more functional versions that are closer to the final product, known as high-fidelity prototypes. These high-fidelity versions can be developed by adapting and integrating available hardware and software components from developer kits and open-source resources. Although they require more effort to produce, testing these prototypes in real-world scenarios provides valuable feedback. They provide sufficient fidelity to effectively address specific design questions and reveal insights about technological limitations, interaction, and contextual issues (Sharp et al., 2019).

Having progressed with the prototypes, the next phase focused on testing to evaluate usability and gather user feedback. To meet the design objectives, the refined prototypes underwent evaluation to ensure they effectively addressed user needs. The evaluation methods will be detailed in the following phase.

4.5 Test

In the final phase, a range of methods was employed to evaluate the prototype's usability and user experience. User feedback was collected, and statistical test was applied to assess the reliability of the data.

4.5.1 Usability Testing

User tests will be conducted to evaluate our prototype ensuring it meets the requirements and needs. User tests also allow us to acquire user insights and make better informed design decisions later. The main purposes of the testing are to evaluate how practical our prototype is and if it elicits engagement in gender equality. Our client wishes to have a hands-on website rather than a classic one. It is therefore of importance that our design meets their expectations (Hanington & Martin, 2019).

To obtain more comprehensive results, both qualitative and quantitative approaches to data collection are preferred. Qualitative data, which is non-numeric, is usually used to describe users' behavior and experiences regarding their usage of the product.

Quantitative data, on the other hand, are numeric and mainly employed to measure objective user performance and subjective opinion ratings (Hartson & Pyla, 2012c; Sharp et al., 2019). For the one-on-one user test, both types of data can be collected by conducting semi-structured interviews, including tasks and think-aloud method, to examine user performance and gather thoughts on the design. To ensure broader validation, questionnaires can be used in the later stages to collect primarily quantitative data from a wider range of people.

4.5.2 Think-aloud Protocol

During usability tests, the think-aloud technique is a common method to collect qualitative data from users. As the name suggests, participants are asked to verbally express their thoughts during their interaction experience (Hartson & Pyla, 2012c). This technique is vital for eliciting verbal output and uncovering hidden data in users' minds (Cockton, 2014). According to Hartson and Pyla (2012c), the facilitator's role is to accept participants' comments as inputs to the process, and then filter and interpret all data within the design context. When questions arise during the process, the facilitator encourages participants to think through the issues themselves instead of providing solutions directly.

4.5.3 User Interviews

Interviews are conducted with users to understand their experiences, opinions, attitudes, motivations, and behaviors related to products and services. They also provide a way to collect insights from experts in specific areas (Wikberg-Nilsson et al., 2015). While in-person interviews are preferred for capturing the nuances of personal expression and body language, they can also be effectively conducted remotely, such as via Zoom or Teams (Hanington & Martin, 2019).

The structure of the interview is determined by its purpose, with options including structured, semi-structured, or unstructured formats (Wilson, 2013). A structured interview requires interviewers to ask only a predefined set of questions during the process. Moving on, the semi-structured interview combines predetermined questions with flexible follow-up questions based on participant responses for further exploration. Finally, in an unstructured interview, the conversation flows flexibly around certain topics without a predefined format.

Compared to expert interview which described in section 4.1.3, the interviews conducted during the Solving Problems phase follow a similar format. However, they differ in terms of interviewee profile, format — whether solely interview or a combination with usability testing — and environment, which can be either remote or in-person. The structure stayed unchanged across both phases.

4.5.4 Questionnaires

Questionnaires serve as the primary instrument for collecting subjective data in a controlled setting that directly involves users. They can supplement other lab-based

data collection methods or be used as an independent evaluation method, potentially involving a larger number of users (Hartson & Pyla, 2012c; Sharp et al., 2019).

The *Semantic Differential Scale*, introduced by Osgood et al. (1957), is commonly used to collect quantitative data in questionnaires. It involves a range of values that describe an attribute being evaluated in the question. This scale typically presents a bipolar pair of adjectives at each end, such as "useful-useless," and asks respondents to choose a point in between to give ratings based on their perception. However, Hartson and Pyla (2012c) recommend not organizing questionnaires solely around this scale. In order to better understand users' opinions on the design, they suggest supplementing it with follow-up free-form questions that allow participants to explain their ratings.

AttrakDiff

Professor Hassenzahl and colleagues conducted a few studies researching and testing the theoretical work model "AttrakDiff" ("AttrakDiff – Science", n.d.). The studies revealed that both hedonic and pragmatic qualities are consistently perceived and operate independently of each other. The evaluation of attractiveness is equally influenced by these qualities. For detailed descriptions of the qualities, refer to Chapter 3.1.1. The usability and design of an interactive product can simply and quickly be evaluated by users using AttrakDiff (Hassenzahl et al., 2008).

The model maps how the qualities affect the subjective perception of attractiveness, leading to subsequent behaviors and emotions. Semantic differentials are used as a measurement to assess attractiveness. This measurement comprises 28 seven-step items or 10 for the short version, with each item featuring opposing adjectives. The adjectives are arranged into a scale of intensity for each set (Hassenzahl et al., 2008).

4.5.5 Cronbach's Alpha

For questionnaires that collect numerical data, the reliability of these measures is vital for the trustworthiness of the results. If the questionnaire produces nearly the same results under consistent conditions, then it is considered reliable. A common method to measure this is Cronbach's Alpha, a coefficient introduced by Cronbach (1951) that is convenient to compute by averaging the variances of individual items and the variance of the total score of the items. This coefficient theoretically ranges between 0 and 1, with values above 0.7 generally considered acceptable for demonstrating measurement reliability (George & Mallery, 2003).

Since this coefficient was initially widely used in the psychological field, several considerations need to be taken into account when introducing it into UX questionnaires (Schrepp, 2020). Unlike psychological studies, which primarily focus on participants themselves, UX research also involves the product, thereby making the scale's reliability product-dependent as well. Additionally, the UX focus is often on the average opinion of the target group rather than individuals, making a moderate Alpha acceptable. Moreover, since this coefficient is sensitive to sampling effects,

Assessment of **Genie Action Toolbox Phone Interface**

With the help of the word pairs please enter what you consider the most appropriate description for **Genie Action Toolbox Phone Interface**.

Please click one item in every line.

simple*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	complicated
ugly*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	attractive
practical*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	impractical
stylish*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	tacky
predictable*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unpredictable
cheap*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	premium
unimaginative*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	creative
good*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	bad
confusing*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	clearly structured
dull*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	captivating

* required field

Figure 4.1: The 10 adjectives for the short AttrakDiff evaluation.

careful interpretation is necessary for small sample sizes, taking into account the scale means.

Although the Design Thinking phases provided a framework for the design process, the progression was not strictly linear as presented in this chapter. As previously mentioned, the process is inherently non-linear, leading to the adoption of three iterations. The next chapter will provide an overview of these iterations and the methods employed in each phase of the overall process.

5

Execution, Analysis & Result

This chapter presents the complete process of our research execution, including the analysis and results at each step, in chronological order. As we followed the design thinking process, certain phases were repeatedly cycled through in the development cycle to refine and enhance the outcomes based on feedback and analysis, a process known as iteration. This project primarily involved three iterations, as shown in Figure 5.1, with specific methods utilized during the process.

The first iteration primarily aimed to establish a comprehensive understanding of the problem and explored initial solutions through ideation and wireframing. Subsequently, the second iteration focused on further understanding user needs, refining the design solution, and conducting user testing. The final iteration involved developing a high-fidelity prototype based on previous tests and conducting comprehensive testing with a wider group of users to ensure the solution met user needs.

At the beginning of this project, it was agreed with the product owner that three fundamental elements must be included in this toolbox: action checklists detailing good practices for various scenarios, tags for easy search and categorization, and academic resources about gender equality. The research then started, building on these foundational components to develop a comprehensive approach to increase user actions toward gender equality.

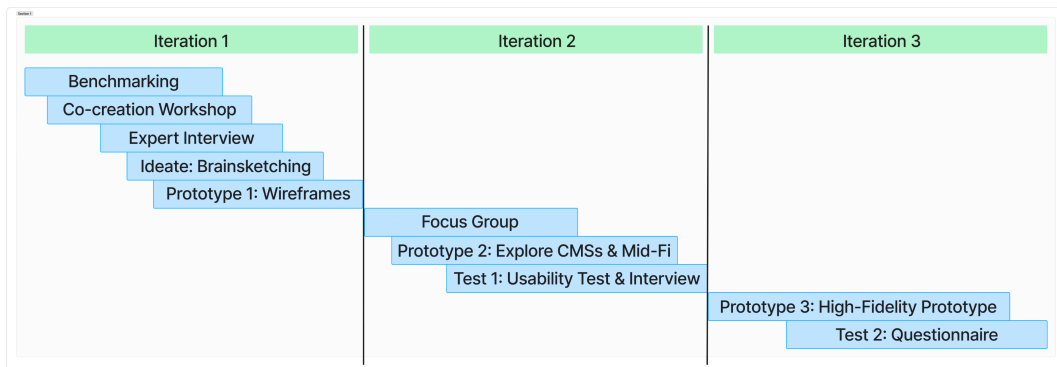


Figure 5.1: The design process of the three iterations.

5.1 Iteration One: Benchmarking

A comprehensive evaluation of existing toolboxes was conducted to assess what others have achieved. Initially, ten toolboxes were analyzed with a focus on their user interfaces and potential improvements. Two additional toolboxes were later identified and included in the table. Detailed findings are presented in Table 2.1. The findings were compiled into a document and subsequently presented during a meeting with the product owner and supervisor. Notably, Genovate’s toolbox emerged as a particularly significant example, especially their Gender App, which closely aligns with the envisioned functionality of Genie’s action toolbox. The product owner and supervisor advised us to contact the team behind the Genovate project at Luleå University of Technology (LTU) to gain further insights into Genovate and to inquire collaboration with us, either currently or in the future. A couple of emails were exchanged with the responsible people from LTU and an interview with Åsa Wikberg-Nilsson, one of the authors of the Genovate handbook, was then scheduled. The interview is covered in 5.3 Expert Interview.

5.2 Iteration One: Co-creation Workshop

The co-creation workshop was conducted to understand users’ needs and identify the most important features to be included in the Genie Action Toolbox. This workshop was scheduled for one hour during a regular Genie meeting and included participants who were representatives and leader of Genie.

5.2.1 Planning

The workshop was divided into two halves, with the second half being voluntary due to participants’ schedule conflicts. The authors alternated roles, serving as facilitators and note-takers in each half. Mentimeter (<https://www.mentimeter.com>) was chosen as the platform for creating interactive presentation slides. The planned agenda is shown below in Table 5.1.

Before the main activities, the workshop started with a warm-up that included meditation and a question related to our project to clear participants’ minds and help them focus on the session. Although the warm-up took some time, it was effective in enhancing creativity, especially since most group members are usually not involved in brainstorming or design practices (Kelley & Littman, 2001). The first half, which involved the largest number of participants, was designed to gather their most urgent and emphasized needs. Three sub-activities were selected to maximize engagement and insight. The sequence began with Post-up Brainstorming, chosen for its ability to quickly generate a wide range of ideas reflecting diverse viewpoints while encouraging active participation from all participants (Gibbons, 2020). Affinity Diagramming was then selected to allow participants to categorize the post-its, which helped identify themes among ideas and build a common understanding. Finally, MoSCoW analysis was used to prioritize the most critical aspects, ensuring that the focus remained on the most urgent needs identified. In the second half,

Co-Creation Workshop Agenda	
Materials: Post-its, pens, papers, sharpies/markers, big paper, 2 whiteboards	
Introduction	5 min
Warm-up:	<ul style="list-style-type: none"> • Pre-activity - Braindraining Meditation 3 min • Warm-up question - What is action for you? 5 min
First half:	<ul style="list-style-type: none"> • Post up - what functions in the toolbox will you use to tackle gender inequality? 5 min • Categorizing (Affinity diagramming) 10-15 min • Fika break • Forced Ranking (MoSCoW analysis) 5 min • Discussion 10-15 min
Break	10 min
Second half:	<ul style="list-style-type: none"> • Storyboarding - imagine yourself using the toolbox in the future. How are you tackling gender inequality at Chalmers? 10 min • Review 5 min/group • Wrap-up - Feedback/Q&A

Table 5.1: Co-creation workshop agenda

Storyboarding was selected to help us understand the use of the toolbox in a specific context, as well as to clarify the role the toolbox plays within that context.

5.2.2 The Workshop

There were a total of 13 participants involved in the co-creation workshop, with 4 of them staying for the second half of the activity. Consent has been obtained for possible photo taking during the workshop, with the condition that faces will not be included in the photos. After the meditation, the warm-up question received 28 responses from 12 participants (see Figure 5.2), where **change** was mentioned the most.

Participants were given a stack of post-its and asked to write down as many desired functions for the Genie Action Toolbox as possible within 5 minutes, with one function per post-it. The task was only described by the facilitator, not shown on the slide, leading to some confusion among participants about what they were sup-



Figure 5.2: Warm-up question responses.

posed to write at the beginning. Upon finishing, about 80 post-its detailing features, content, and functions were generated and posted on whiteboards for everyone to visualize.

Participants were then invited to stand in front of the whiteboard together to discuss and categorize the post-its based on their similarities or themes (Figure 5.3). The final categorization is shown in Figure 5.4. After a short fika break, participants transferred all the post-its onto four large sheets of paper labeled "must have," "should have," "could have," and "won't have." Due to the number of people, this was not done all together at the same time, and they could move others' decisions of post-its between these papers. The result of MoSCoW analysis can be found in Figure 5.5. Subsequently, participants began discussing the outcomes of the previous activities. The discussion primarily focused on including academic papers as resources, providing contact after incidents, and showing statistics about trends in gender equality at Chalmers.

The storyboarding activity was conducted in two groups of two people each, with the task of creating an eight-frame story about their use of the Genie Action Toolbox within 10 minutes. The groups were assigned based on their common food preferences, which participants commented was a good practice. Sharpies were used to ensure participants focused on the overall narratives rather than getting caught up in too many details (Gibbons, 2020). Surprisingly, both groups chose a meeting as the context for their story. In their scenarios, someone misbehaved, and another person showed the Genie Action Toolbox to get things back on track and achieve success. (see Figure 5.6 and 5.7).

5.2.3 Findings

After the workshop, the post-its from the MoSCoW analysis were reviewed and reorganized according to the scope of this project. For example, content and ad-



Figure 5.3: Participants categorizing post-its.

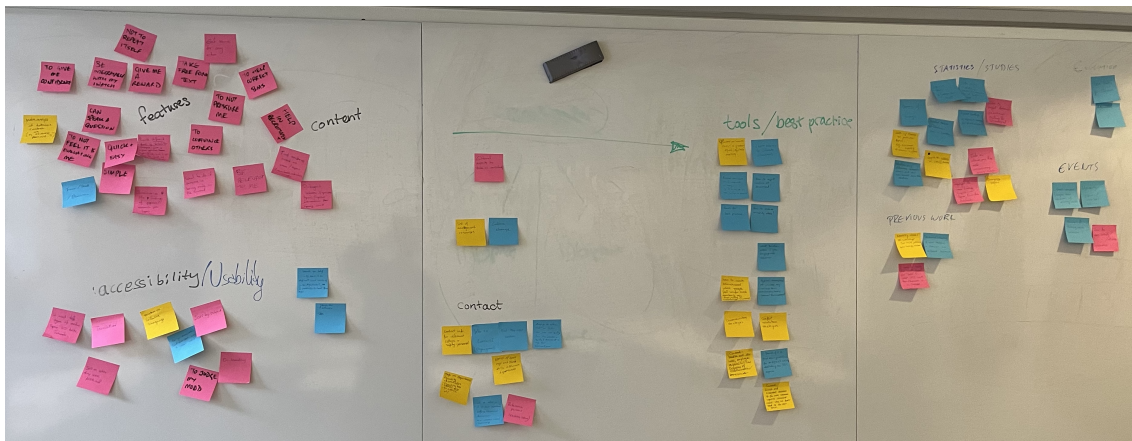


Figure 5.4: Categorization of post-its.

ministration practices were removed, as they are important but not relevant since content creation and policy decisions are not within the scope of this project. Due to time limitations, we decided to focus only on the "must-have" features, and the reorganized "must-have" list can be found in Figure 5.8. Surprisingly, the most frequently mentioned feature was not best practices, but contact, which revealed a strong desire among users for more direct and effective communication channels about gender equality issues.

In both storyboards, the action of 'showing' information on a phone suggests that a 'show-off' feature could be an interesting addition to the Genie Action Toolbox. During the discussion, it was mentioned that trust and credibility are vital for this feature. If the information shown is backed by research, its reliability enhances. Additionally, appropriate color coding could help users recognize and build trust in the Genie Action Toolbox. Similar to the MoSCoW analysis, the need for tailored suggestions based on individual experience was emphasized during discussion,

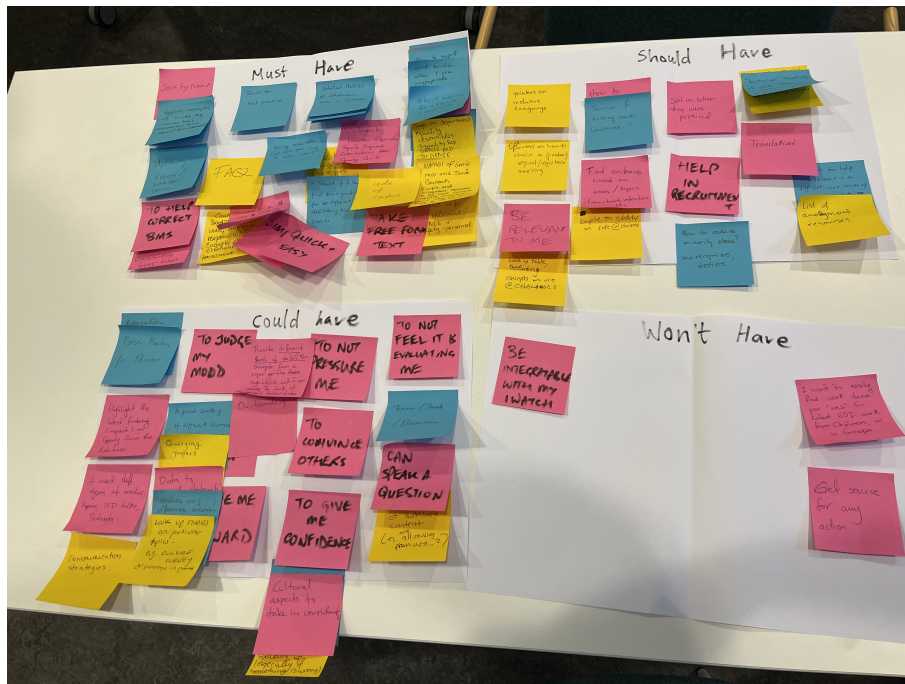


Figure 5.5: MoSCoW analysis results.



Figure 5.6: Storyboard 1.

making an AI chatbot a good fit for this purpose.

A preference for a mobile interface was also identified during the workshop. Summarizing all the findings from the workshop, the key features for our initial minimum viable product were decided and are presented in Table 5.2.

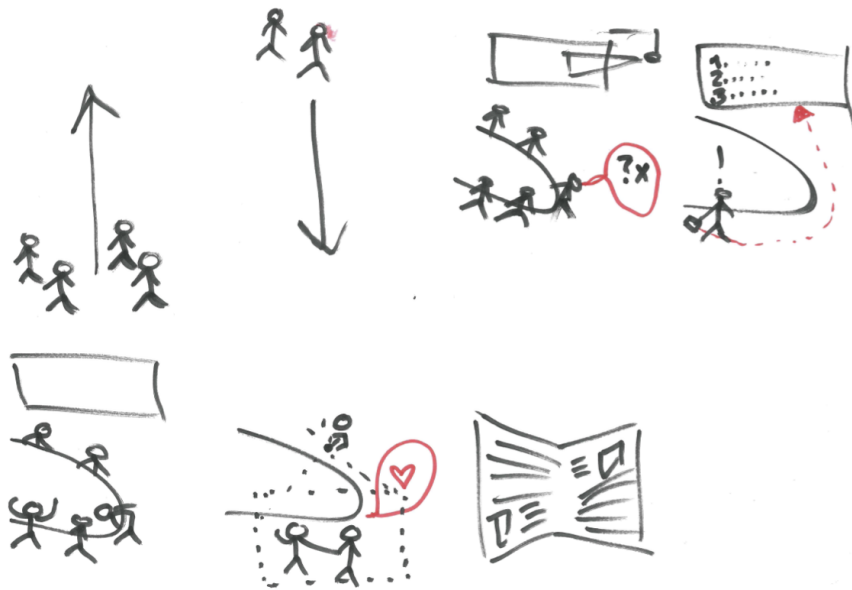


Figure 5.7: Storyboard 2.

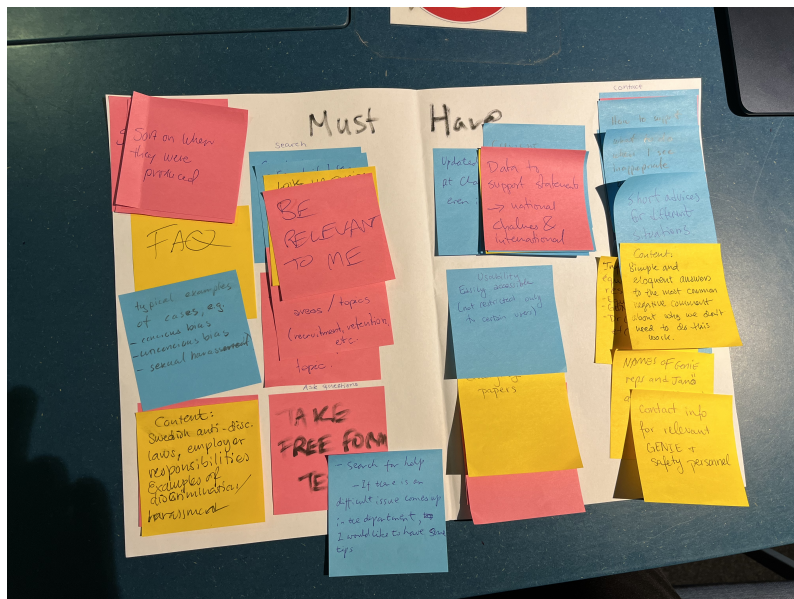


Figure 5.8: Reorganized "Must have".

5.3 Iteration One: Expert Interview

The interview with Åsa Wikberg-Nilsson from the Genovate project was conducted via Zoom and recorded with permission for analysis purposes. It was semi-structured, with pre-determined questions, see Table 5.3. Follow-up questions were asked based on the interviewee's responses. Additionally, after the pre-determined questions, the interview transitioned to a less formal style, allowing for exploration of additional topics.

- Contact information for Genie
- Best practices action checklists
- Chalmers gender statistics data visualization
- Pre-defined frequently asked questions and typical examples
- Usability and easy accessibility (Solution: No registration required)
- Space for background/supporting resources and past studies at Chalmers.
- Search function with options to filter and sort by different aspects
- Support for free-form text input via a chatbot, providing tailored answers based on the user's question
- "Show-off" page with logo

Table 5.2: Key Features Identified from Co-Creation Workshop Findings

How far did you get on developing the toolbox?
What were the challenges?
Did the app have other functions other than the checklist?
What methods or strategies did you use to ensure the usability of the tools you develop?
What are the most significant needs identified during user research?
When the toolbox was put into practice, what feedback did users provide?
How long was spent developing the toolbox, and what were the tech stacks used?
Any tips on what content management system to use to develop our toolbox?

Table 5.3: Expert interview questions

The interview yielded 18 findings, which have been compiled into a list. These findings encompass various aspects of gender issues in academia, the usability and functionality of the Genovate app, and broader considerations for intervention design. See Table 5.4 for the complete list of findings.

Based on these findings, it is evident that a basic understanding of gender issues is crucial for effectively addressing them. The Genovate app's checklist was identified as a valuable feature, raising awareness and addressing gender-related issues in academia. Additionally, adjusting reminder settings was recommended to fit different user needs. It was also noted that users learn by reflecting on their own context. Furthermore, the decision to share sensitive information to receive tailored answers needs to be tested. Overall, these findings underscore the importance of considering diverse user needs and preferences in designing effective interventions for addressing gender issues in academia.

- A basic understanding of gender issues is needed to actually address them.
- How can the method be presented? Can the method be used by anyone, and if so, how? How would it be approached by them to ensure understanding of what needs to be changed?
- Use UX principles to ensure usability.
- Usability and learnability were the most significant needs identified.
- The Genovate app primarily featured a checklist that provided a prompt list of questions to answer and explore further.
- The identified subject, relevant to gender and gender issues in academia, can be addressed during meetings, before for preparation, or afterward for reflection.
- Website was more used back then compared to apps.
- If someone has a lot of questions, don't make them email a person. That person can't answer everything. Find other ways.
- To increase motivation, use different learning strategies like reward and gamification.
- Customizable settings - let users change how often they want to get reminded.
- They used persuasive design, external and internal triggers and nudging.
- Curate your own AI.
- Think about colors, colors are gender as well. You have to think about what kind of figure this chatbot should be, gender neutral and avoid biases.
- Sharing sensitive information or not - to get tailored answers, need to be tested.
- People who are familiar and not familiar with gender theories need to be considered.
- They measured understanding before and after app usage, and found that it raised awareness.
- Users learn by reflecting on their own context. Push their own reflection by prompting questions.
- Real time feedback aided by AI will be helpful but need filters to avoid biases.

Table 5.4: Findings from the expert interview

5.4 Iteration One: Ideate

After compiling and analyzing the data gathered from the workshop, the brainstorming method was employed to ideate interfaces for both website and mobile platforms. The materials used included paper, pencils, erasers, and markers. Each

5. Execution, Analysis & Result

sketching round lasted 5 minutes, after which each drawing was exchanged among the authors and continued for additional 5 minutes. Hence, each page underwent a 10-minute session of sketching. This process resulted in the generation of sketches for the homepage, contact, and chatbot pages, as well as mobile interfaces, see Figure 5.9. The full sketches can be found in Appendix A.

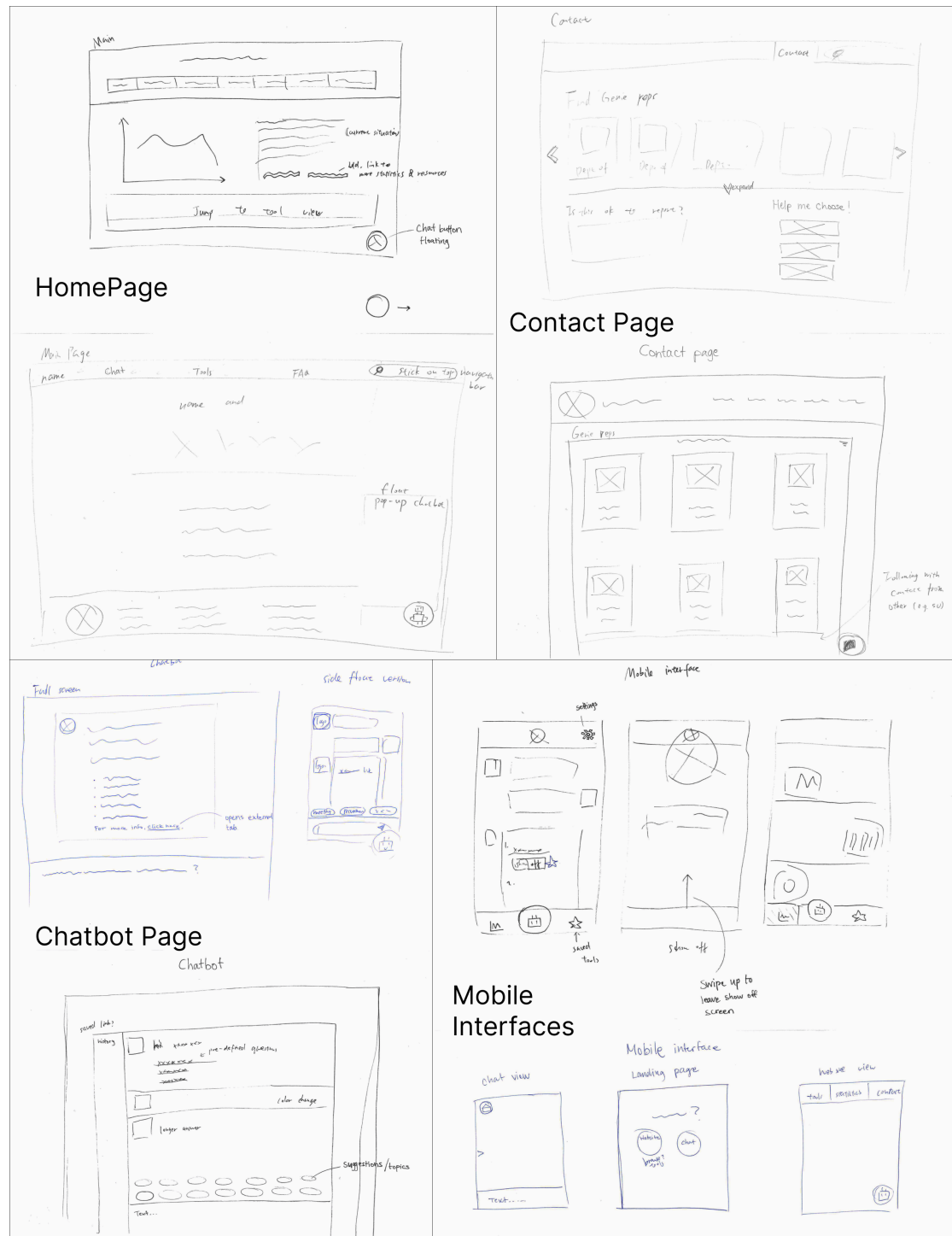


Figure 5.9: Brainsketching sketches.

5.5 Iteration One: Prototype 1 (Wireframes)

Based on the feedback from our supervisor, the home and contact pages for the website, as well as the pages for the mobile interface, were refined to ensure a consistent presentation style, see Figure 5.10, 5.11, and 5.12. The initial plan was to present the wireframes during the focus group session. However, due to scheduling conflicts and short notice, the wireframes were instead presented to the product owner (PO). The feedback from our supervisor is presented in Table 5.5.

During the meeting with the PO, discussions regarding the content of the homepage and the platform choice ensued. The PO agreed to designate the chatbot as the homepage for quick access, aligning with the envisioned goal of facilitating swift interaction. Originally, there was consensus to develop a website interface. However, insights gathered from the workshop revealed a demand for a mobile interface among the participants. The PO entrusted us with the decision of what to focus on, considering the implications of developing interfaces in a content management system (CMS). Notably, it was emphasized that a mobile interface could only be developed subsequent to the establishment of a website interface in CMS. Consequently, it was unanimously agreed to proceed with the development of both interfaces.

- What are the consequences if the chatbot is used as the landing page and stopped working? Ask users about this if a normal homepage is needed like the web version.
- Resources need to be included somewhere outside hamburger menu.
- Icon of toolbox could be changed.
- Good to have a report button in contact page.
- Dynamic show-off page could be fun, show the short text bold and big (e.g. LET WOMEN SPEAK).

Table 5.5: Supervisor's feedback of the wireframes

5.6 Iteration Two: Focus Group

In order to gain insights from the majority group, who are not directly involved with gender equality work, a focus group was conducted with employees of Chalmers University occupying diverse roles. Although ten individuals were invited, representing both genders, only six women participants, including the PO, attended the session. The invited participants are interested in the topic of gender equality and aware of the issue at Chalmers University. Following introductions and formalities, a set of scripted questions was successively presented, see Table 5.6. The duration of the session was one hour, during which audio recording via mobile phone was employed for later analysis. Due to participant availability, the focus group was held two weeks later than initially planned. As a result, mid-fidelity prototype, which will be

5. Execution, Analysis & Result

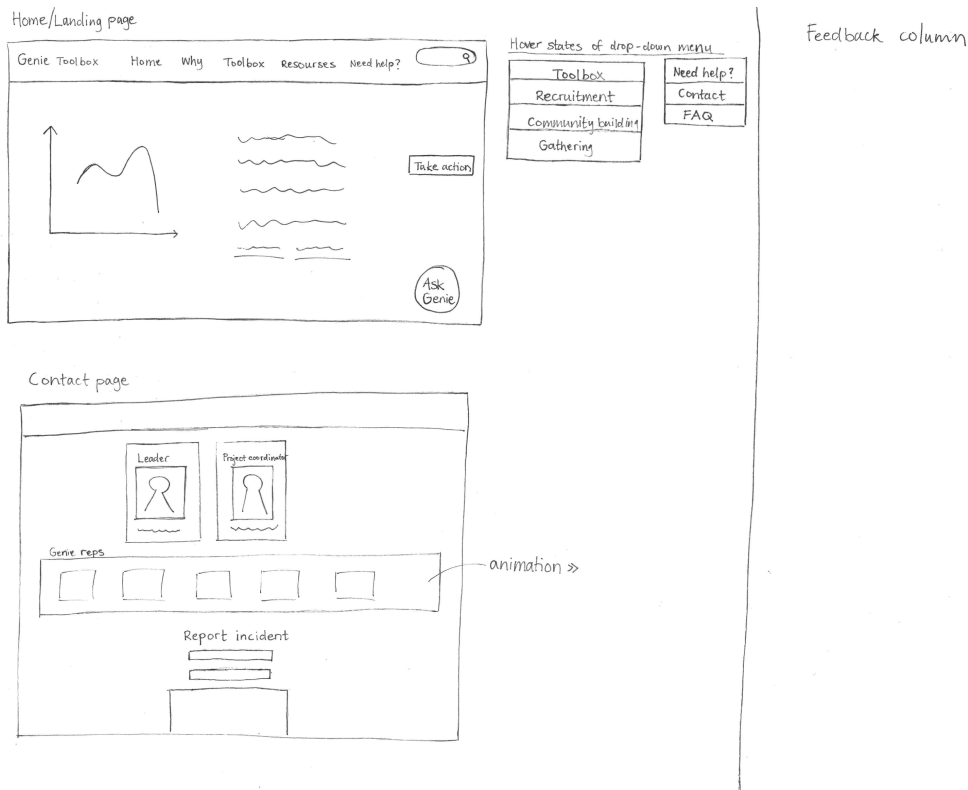


Figure 5.10: Wireframe of website's home and contact page.

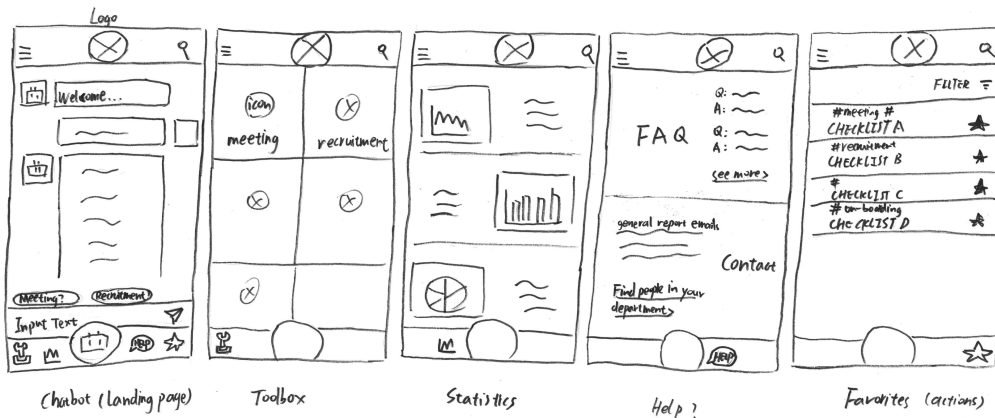


Figure 5.11: Wireframe of mobile interface.

introduced in the next section, were used in their phone browsers to collect feedback, replacing the originally intended wireframes.

The focus group yielded several important findings. All participants were aware of and expressed a desire to contribute to gender equality efforts, revealing a larger group of potential users who are informed about the situation and eager to engage. The most extensive discussions centered around the topics of mistreatment and reporting. Participants found it challenging to clearly define mistreatment in real-

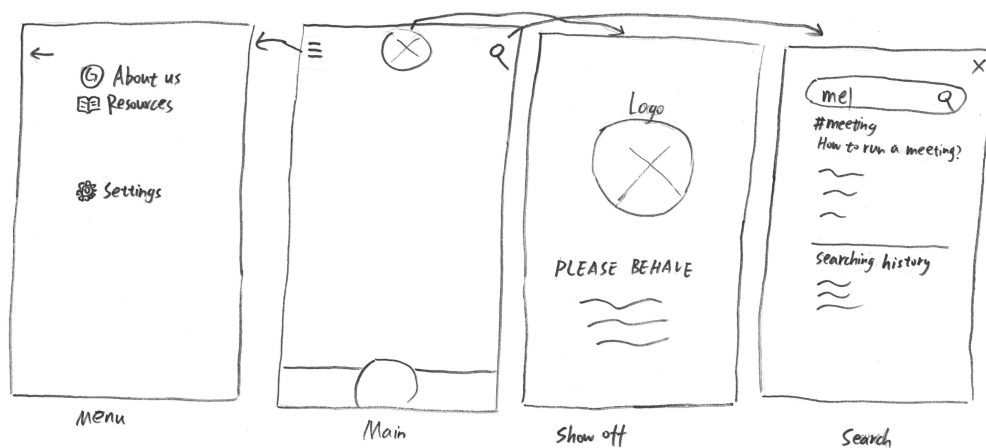


Figure 5.12: Wireframe of mobile menu.

1. Are you aware of the gender equality issue at Chalmers?
 - 1.1 Do you know about the Genie initiative?
2. Would you take action if you get mistreated based on your gender when working at Chalmers?
 - 2.1 If you will take action, would you report it? Is it difficult to report?
 - 2.2 If not, if there was something that could help you, would you be interested in using it?
3. If you see that someone is experiencing a mistreatment, what would you do?
4. If there was something that could guide you, in what format would it be?
5. What functions or tools do you imagine yourself using in the Genie tool-box?
6. Are the features appropriate or are we missing something important?
7. Show off page - with or without a prompt?

Scenario

You work at Chalmers and will be attending a meeting. Your female colleague proposes an idea, but the leader interrupts her and says that she should focus on “appropriate” tasks as a female.

You empathize with her and open the Genie app to explore what you can do to help her.

Table 5.6: Focus group agenda

life situations and were uncertain about whom to contact, which led to a lack of trust in the reporting system and concerns about the potential consequences of speaking up. During the discussion, a new idea emerged—creating an internal forum

to provide tailored suggestions and facilitate communication. Overall, participants were generally satisfied with the prototype, though some ethical concerns were raised regarding the chatbot. The bottom navigation bar was overlooked, likely due to its similarity to app designs rather than website layouts, and because it blended in with the background color. Additionally, they expressed doubts about using the 'show-off' feature in meetings.

To sum up, the focus group reinforced the need for contact and tailored suggestions, aligning with our current design. Trust and awareness were also remarked as crucial. The proposed forum feature, enhancing human-to-human communication, would be a valuable addition in the future.

5.7 Iteration Two: Prototype 2 (Exploring CMSs & Mid-Fi)

In the beginning, the product owner (PO) communicated the requirement to launch a toolbox website by the end of the thesis. The easiest and fastest solution was to develop the website using a content management system (CMS), which does not require extensive coding and offers a wide range of templates. To identify the CMS that best met the requirements, five CMSs were evaluated (Table 5.7). However, due to navigational difficulties encountered during its evaluation, Contentful was excluded from the table. Although several suitable alternatives were identified, Wix was deemed the optimal choice because it allowed content labeling for free, while other options required a paid plan for this feature. Hence, Wix was selected for the development of the mid-fidelity prototype and chosen as the environment for the initial user test. Although our supervisor suggested using Figma as the basis for the coding team, Genie Lab, to develop the website, we decided to continue with Wix due to the partially developed prototype and the approaching user tests. Moreover, compared to Figma, Wix allows for publications that can be accessed as real sites and a working search function, making it a good choice for testing user interactions and overall functionality.

Several changes were made due to limitations and other factors. For example, the chatbot was intended to be the landing page based on the wireframe prototype. Since it was not possible to embed ChatGPT in Wix using the free plan, it was modified to an external link for access. The toolbox view was kept unchanged as a result of responsive design. The statistics section was redesigned to account for multiple categories utilizing the data source from Genie annual gender report. The homepage was created to provide background information on the Genie initiative. Additionally, to optimize space for more important content on the help page, the FAQ was given its own separate page. Although the vision of saving checklists in one place was highly valued, it required personal user accounts. However, the features that come with adding user accounts to a Wix website did not align with our objectives, even if a "favorites" function was possible. The goal was for users to be able to save checklists generated by the chatbot, rather than simply favoriting

a checklist uploaded as a PDF file, although this latter feature is also beneficial. The "About Us" and "Settings" pages were not created, as they were not anticipated to be evaluated in the user test from a functionality perspective. The positions of the search and hamburger menu were swapped to ensure consistent placement with the website interface. The graphical user interface underwent further enhancement in response to the feedback from our supervisor. These enhancements included the addition of a proper placeholder logo, upgraded footer, and buttons. See figure 5.13 for the mentioned pages, and Appendix B for the website interface.

	Wix	Wix App	Squarespace	Wordpress
Nav. bar	x	x	x*	
Checklist	x			x*
Embed	x			x
ChatGPT	x*			x*
Database	x			
Tag/Category	x	x	x	x
Chart			x	x
Favorite				x*
Quiz				x

*Paid feature

Table 5.7: Requirement fulfillment of the CMSs

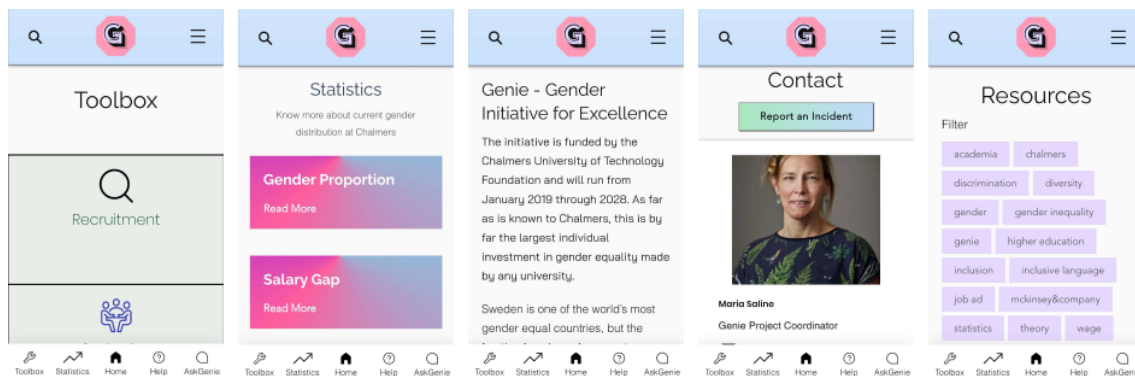
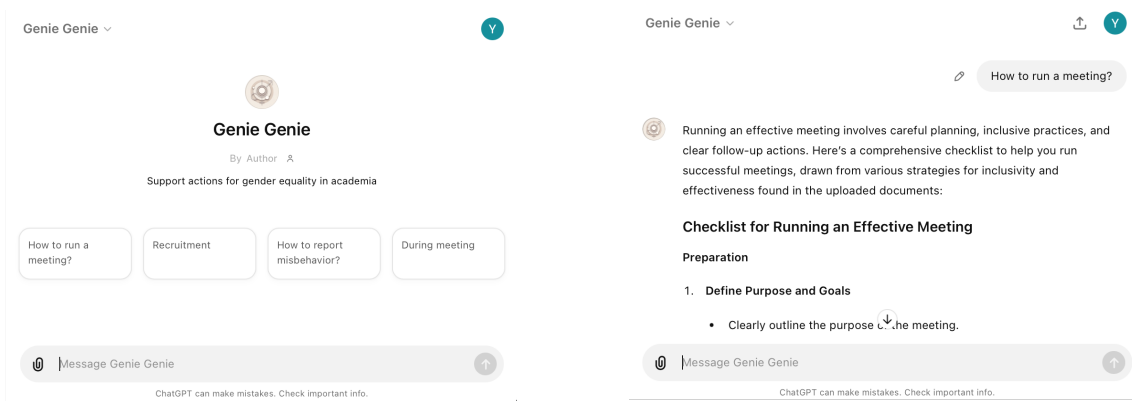


Figure 5.13: Toolbox, statistics, home, help, and resources page.

As part of the prototype to be tested with users, a customized chatbot named Genie Genie was built using GPTs (OpenAI, 2023). There were two main reasons for choosing this platform: it requires no coding, allowing for fast prototyping, and it can accommodate text instructions and uploaded files to provide relevant answers. Additionally, ChatGPT is widely used, making its interface familiar to many users. To build this chatbot, a list of good practices summarized by Genie, as well as eight academic resources, were uploaded as the knowledge base. The goals of this chatbot, the ethical issues that need to be considered, and the desired answer format (checklist) were specified in the instructions to the model. Four conversation starters were predefined based on the most common previous concerns. The completed prototype is shown in Figure 5.14.



(a) Landing page.

(b) Dialogue interface.

Figure 5.14: Chatbot Genie Genie.

5.8 Iteration Two: Test 1 (Usability Test & Interviews)

Following the development of the mid-fidelity prototype, the next phase involved user testing. The test included both quantitative and qualitative approaches. Four user scenarios with corresponding tasks were devised to ensure a systematic approach, followed by six interview questions, see Table 5.8. The interviews were semi-structured to allow for follow-up questions. A Google Form was utilized to assess the difficulty of the tasks and gather feedback on the suggestions provided by the chatbot. The form primarily utilized semantic differential scales ranging from 1 to 6, avoiding a neutral middle point, where higher scores indicate a more favorable response.

After our supervisor reviewed the user test plan, a Google Form was created for participant sign-up. In the form, users could select available date and time slots and choose between English or Swedish as their preferred language. This ensured that participants could comfortably express their thoughts, leading to more accurate data during the user test.

Scenario 1

You are a professor at Chalmers and need to organise a meeting to start a research project. This project is multidisciplinary and will involve people from various backgrounds. You need to ensure that this meeting is as inclusive as possible.

Task:

- Navigate to the Inclusive Meeting Guidelines page.
- Search for the Inclusive Meeting Guidelines page.

Scenario 2

You are in a conference outside of Sweden and they are interested in the current situation of gender equality at Chalmers and also in your department which is CSE.

Task:

- Find gender-related statistics for both overview at Chalmers and CSE department
- Find the paper published by Genie by using tags

Scenario 3

Your colleague told you about her experience of being mistreated by her boss. She would like to report the incident, but does not know how to and asked you. You show her the Genie toolbox website and navigate to the page in question.

Task:

- Find the link to “Safe at Chalmers” and the Genie representative in your department

Scenario 4

You are in a meeting and want to express some ideas to the team, but are constantly getting interrupted by the leader and no one is helping you. You open the Genie toolbox on your phone for help.

Task:

- Use the chatbot to get help
- Use show-off page

Questions

1. What do you think of the user test?
2. Did the prototype meet your expectations?
3. Do you feel that this is an action toolbox? Would you call this an action toolbox, or something else?
4. Would you read the whole paper on your phone or would only an abstract be enough?
5. If there was a show-off page (with or without a prompt) in the Genie toolbox, would you use it? Would you be affected if someone used that on you?
6. Any questions or comments?

Table 5.8: User test plan

An email containing the Google Form link was drafted and sent to the product owner,

who then forwarded it to the Genie and equality representatives, for sign-up. Three participants registered for the user test in response to the initial email. A follow-up email was sent to the same group, resulting in two additional registrations. One equality representative did not receive the emails, so it was subsequently forwarded to them directly by the authors upon encountering them on the campus. One individual signed up at a very late stage and was not considered due to the short notice. However, an email was sent to thank them for their interest.

The user tests were scheduled via email exchanges. During the tests, participants' faces, audio, and screens were recorded via Zoom with their permission for analysis purposes. Based on their language preference, the six participants were equally divided into two groups, each facilitated by one of the authors. The testing setup and chatbot differed between the two language groups. The Swedish group utilized the "Mobile Simulator - Responsive Testing Tool" Chrome add-on to navigate the mobile interface with a laptop and used regular ChatGPT, while the English group navigated the interface with facilitator's mobile phone and used the customized Genie Genie chatbot. In the latter setup, the phone joined the laptop's Zoom room for recording. These differences in setups were based solely on the authors' individual preferences. The purpose of testing with both regular ChatGPT and Genie Genie was to determine if the latter was perceived to provide better suggestions by comparing the results.

The tests were scheduled for one hour, with each scenario accounting for a maximum of ten minutes. Copies of the task list were printed out for participants to clarify the tasks. Before the test started, a general description of the test plan was given, and participants were asked to think aloud during the tasks. For each scenario, the facilitators introduced it first, then asked participants if they understood or had any questions. Potential discussions were started towards the tested area after or during each task. A Google form for collecting quantitative data was given to participants after they completed all tasks, followed by the interview.

5.8.1 Analysis & Results

The results from the Google Form were compiled into a single graph, as shown in Figure 5.15. The questions are outlined below. Tasks rated up to 3 are color-coded as red, orange, and yellow, respectively, while tasks rated higher than 3 are color-coded as green, blue, and purple, respectively. The y-axis represents the quantity of identical ratings, and the x-axis corresponds to the questions. For example, three users rated 6 in Q2. The diagram indicates that the tasks were generally easy to perform, as there are more green, blue, and purple squares compared to red, orange, and yellow ones. The chatbot was especially highly rated, while the navigation to "Safe at Chalmers" and the show-off page require further consideration.

Q1: Finding inclusive meeting guidelines was hard/easy.

Q2: Finding gender-related statistics for both overview at Chalmers and CSE department was hard/easy.

Q3: Understanding the statistics was hard/easy.

Q4: Finding the link to “Safe at Chalmers” and the Genie representative in your department was hard/easy.

Q5: I find the chatbot itself to be useless/useful.

Q6: Finding the show-off page was hard/easy.

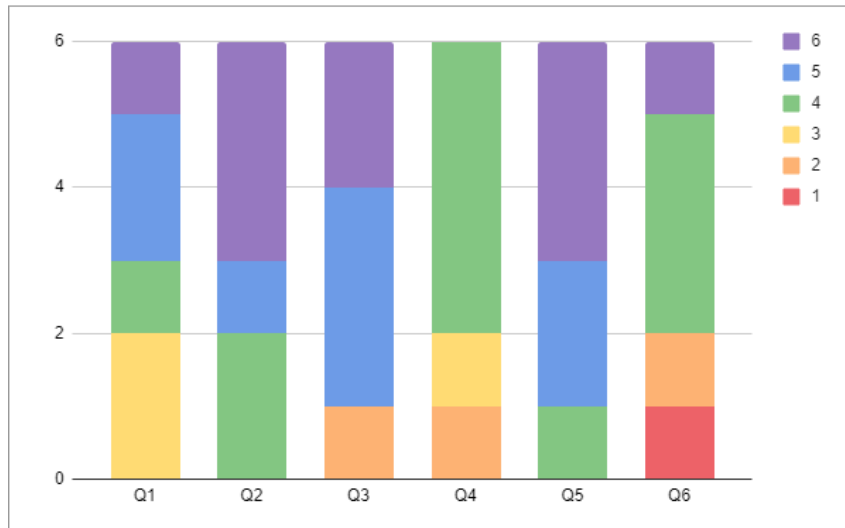


Figure 5.15: Diagram of the compiled Google Form results.

- The reason why Q1 received two ratings of 3, despite its seemingly straightforward nature, could be due the category name "Gathering", or the layout of the page. Some users associated this category with informal meetings, leading them to skip it during the task when the scenario involved a meeting at Chalmers. One user did not know that they were supposed to scroll to see more categories.
- Regarding Q2, some users did not realize that there was a "Statistics" button in the navigational bar. Instead, they initially went through the hamburger menu and explored the toolbox page before realizing that statistics were not located there.
- The responses to Q3 are skewed because three users did not read the graphs, two users had seen and understood them before, and only one user attempted to understand the graphs. With the only valid feedback rated as 2, the figures need clearer captions and explanations, as well as interactivity and the ability to easily switch and compare.
- There are three ways to find the link to "Safe at Chalmers," two of which are under "Help" and require one and two clicks respectively. The final approach is deeper in an action list under "Harassment". Four users initially navigated to "Harassment" on the toolbox page, which requires the most clicks among the three options (toolbox -> harassment -> addressing harassment). Moreover, two of these users failed to find the link after arriving at the action list, as the hyperlink is titled "reporting of harassment incidents," which does not clearly

relate to "Safe at Chalmers." This may explain why Q4 did not receive high ratings, as the most used path required the most clicks and lacked clear labeling. It needs to be placed more prominently, as the participants emphasized that one additional step before reporting could be an obstacle.

- The chatbot was found to be very useful, with no significant rating difference between regular ChatGPT and the customized chatbot in Q5. This is likely due to users' previous positive experiences with it, hence the favorable ratings. However, there was feedback regarding the navigation to the chatbot, particularly concerning the name "AskGenie," which may not immediately convey its association with AI.
- Q6 received two negative ratings because the users did not know or understand what a show-off page was. The users either found it accidentally, searched for it, or understood that it was hidden in the logo after receiving an explanation.

To see how the six users successfully performed the tasks, refer to Table 5.9. As indicated by the data in the table, the hamburger menu was more frequently used than the navigation bar. For example, only one user used the navigational bar to find inclusive meeting guidelines. As found in the focus group (participants did not notice the navigation bar), this could be due to the similar contrast between the white background and the bar, causing them to blend together. For the next iteration, the navigation bar should be redesigned with a different color or contrast to enhance visibility (Ware, 2020). Another possible explanation is that the tests were conducted in a web browser environment, where users tend to be more familiar with hamburger menus for navigating websites based on their prior experiences. Furthermore, the navigational bar is commonly associated with app interfaces, which could explain why the users overlooked it. Their behavior also explains their ratings: one task under Q4 and the task under Q6 entailed more back-and-forth interactions and confusion, thereby contributing to the lower ratings.

	Inclusive meeting guidelines	Safe at Chalmers	Genie rep	Show-off
Nav-bar	5	4 ¹	245	
Hamb-menu	12346	1 ¹ 2 ¹ 6 ¹	136 ²	
Search				14
Logo				2 ² (356) ³
Action list		3 ¹ 5		

1¹, 2¹ Searched first, but failed to find.

2² Accidentally clicked logo several times before the task.

3¹ Searched in Swedish first, but failed find.

4¹ Went to action list and search, but both failed to find.

6¹ Went to action list and resources, but failed to find.

6² Went to resources, but failed to find.

(356)³ Found with the help of facilitator.

Table 5.9: Navigational analysis

From Figure 5.15 and 5.16, it is evident that the chatbots were perceived positively.

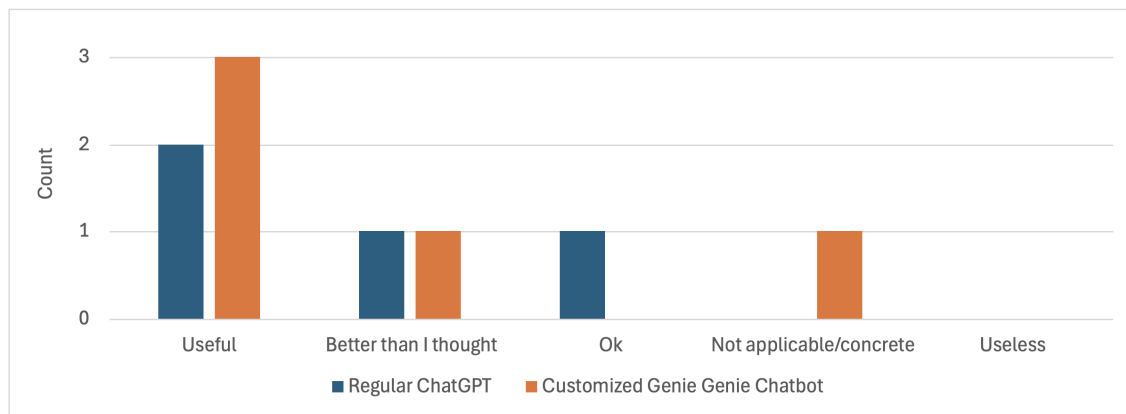


Figure 5.16: Feedback on the suggestions provided by different chatbots.

Details on how users interacted with the chatbot and the responses they received can be found in Appendix C. The regular ChatGPT provided fewer but more tailored examples of actions compared to Genie Genie. Specifically, one user received a brief example of a concrete action, while the other two users received longer and more detailed examples tailored to the situation. In contrast, Genie Genie requires follow-up questions to arrive at concrete actions for specific "during meeting" situations. Additionally, some Genie Genie users found this additional interaction and longer responses too time-consuming during meetings, while others appreciated the response speed and rich content, suggesting this aspect could be tested in future research. A notable strength of Genie Genie is that it begins by providing references (when applicable) before listing concrete actions, and its responses are more structured, unlike the regular ChatGPT, which organizes answers into paragraphs.

The majority found the chatbots to be useful, while only one individual rated them as "Ok". This individual can be considered an expert in communication, given their extensive experience in the field, which may explain their rating. In the interview, they mentioned that they already possess the knowledge in their own library and were therefore not particularly impressed.

Although the chatbot is regarded as useful, some critiques arose about the context and platform of use. The test scenario was during a meeting, where taking out a phone and typing with the chatbot could be noticeable and seen as non-inclusive behavior. In contrast, using a laptop could feel more natural and appropriate in this setting, hinting at the future need for a desktop version.

To sum up, the findings from the usability test and interviews are summarized in Table 5.10, providing us with direction for further improvements in the final prototype.

Theme	Findings	Quotes
Color scheme	The overall color is too pinky, could be more gender neutral.	<i>"..the color I think it's nice, but we should be worried not to only address women in this situation and that everybody.."</i>
Navigation bar	Users didn't really look or read the navigation bar, but after using it, some participants preferred it for easier access but need a stronger color contrast with the background..	<i>"I have no idea what's in it."</i> <i>"...bottom was good because it was also better for me to use my thumb"</i>
Resources	"Resources" were hard to find, hidden in the hamburger menu. Too many tags outside for filtering papers were overwhelming and could become problematic as the database grows. A search function for articles would help. Participants won't read papers on their phones, preferring external access to full papers. They suggested that 1 or 2 key points would be more concise than an abstract.	<i>"I think it was hard to find the reference. Find the paper published by Genie. It was very hard. "</i> <i>"I typically read papers on a laptop...maybe instead of the abstract like just one or two bullet points, that would be the main takeaways."</i>
Contact	"Help" is not associated with contact. Additionally, there is no mention of "Genie representatives" on the contact page, so users won't know who they are or what role they have.	<i>"I might associate help with the question mark, like help in navigating in the in the app"</i> <i>"Who are these people? Are these the Genie representatives?"</i>
Report Incidents	There should be fewer clicks to reach "Report an Incident." "Safe at Chalmers" also needs to be more visible or easier to access.	<i>"Maybe the report an incident should be higher up (in the menu). I don't know how many clicks it takes before you get there."</i>
Chatbot	"AskGenie" is not clear in conveying that it represents AI.	<i>"You don't know what is expected to pop up when you press on something like this, "AskGenie". If you get a telephone number or mail address or something like that. Actually."</i>

Statistics	Plots should be interactive and allow for comparison, with additional captions and numbers to aid understanding.	<i>"I think there would need to be some interactive chart."</i>
Action Checklists	Gathering is unclear when referring to meetings, and the guidelines should be more concrete.	<i>"I thought it would be for gathering of my network or something that I would have with my colleagues, not a meeting."</i> <i>"Guidelines here...I think they're too vague. I'm not sure that helps"</i>
Show-off Page	<p>Genie as a brand needs to be strong for people to take you seriously, if you use the show-off page. Participants liked the idea but were unlikely to use it themselves and felt uncomfortable if others did. Additionally, they found the show-off page difficult to locate, as the logo is more associated with the home page.</p> <p>However, they acknowledged that it could be a good motivational tool, as it is brief, can feature dynamic content, and highlights key points effectively.</p>	<i>"Then it's important that everyone knows that there's a show-off page and everyone knows what it means, else they will be like, what the hell is this that you are showing?"</i> <i>"I don't see myself as like showing my phone there to everyone...I would use that show off to myself, which is not show off it's mainly like motivation of the day type thing."</i>

Table 5.10: Findings from usability test and interview

5.9 Iteration Three: Prototype 3 (High-Fidelity)

After the first user test, the improved high-fidelity prototype was created using Figma. As mentioned in Section 5.7, our supervisor recommended using Figma for prototyping, allowing Genie Lab to use it as a foundation for coding the website. Compared to CMS, Figma allows real-time collaboration, focuses solely on design rather than website building with fewer limitations, and supports more complex interactions. During our meeting with Genie Lab, we agreed to iterate the design in Figma to provide greater flexibility for future development and to avoid issues related to the inability to export from a CMS platform. Proficiency in Figma is also highly valuable as it is widely used in the industry. The complete high-fidelity prototype is presented in chapter 6.1.

Prior to the iterative process, an exploration and analysis of font and color were conducted to ensure a consistent design and to facilitate communication both internally and externally, see Figure 5.17. The font Hind was selected based on its clean appearance for the *Genie Action Toolbox* logo text. The font size was decided according to the mobile interface typography guidelines suggested by Apple Inc. (2024). Inspiration for the color scheme was drawn from headspace.com, Pantone's Fashion Color Trend Report, the color wheel from the Sustainable Development Goals, and Chalmers's own color palette. Additionally, a color palette experiment was conducted using color.adobe.com/sv/create/color-wheel. The attempt to create a custom color palette was abandoned due to the challenges involved in creating aesthetically appealing combinations. The initial color palette was therefore generated using colors.co, which consisted of light colors. Although aesthetically pleasing, the guidance received was to incorporate bold colors to evoke a sense of action or change. Accordingly, the final palette is based on Pantone's Susie Myerson Colour Palette, see the final palette in Figure 5.18.

The theme colors were decided to be light green and orange, aiming to convey the idea that this toolbox is a safe and relaxing place (evoked by green) where you can take action (evoked by orange). The other option was to use only orange, which provides a stronger feeling of action but might be considered too aggressive. The prototype followed the first plan, but participants from the second user test, which will be introduced in section 5.10, were also asked which they preferred.

At an early stage, the then leader of Genie requested a logo. As the project progressed to developing a high-fidelity prototype, a basic brainstorming session (Figure 5.19) was conducted to generate a preliminary logo, aiming to unify the prototype and complete its overall design. However, the pivotal keyword Action was inadvertently omitted and was subsequently reminded by the supervisor. The refined logo was subsequently created using Figma, with the letters G (Genie), A (Action), and T (Toolbox) overlapping in a way that results in multiple interpretations, see Figure 5.20.

Initially, our ambition was to develop both desktop and mobile interfaces. Following supervision, it was advised to prioritize the mobile interface due to time constraints.

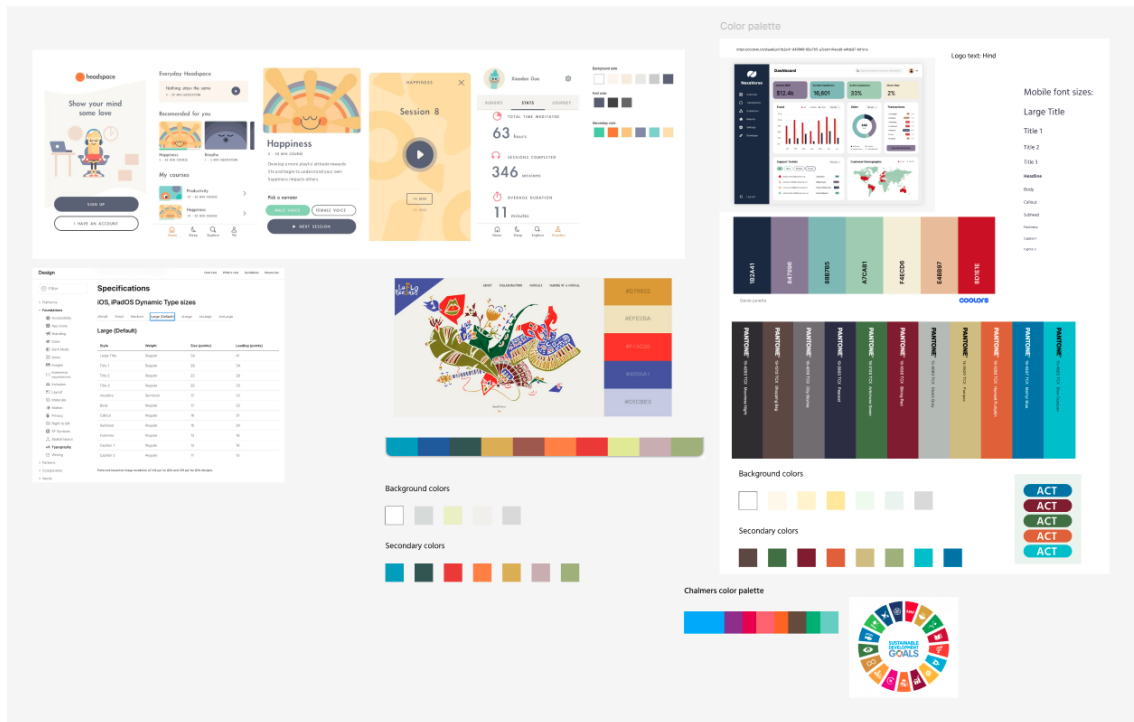


Figure 5.17: Color exploration and analysis.

Background colors



Secondary colors



Figure 5.18: Color palette for Genie Action Toolbox.

Although Figma's flexibility is advantageous, it can lead to the exploration of alternative solutions, potentially extending the design process. Consequently, emphasis was placed on developing the mobile interface.

Considering the previous prototype, the landing page was not rich in content and needed better utilization of space. We decided to feature the most important content, the tools (checklists), to be accessed immediately without a click. According to the user interview, the most obvious issue was the navigation to "Safe at Chalmers." It was decided to nest this under the "harassment" category within the tools, as this was the most straightforward way for users to find it based on the interview. The categories expand after a click, instead of leading to a new page, enabling users to see the content quickly and switch easily between them. Bold colors were selected for each category to provide a strong impact and inspire users to take action for change.

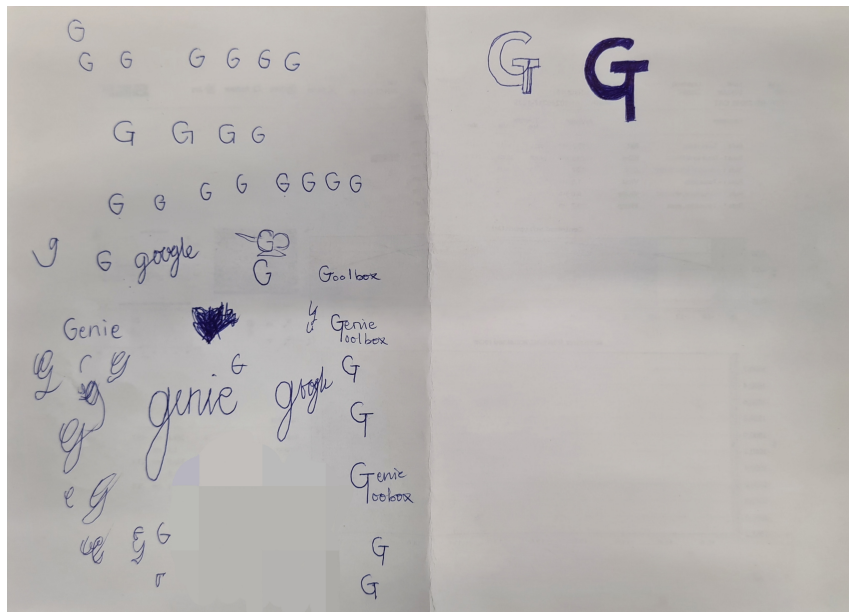
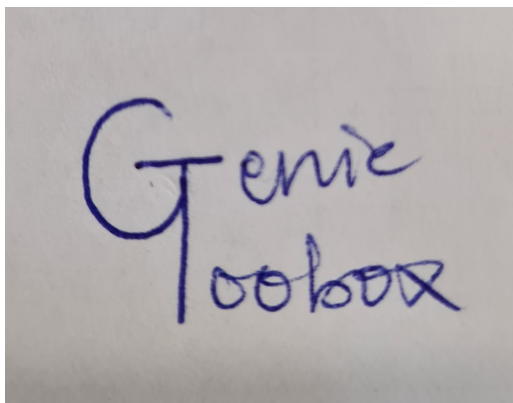
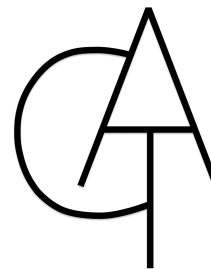


Figure 5.19: Logo brainstorm.



(a) Alternative logo.



(b) Finalized logo.

Figure 5.20: Genie Action Toolbox logo.

As the user test indicated, an interactive data visualization is highly valued for users to understand the current situation. Therefore, department-level aggregated data is needed for this visualization, considering privacy for individuals. However, according to discussions with the human resources team responsible for the data, they are in the process of developing an interactive data tool that includes all the data we need. To avoid double work, the decision has been made that once their system goes online, it will be linked on the statistics page of the Genie Action Toolbox. For now, links to previous Genie gender reports have been provided instead.

A set of tags was reorganized into a drop-down menu, as it was observed during user testing that the scattered tags were not being read. To enhance the user experience in finding papers, features for sorting, filtering, and searching were implemented. The tag feature underwent an iteration before reaching its final design stage. The

default state of the "card" displays title, author, date, toolbox category and tags. The expanded card provides a summary of the paper in two key points, rather than the entire abstract, to improve readability in the limited space and focus on the most critical information. Clicking on the title opens a new tab directing the user to the paper's source, eliminating the need for an extra line of "Link to article" text and saving vertical spacing. Additionally, a page indicator was implemented to prevent users from needing to scroll indefinitely as the database grows.

In the Wix prototype, a participant from the user test noted the absence of a headline for the Genie members section. The section included images, names, and departments, but it was unclear what these individuals represented. Additionally, Dr. Genie was included at the request of the project owner, but only names and email addresses are presented. To view all the members, vertical scrolling was required, as was the case with the Wix prototype. During prototyping in Figma, vertical scrolling was initially retained. However, it became apparent that this approach would take excessive vertical space and require extensive scrolling. To address this issue, horizontal scrolling was implemented instead. A portion of the second profile card was left visible to indicate the presence of additional profiles to the right. A short demonstration of the prototype was shown to the project owner and was also asked to navigate the interface with their phone. Without disclosing how to view more members on the contact tab, it was evident that horizontal scrolling was unusual and the portion too small. A valuable feedback was to enlarge the portion of the second profile card to make it more visible, but since the questionnaire was already live with responses, no changes were made.

According to user test feedback, the initial name of the chatbot, AskGenie, was not clear enough to indicate its purpose. Initially, the two candidates for the final name were AskGenieBot and AskGenieAI. From a literature review, Behrooz et al. (2023) suggested avoiding the term "bot" in naming a chatbot. Our supervisor preferred AskGenieAI, as it conveys a more positive and modern impression, which the project owner also agreed with. Consequently, the tab was named AskGenieAI and accompanied by a robot icon.

Regarding the show-off page in the previous design, user test showed that it would not be used to show others but rather to themselves. Hence, it was tweaked into a daily inspiration pop-up that appears each day upon first opening, featuring a randomly selected key point from one of the resources. Guided by Fogg's behavior model, this approach directs users to easily accessible information, likely decreasing the need for motivation to achieve change and serving as a trigger to call for action. The default pop-up of new knowledge also nudges users to gain more awareness and understanding of gender equality topics. The link to the inspiration page was also changed to an icon on the top bar instead of the logo, as the logo was more related to the home page for users.

5.10 Iteration Three: Test 2 (Questionnaire)

For the second test, questionnaires were used to collect data from a wider range of users, again primarily based on semantic differential scales ranging from 1 to 6 to avoid a neutral middle point. The primary questionnaire was created using Google Forms, and the scenarios from the first user test were reused to provide participants with tasks and gather their evaluations. The scale with statements remained unchanged to facilitate easy comparison. Since the main purpose of this test was to collect quantitative data, no observations were conducted. Consequently, additional questions such as "How did you find x?" and a comment section were included for analysis purposes and to allow users to provide feedback or comments regarding the scenarios.

The second part of the questionnaire focused on the overall impression of the prototype. The evaluation of attractiveness incorporated a short version of AttrakDiff into the Google Form for a more user-friendly experience. The original version of AttrakDiff was deemed too extensive to include in the Google Form questionnaire; therefore, the short version was used to avoid overwhelming the users. Additionally, the questions "Does the color palette in the prototype suit the purpose (taking actions towards gender equality)?" and "Which color suits the purpose the best?" were included to supplement the evaluation of attractiveness. Lastly, the questionnaire ended with five scale questions to assess the inspiration feature and the overall effectiveness of the prototype. The complete questionnaire can be found in Appendix D.

The questionnaires were distributed through Genie's mailing list to over a hundred Genie Members—employees at Chalmers who are interested in Genie's work. After a one-week period, 22 responses (N=22) were received. The final results will be presented in Chapter 6.2.

5.10.1 Cronbach's Alpha Analysis

To assess the reliability of the survey, Cronbach's Alpha was calculated after collecting all responses. The analysis focused on four key impression questions:

- **IQ1:** How did the prototype meet your expectations?
- **IQ2:** I would describe this as an action toolbox.
- **IQ3:** Do you feel you received the necessary support and/or content from the prototype to take actions?
- **IQ4:** Do you believe that this prototype will increase your own initiative to take action?

These four questions were specifically designed to assess the overall impression of the prototype, with higher scores indicating a more favorable response.

Using the statistical software by Wessa P. (2023), the results were calculated in R and are shown in Table 5.11. The overall Cronbach's Alpha for all questions was 0.79, which exceeds the acceptable threshold of 0.7, indicating good reliability. Excluding any individual question lowers the Alpha, demonstrating that each question plays a role in maintaining internal consistency. Notably, removing IQ4 results in the most significant decrease, indicating it contributes the most to the scale's reliability. In summary, these four questions together provide a reliable assessment of the overall impression of the prototype.

Items	Cronbach's Alpha
All items	0.7921
IQ1 excluded	0.7848
IQ2 excluded	0.7498
IQ3 excluded	0.7348
IQ4 excluded	0.6972

Table 5.11: Cronbach's Alpha results

6

Final Results

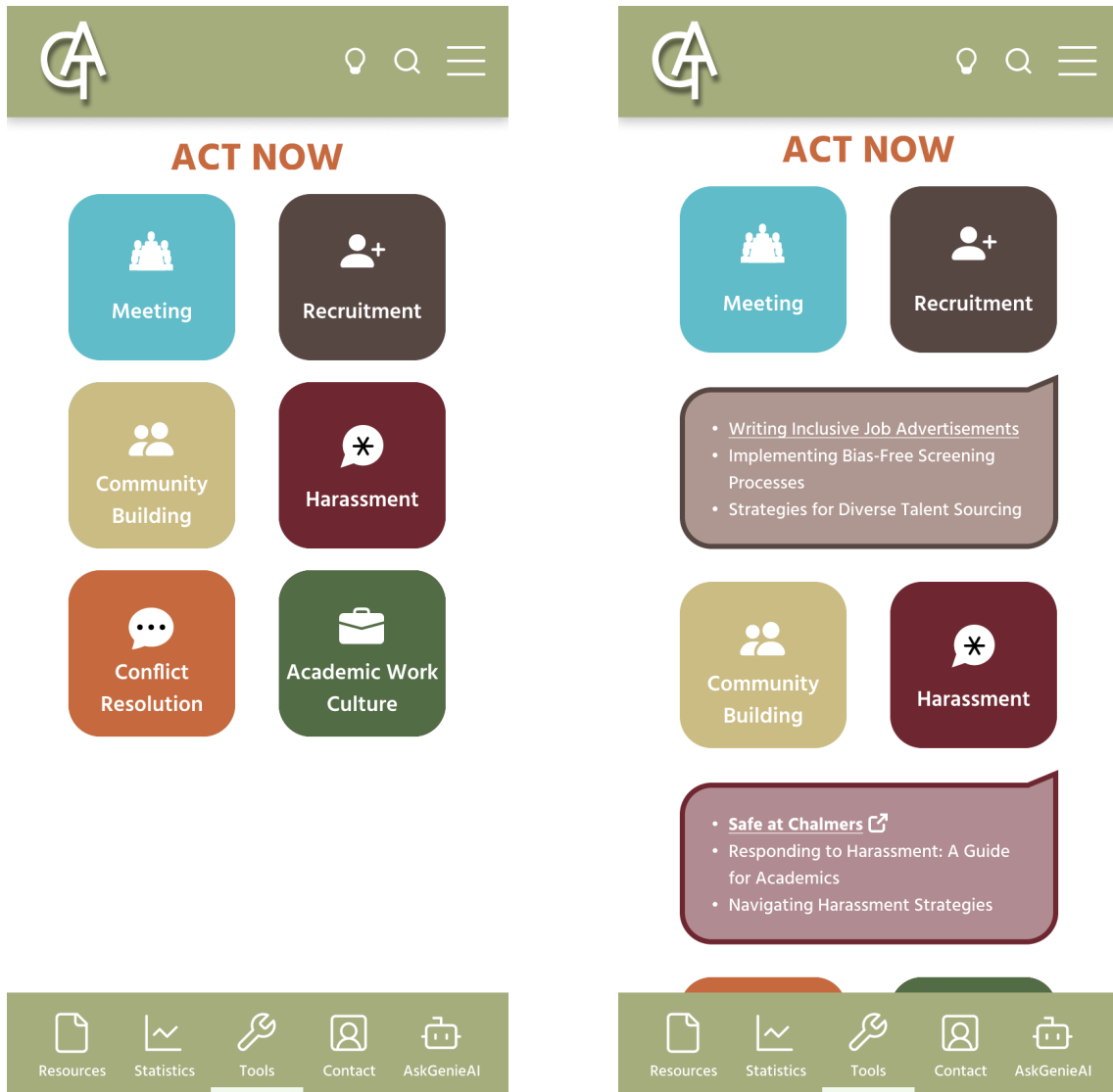
In this chapter, the final results of this project will be presented. First, the final design outcomes and evaluation results will be discussed. Based on these results and evaluations, the research questions will then be addressed, followed by guidelines for design strategies to ultimately answer the problem statement.

6.1 Final design of Genie Action Toolbox

The final design of the Genie Action Toolbox will be introduced and explained in this section. We will begin by discussing the core elements of our design, including the Tools as the landing page and the action lists, followed by the other four key functions. Finally, we will explore the inspiration pop-up and the navigation system.

6.1.1 Landing Page

The landing page was designed as the Tools page, which serves as the most critical section for quick access. A prominent "ACT NOW" title, in a bold orange color, was strategically positioned at the top of the page to urge users to engage with the tools. The action lists are organized into six topics, each represented by a large color block, as illustrated in Figure 6.1. By clicking on each block, it expands to display clickable titles of action lists, which navigate to the corresponding sections, minimizing the effort required for switching between them. Link for reporting incidents were placed in the "Harassment" category, aligning with user intuition while also reducing navigation time.



(a) Default landing page.

(b) Category expand state.

Figure 6.1: Landing pages.

6.1.2 Action List

After clicking on a title, users are directed to an action list. Relevant tags are displayed beneath the title and are clickable to initiate a search. The items in the checklist are interactive, allowing users to record which tasks have been completed. Two buttons are placed on the top right corner for easy single-handed access and lead to full-screen mode and print PDF options. Another print PDF button is located at the end of the action list, thereby eliminating the need for users to scroll back to the top in order to initiate printing. In full-screen mode, the action list occupies the entire screen for a more focused experience. The exit full-screen button is fixed in the top right corner to ensure it remains readily accessible throughout the scrolling process. The PDF version of the action list is formatted in A4 size, ready to be printed for daily use.

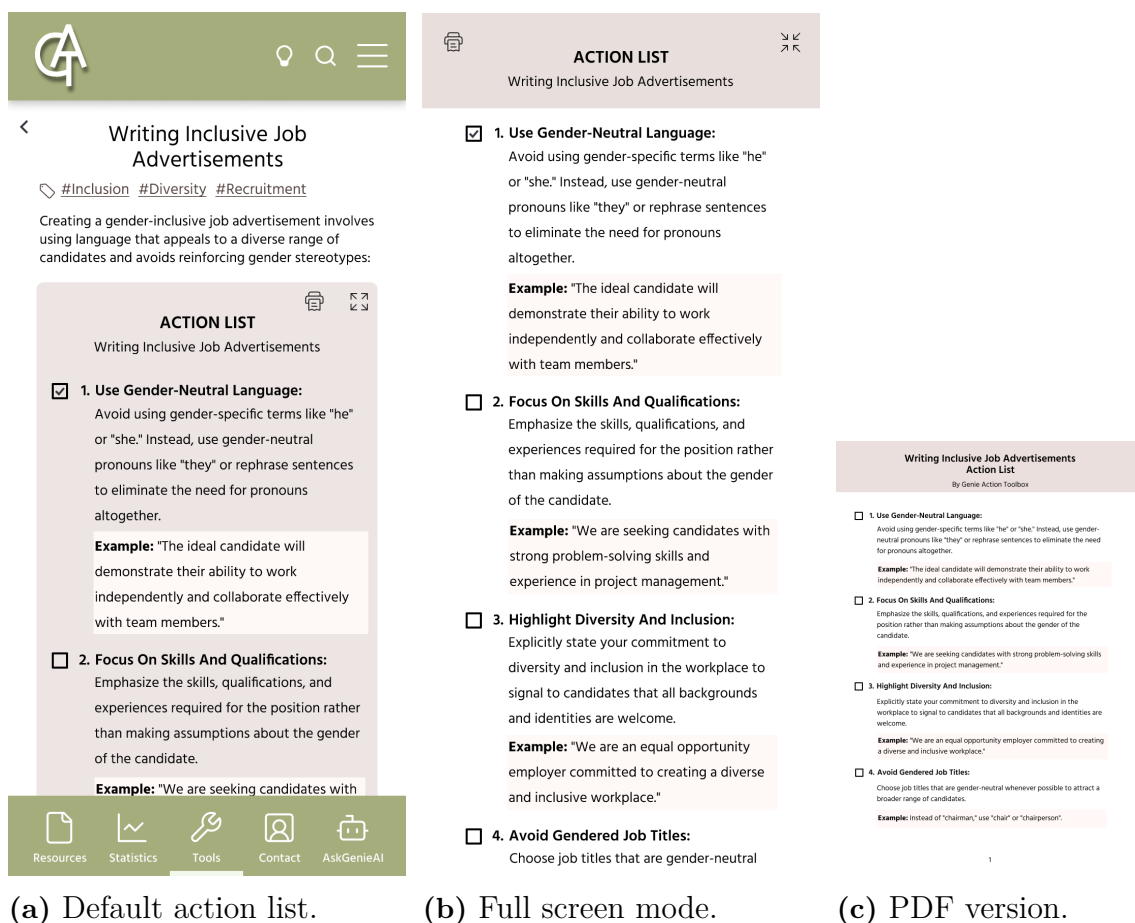
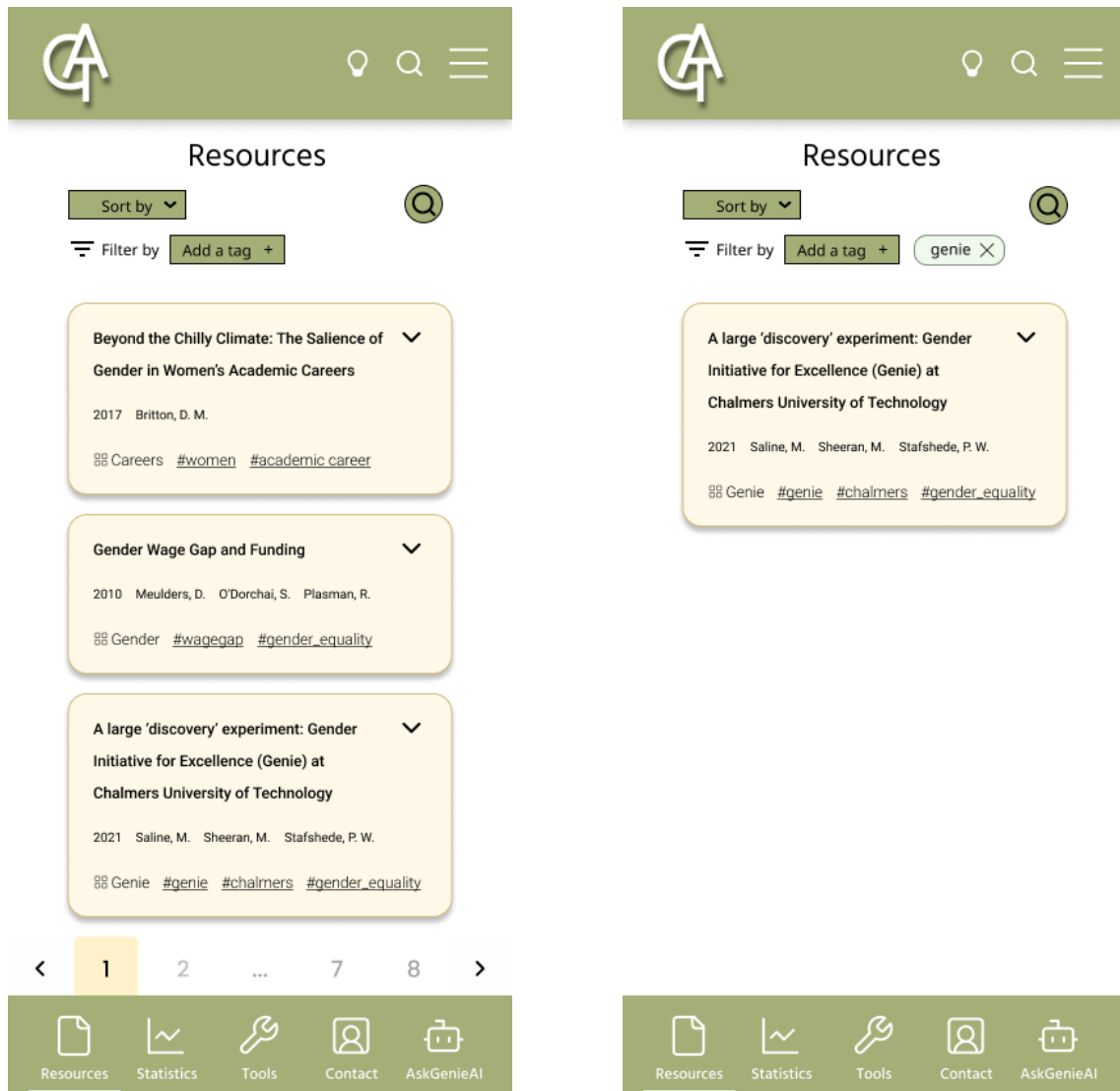


Figure 6.2: Action lists.

6.1.3 Resources

On the resources page, fundamental features for finding papers include sorting, filtering, and searching, which enhance the user experience. The papers are now visible when users arrive to this page meaning no scrolling is needed. The page indicator also eliminates the need for scrolling to access additional papers or content loading. When a tag is selected from the Add a tag menu, it appears alongside, filtering the content accordingly, see Figure 6.3.



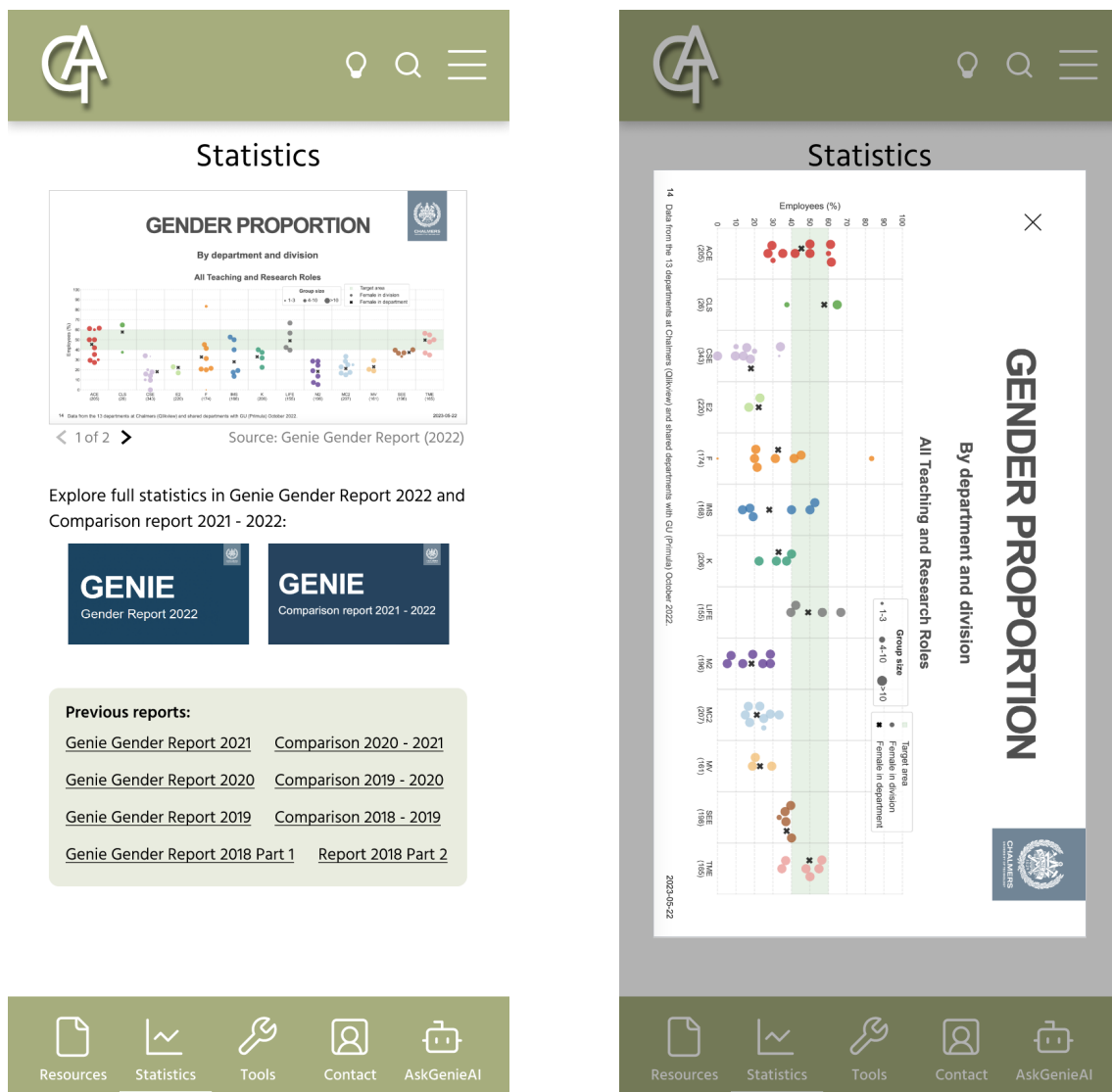
(a) Default state of resource page.

(b) Filtered by Genie tag state.

Figure 6.3: Resources pages.

6.1.4 Statistics

This page displays the Genie Gender Reports. The first area of focus is the carousel, which contains key insight plots from the latest reports. Users can easily switch between plots by clicking the arrows at the bottom left. If users are interested, clicking on the plot will expand it to reveal additional details, as illustrated in Figure 6.4b. They can close the expanded view by either clicking on the "X" or the gray mask outside the plot. The full reports are available below for further exploration, with the latest version emphasized by displaying its cover image, while older reports are organized as links.



(a) Statistics page overview.

(b) Expanded plot view.

Figure 6.4: Statistics pages.

6.1.5 Contact

Safe at Chalmers and Report Incident buttons are preserved on the contact page for quick access. Header texts are reduced in size to enhance the presentation of photo cards. Additionally, the headers 'Genie' and 'Equality Representatives' (not visible) are included to clarify their roles. Horizontal scrolling is implemented instead of vertical expansion to optimize limited space. At the bottom, Dr. Genie (not visible) is also added because they are important stakeholders too.

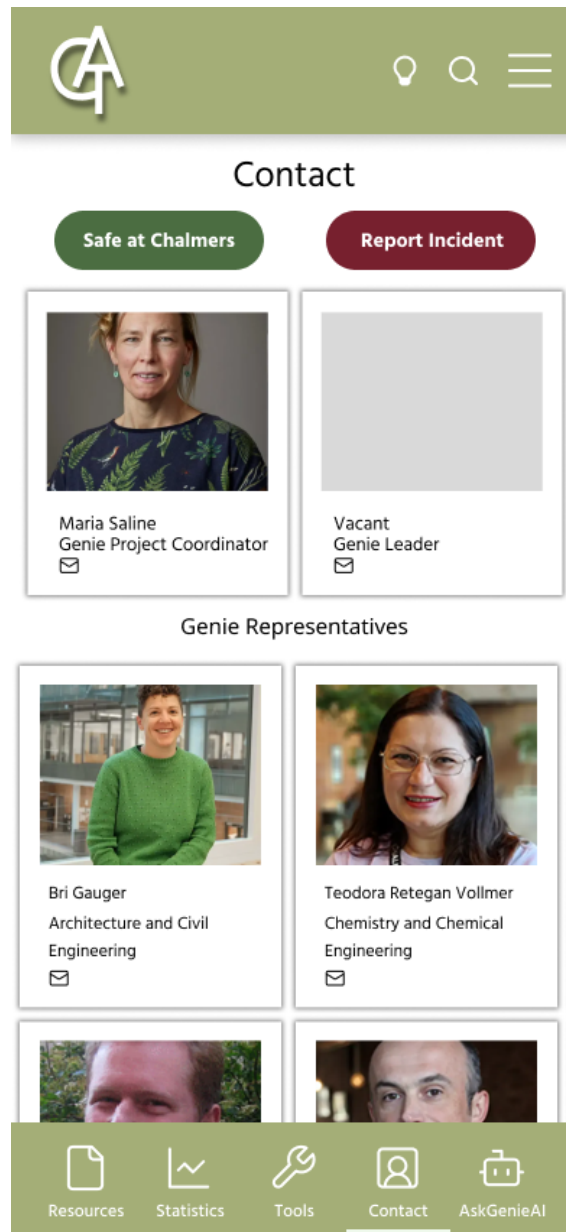


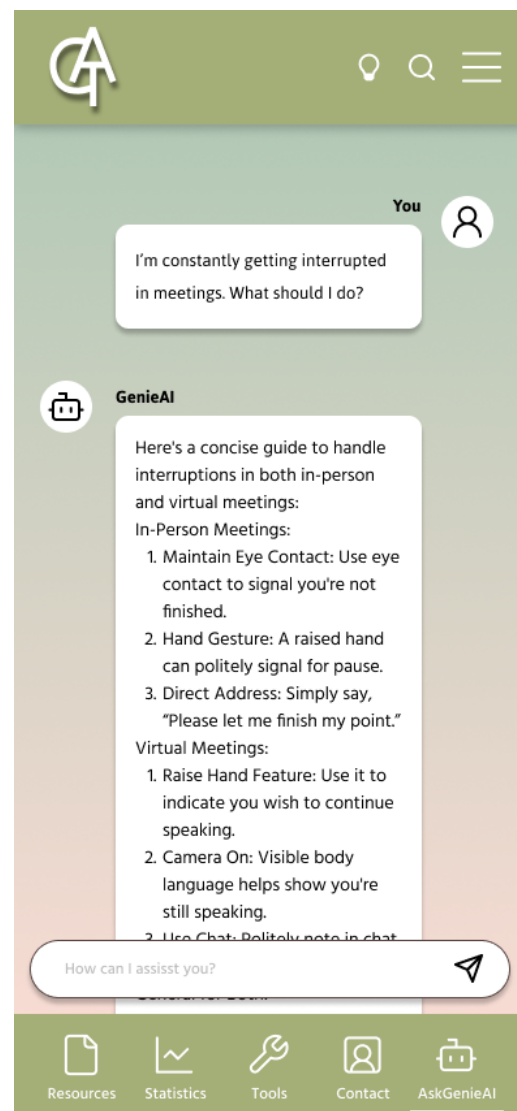
Figure 6.5: Contact page.

6.1.6 AskGenieAI

Predefined selectable questions are available above the text box on the AskGenieAI page. The purpose is to highlight the most frequently asked questions within gender equality. In the developed prototype, users will be able to formulate their own questions in the chat box, a feature not available in the current version. Similar to ChatGPT, when a question is posed to the AI, a response will be generated. As curated, it will generate a concise guide or a checklist of actions, with academic references provided when available. Current answers from the GenieAI are provided by the customized chatbot, Genie Genie, which was introduced in Chapter 5.7.



(a) Default state of AskGenieAI page.



(b) Conversation with AskGenieAI.

Figure 6.6: AskGenieAI pages.

6.1.7 Inspiration Pop-up

Each day when a user opens the Genie Action Toolbox for the first time, an inspiration pop-up will appear with fresh content. These brief inspirations are drawn from key points in research papers, ensuring their reliability. By clicking "New Spark," users can refresh the content to load a new inspiration. If users are interested, they can click "I want to know more" to be redirected to the external link of the paper. Otherwise, they can click "Interesting" to exit, with the blue color contrasting with the overall orange theme to hint at this option. This pop-up can always be activated by clicking on the bulb icon on the top bar during use.



Figure 6.7: Inspiration pop-up.

6.1.8 Navigation and Search

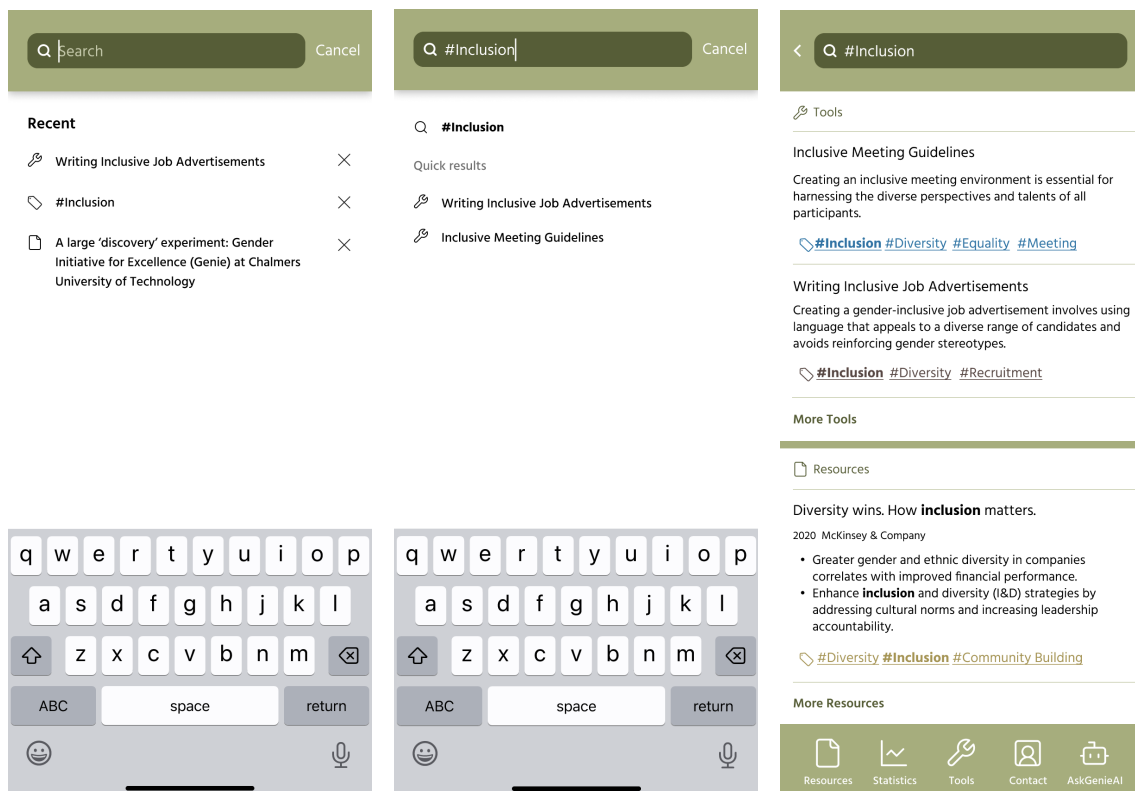
The two main navigation methods are the bottom bar and the navigation drawer (hamburger menu), which is activated by an icon on the right of the top bar. Both options were retained after the last user test due to the familiarity of the hamburger menu and the easy access provided by the bottom bar. The top-left logo also serves as a navigation path, leading to the Tools page as the landing page. The bottom bar provides access to the five main pages, while the hamburger menu additionally includes "Safe at Chalmers" and "Report Incident" to ensure easy access to these two important links. When navigating, all back icons direct users to the previous page rather than the higher level, maintaining a smooth and continuous user experience.



Figure 6.8: Navigation overview.

6. Final Results

Regarding the search function, it is activated by the icon on the top bar. Once activated, it displays the most recent searches below the search bar, with icons at the beginning to indicate their category, such as a checklist. These icons match those on the bottom bar to ensure consistency. During typing, the design intended to display quick results based on the user's input. However, due to the constraints of Figma, typing is not enabled in this prototype, although the keyboard is displayed for a more immersive experience, which caused some confusion. The search results are organized by category, displaying only the most relevant results at the beginning, with the option to expand to more results upon request. As mentioned earlier in 6.1.2, clicking on the tags of action lists can also lead to the search results for that specific tag.



(a) Recent searches.

(b) During typing.

(c) Search results.

Figure 6.9: Search function.

6.2 Final Evaluation Results

The means and standard errors of the first six scaled questions related to different tasks are plotted below in Figure 6.10.

Q1: Navigating to Inclusive Meeting Guidelines was hard/easy.

Q2: Searching for the Inclusive Meeting Guidelines was hard/easy.

Q3: Finding the paper published by Genie was hard/easy.

Q4: Finding the link to Safe at Chalmers was hard/easy.

Q5: Finding the Equality representative in Computer Science Engineering was hard/easy.

Q6: I find the AI itself to be useless/useful.

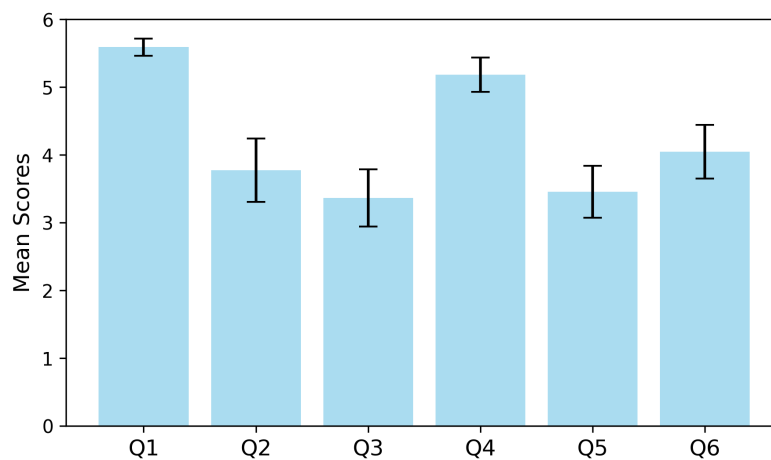


Figure 6.10: Mean Scores for Different Tasks.

For finding action list task, Q1 ($M = 5.59, SD = 0.59$) received the highest rating, indicating that the information structure is clear and straightforward. However, for the searching task, Q2 ($M = 3.77, SD = 2.20$) received only neutral feedback. According to the comments from the second user test, this is likely due to the nonfunctional keyboard in the prototype. 11 out of 13 comments reported this as an issue, rather than criticizing the search function itself.

Q3 ($M = 3.36, SD = 1.99$) encountered the same issue. Although the goal was to test the tag filter on the resources page, the task description was possibly unclear and led most participants to mistakenly use the search function instead, as indicated by their comments. The keyboard issue occurred again, and since the target paper was not included in the predefined search results, this further added to the confusion, resulting in the lower score.

Finding the link to "Safe at Chalmers" was rated as quite easy ($M = 5.18, SD = 1.18$). Half of the participants found it under "Harassment" on the landing page, while others navigated to it through the hamburger menu or the "Contact" page. Q5 ($M = 3.45, SD = 1.79$) also received a neutral score, which can be explained by the unfamiliarity with horizontal scrolling. According to the participants' comments,

most of them completed the task incorrectly. They focused on finding the link to "Safe at Chalmers" and locating the equality representative there, instead of using the "Contact" page in the Genie Action Toolbox, which was the intended task and was easier to complete.

Regarding the chatbot, the rating for Q6 ($M = 4.05, SD = 1.86$) indicates that it is considered useful. More than half of the participants had a positive impression of the suggestions provided by the chatbot, as shown in Figure 6.11. However, as some comments suggested, the inability to formulate their own questions was a recurring issue. Additionally, while some participants agreed that the chatbot could be useful for simple information, they expressed doubts about its effectiveness in solving interpersonal problems.

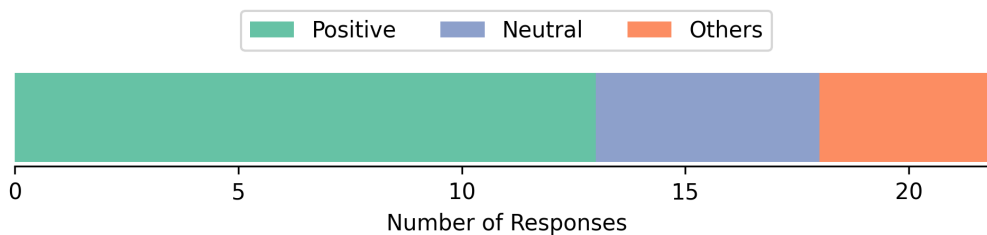


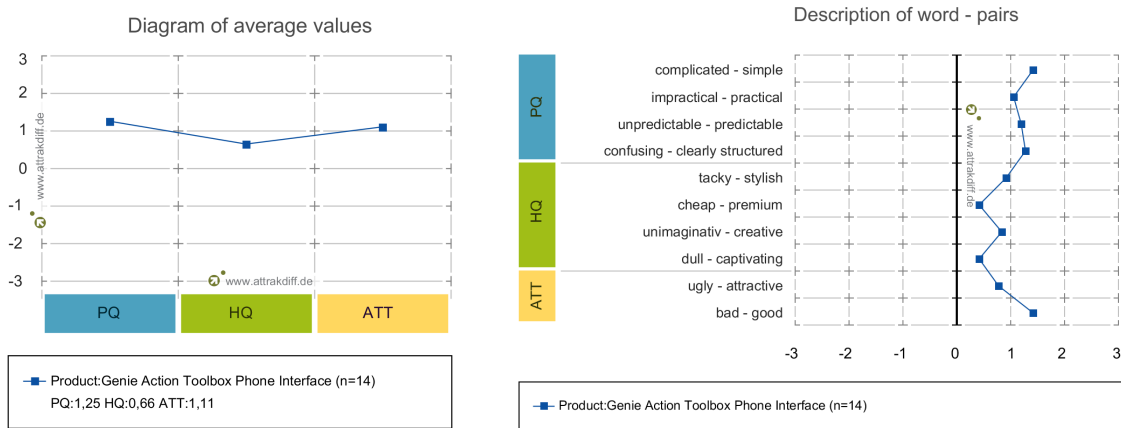
Figure 6.11: User Feedback on Suggestions Provided by the Chatbot.

The inspiration pop-up feature ($M = 3.18, SD = 1.53$) did not satisfy the users. Complaints were mainly about the lack of a prominent close button, making it difficult for them to exit.

Regarding the color scheme, the current olive green theme ($M = 4.77, SD = 1.19$) was generally well-received, with users feeling that it suits the intended purpose. Approximately two-thirds of participants preferred the olive green color scheme, describing it as calming and sustainable, while others favored the pumpkin orange for its active and warm qualities.

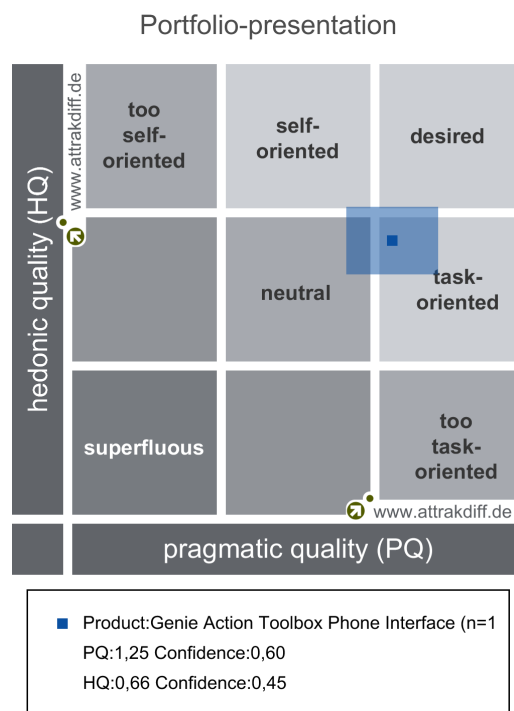
The AttrakDiff survey received 14 responses from all participants. As shown in Figure 6.12, the product received positive feedback across all three attributes. Pragmatic Quality (PQ) received higher ratings, particularly for its simple and clear structure. In contrast, Hedonic Quality (HQ) was rated slightly lower, as participants felt it was less premium and captivating, which affected the overall scores. With high PQ and moderate HQ, our prototype is perceived as a task-oriented product, but it is very close to the boundary of the desired product that ideally requires both high PQ and HQ.

Finally, the four final impression questions (IQ1 to IQ4) were found to be internally consistent, as discussed in Chapter 5.10.1, with a Cronbach's alpha of $\alpha = 0.79$, indicating acceptable reliability among these items. The mean scores for these questions are IQ1 ($M = 4.09, SD = 1.27$), IQ2 ($M = 4.45, SD = 0.80$), IQ3 ($M = 4.41, SD = 0.85$), and IQ4 ($M = 4.18, SD = 1.01$), are shown in Figure 6.13. All of these scores are above 4, suggesting that the overall impression of our product



(a) Diagram of average values.

(b) Description of word-pairs.



(c) Portfolio of results.

Figure 6.12: AttrakDiff results.

is rated above 4 out of 6, indicating a generally favorable view among users.

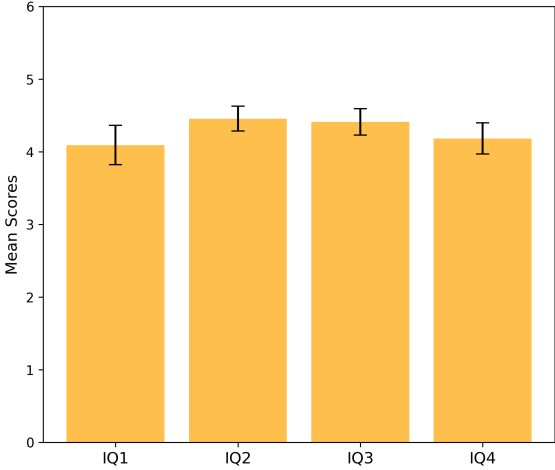


Figure 6.13: User ratings of overall impression questions.

6.3 Research Question 1

In this section, the first research question is answered:

What should be considered from an UX perspective when designing the digital toolbox to support user actions toward gender equality in academia?

Summarizing the previous development process and evaluation, several key elements should be considered from a UX perspective within both pragmatic and hedonic quality respectively.

Pragmatic Attributes

To achieve higher pragmatic quality, the following attributes related to the functionality and usability of the toolbox need to be carefully addressed:

PA1 Features Aligned with Goals and Fulfilling User Requirements

As the foundation of the entire product, the features included in the toolbox must align with the goals and requirements of the users. To begin with, understanding how others have pursued the goal of achieving gender equality in academia is essential. Therefore, benchmarking at the beginning was vital for gaining insights and identifying best practices. Furthermore, to ensure the design meets the actual needs of users, it is crucial to conduct detailed user research and evaluation with target users throughout the entire design process.

PA2 Clear and Intuitive Information Architecture

A simple and well-structured design can significantly enhance the user experience, as evidenced by the positive feedback from the final evaluation, particularly regarding the ease of navigating to the action list, which perfectly align with Fogg's model that emphasizes simplicity and accessibility in driving user behavior. Conversely, a non-functional search feature raised many concerns, highlighting the critical importance of findability in navigation, with the aid of tags. Keeping in mind the contexts in which users will seek specific content, it is essential to ensure that the information architecture is clear, intuitive, and supports efficient content discovery.

PA3 Support for Personalized Interaction

Beginning with general information, it is essential to provide personalized support tailored to individual needs as users perform tasks. Personalization can be enhanced by integrating a chatbot that allows users to input in freeform and receive replies tailored to their specific circumstances, which received positive feedback. Additionally, the feedback emphasizing the need for interactive data visualization highlights the importance of offering more dynamic and responsive user interactions that cater to various user interests. As a toolbox, it should adapt to these diverse needs, providing users with the flexibility and resources necessary to achieve their goals effectively.

Hedonic Attributes

As for hedonic quality, the following attributes associated with the emotional and aesthetic aspects of the toolbox are worth careful consideration:

HA1 Creating an Appealing and Visually Engaging Interface Design

A well-considered interface design not only looks good but also can create a stronger emotional connection between the user and the product. In our case, we carefully selected a color scheme and typography to create a consistent and supportive atmosphere. However, the design still lacks diverse design patterns, which may result in a somewhat monotonous experience, potentially causing the interface to feel less engaging over time. Hence, incorporating more diverse visual design elements could enhance user engagement and increase the perceived hedonic quality.

HA2 Building and Maintaining User Trust

As a toolbox designed for gender equality in academia, building trust is essential for encouraging users to start and continue using the tool. This tool also represents the product owner, so it needs to be reliable and credible. To achieve this, the content in inspiration pop-ups was intended to be drawn from key points in academic papers, and we aimed to include references wherever possible—an approach that was frequently requested during user tests. Additionally, displaying photos of individuals who can be contacted, rather than just names, can make the toolbox more reliable and help build emotional connections with users. By building trust through daily use and maintaining this trusted relationship, users are more likely to continue using the tool and share it with others.

HA3 Establishing a Diverse, Equitable, and Inclusive Environment

For a toolbox focused on gender equality, it is crucial to create an impression of diversity, equity, and inclusion, ensuring that all users feel emotionally safe. This first impression can be achieved through a gender-neutral and welcoming color scheme. The language used should be carefully considered to avoid any form of bias, and the tone of in-app text should be positive, reflecting the supportive nature of the tool and pride in taking action. Additionally, quick access to official reporting channels is essential, as reducing the steps needed to report issues can significantly encourage users to take action. Finally, to respect user autonomy and ensure a safe environment, every page should provide a clear and transparent way for users to exit, allowing them to maintain control over their experience.

By thoughtfully integrating these attributes, the digital toolbox will deliver a cohesive and effective user experience, supporting users to take meaningful actions toward gender equality in academia.

6.4 Research Question 2

In this section, the second research question is addressed:

What interactive elements in the digital toolbox are needed to increase user actions toward gender equality in academia?

Based on our benchmarking 5.1, observations 5.9, and literature review, seven interactive elements in the digital toolbox are crucial for increasing user actions toward gender equality in academia. The elements are presented below.

1. Interactive cards

By designing the toolbox with interactive buttons instead of mere text, subcategories that might overwhelm users are effectively hidden. This approach simplifies the design and uses color differentiation to distinguish between various tools.

2. Printable interactive checklists that track progress

An interactive checklist that retains and syncs user progress, also allowing for easy printing of the current version. Users are no longer required to record or memorize completed actions whenever they revisit a checklist or generate one through the AI, as these include previously completed actions.

3. Easy and quick access to important links

To accommodate diverse user preferences, important links are strategically placed in various locations within the interface. Some users prefer utilizing the search function, while others favor the hamburger menu or direct page navigation. This approach ensures all users can efficiently find the information they need.

4. Curated chatbot with additional features

Implementing a curated chatbot ensures that users receive responses with university-approved tools or academic references whenever applicable. It also maintains history, facilitating easy access to past interactions. Additionally, saving generated checklists for future retrieval allows users to manage and reference tasks conveniently. Predefined choices simplify user interaction and enhance overall efficiency.

5. Statistics with customizable parameters

Statistics serve as a crucial reference in academia. By incorporating customizable parameters, users can tailor the statistics to their preferences and use them effectively in discussions. This feature enhances the promotion of gender equality and contributes to raising awareness.

6. Search function

Search function is a standard feature that enhances user experience by enabling efficient information retrieval. Many users prefer to search first, which simplifies navigation. This feature improves usability by reducing the need for browsing.

7. Contact

When an unforeseen incident occurs, quick and easy access to the appropriate con-

6. Final Results

tact person is crucial for obtaining guidance and advice. A contact form within the interface allows users to reach out easily, achieving a seamless interaction. Displaying their photographs can enhance a welcoming and reassuring atmosphere, thereby encouraging users to seek assistance when necessary.

By incorporating these interactive elements, the digital toolbox helps users in taking actions toward gender equality in academia.

6.5 Guidelines for Design Strategies

In addition to the interactive elements presented in 6.4, other features that engage users are beneficial for completing the list of guidelines. The latter were identified through our benchmarking, user tests, and literature review. To assist users in taking and increasing actions toward gender equality, the identified design strategies are as follows.

Theme	Guideline
Interactivity	Implement interactive elements to enhance the user experience and reduce cognitive load
Progress	Save user progress to ensure no lost work and synced data between devices
Links	Place important links in various locations to accommodate diverse user preferences
Chatbot	Curate a chatbot to ensure users get responses supported by university-approved tools or academic references when applicable
Customizability	Make statistics customizable to facilitate discussions and ease of reference
Functionality	Implement a search function to enable efficient information retrieval
Contact	Display photo and contact details to make contact easy and implement contact form for seamless experience
Categorization	Utilize tags to categorize content
Content	Inspire and educate users with an inspirational or educational pop-up
Communication	Nudge users with push notifications to increase engagement
Content	Create quizzes or assessments to engage users
Mascot	Design a mascot to create a personal connection with users and strengthen the initiative's image

Table 6.1: Guidelines for design strategies

7

Discussion

In this chapter, the execution and process of the project are discussed first, followed by a discussion of the results. Potential ethical issues are then explored, and the chapter concludes with suggestions for future improvements.

7.1 Execution and Process

Several considerations emerged during the execution of the process, beginning with the user research phase. Following the MoSCoW analysis during the co-creation workshop, we anticipated active discussions among participants regarding the rankings of the ideas. However, only one participant chose to move their idea to "must-have". Participants were generally reluctant to discuss or modify others' arrangement of ideas and were hesitant to move others' ideas into the 'won't have' category, which should be taken into account for future workshops.

Another challenge was managing discussions during both the workshop and the focus group sessions. It was difficult to politely interrupt ongoing conversations to manage time and ensure that discussions did not focus too heavily on a single topic, which resulted in certain areas being underexplored while others received disproportionate attention. This issue highlights the need for better facilitation strategies to maintain balanced participation and stick to the agenda in future sessions.

During the prototyping phase, our project has experienced multiple changes in direction, including decisions about focusing on mobile versus desktop interfaces and selecting prototyping tools. Although our ambition was to develop both interfaces, driven by the desire to create a comprehensive product, this approach would have required considerably more time than was originally allocated. Moreover, with the final choice to use Figma as the prototyping tool, focusing on a single prototype became essential to adhere to the project timeline. External pressures, such as deadlines and feedback from stakeholders, pushed us to rethink our strategy mid-process, highlighting the need to prioritize and think realistically. This experience highlighted how real-world constraints, such as time, resources, and shifting priorities, can significantly alter a project's trajectory. The need to adjust mid-process emphasized the importance of flexibility and the adaptability to emerging challenges. The decision to focus on a single interface, balanced initial ambition with feasibil-

ity. This adjustment was not only necessary but often key to success in navigating projects, demonstrating the delicate balance between ambition and practicality that is essential for achieving objectives within given constraints.

Regarding user testing, the combination of qualitative and quantitative data provided a comprehensive understanding of users' perspectives. The subjective comments following questionnaire ratings offered valuable insights, and the video recordings of participants performing tasks during usability tests were particularly useful for in-depth analysis. These practices proved to be highly effective and should be maintained in future research.

Challenges also emerged, especially during the second user test. One major issue was the differing capabilities of prototyping tools. For instance, CMSs can support a working search function, whereas Figma cannot. Many participants, unfamiliar with prototyping tools, expected all functions to be fully operational during the user testing. In one task, participants were asked to search for an action list, but confusion arose due to a non-functional keyboard in the Figma prototype, leading to misunderstandings. This highlights the need to design tasks that avoid drawing attention to platform limitations and instead focus on the design itself. Additionally, without a facilitator present to clarify, unclear instructions in the questionnaire made it difficult for users to properly evaluate the intended features. To address this in future testing, it will be essential to ensure that instructions are unambiguous and the tasks only have one way of completing it.

Overall, through discussions with stakeholders and our research findings, we believe that the majority of people are eager to contribute to gender equality. However, many are uncertain about how to take actionable steps, even if they are aware of the issue. This underscores the need for something that can raise awareness, provide guidance, and address questions to facilitate meaningful contribution. Additionally, our benchmarking revealed that some proposed actions lack specificity, making it challenging to achieve desired results. Many existing initiatives are designed for organizations rather than individuals, who also seek ways to contribute effectively. Furthermore, the adequate number of participants who engaged with our project indicates strong support for our research and a willingness to be involved in addressing gender equality issues.

We believe that this research brings us one step closer to addressing the gender equality gap at Chalmers. The organization recognized a need to reduce this gap and sought solutions to facilitate progress. In response, we seized the opportunity and conducted this research. Although the project does not include a fully developed app or website, we hope that our work will make a meaningful impact by raising awareness and providing a solid foundation for future implementations.

7.2 Results

In this section, the results of this research are discussed, with a focus on reviewing the key features presented earlier.

Landing Page

The large expandable color block categorization of the homepage design provides straightforward navigation and simple interaction, which received positive feedback. However, challenges might arise regarding the color choices. If future categories increase, more colors will be needed, and some users have already expressed concerns about there being too many colors. Additionally, the 'Act Now' slogan could have alternative options to achieve the same purpose, such as incorporating a mascot to make it softer and more friendly.

Search Function

Several users in the final user test noted that the search function did not work, meaning it did not align with their mental models. Despite the task instructions prompting users to find a paper by using tags, some users attempted to do so by typing '#' in the search box. We were aware of the non-functional search engine but opted not to disclose this information in the Google Form. Given that the scenario did not prompt users to specifically utilize the search feature, its utilization was not anticipated. By withholding disclosure of the search engine's non-functionality, our intent was to observe how users naturally approached and resolved the task, rather than guiding them along our predefined path. This approach enabled a more authentic assessment of user preferences and behaviors in navigating the prototype. A working search function is therefore essential.

Resources

The default state of the search feature on the resources page is collapsed. In the initial iteration, the sorting, filtering, and search features were aligned. The original idea proposed that when the search icon was clicked, it would expand, thereby moving the filter menu and other elements downward. In the final iteration, the collapsed state was maintained, and the filter menu was repositioned lower on the page. Given that the collapsed search is no longer constrained by space, it would have been advantageous to change the default state to expanded. This adjustment would enhance the visual appearance by eliminating the white space between the elements.

Contact

In the digital realm, vertical scrolling is a common interaction, whereas horizontal scrolling is less frequently used. Initially, the 13 photo cards were arranged vertically, creating a long frame. To address this, an expandable button was added to shorten the frame. However, an unexpected interaction with Figma's technology could cause user confusion. To avoid this during testing, horizontal scrolling was implemented,

eliminating the need to shorten the frame. Despite a small portion of the third card being visible, most users were unaware they needed to scroll horizontally to view additional cards. Prior to user testing, the authors considered potential solutions but decided to test if users would notice the small visible portion. Additional solutions to increase user awareness of horizontal scrolling include adding an arrow next to the header text, implementing an animation during page transitions, adding a horizontal scroll bar beneath the cards, or using a carousel effect where the cards animate automatically.

AskGenieAI

Similar to ChatGPT, AskGenieAI should be able to save conversations for easy access and future retrieval, as presented in 6.4 Research Question 2. While being able to review generated checklists is considered important, the hi-fi prototype did not include any interface for chat history. Knowing that this aspect would not be tested, we prioritized enhancing other features.

In the final test, we tested whether the new name 'AskGenieAI' was clear to users and evaluated the format of the predefined interactions. However, due to Figma's inability to support freeform text input, a key feature of the chatbot, the insights gained specifically for the desired generative chatbot were somewhat limited and less conclusive.

Inspiration pop-up

Although the idea of an inspiration pop-up with key points from research papers was favored during the first user test, it did not have a significant impact in the second test. One possible reason is the lack of an obvious exit button. While the intention was to nudge users to look more carefully at the content and avoid an easy exit, this approach did not work as intended. This highlights the importance of ensuring that nudges are seamless and do not impede users' freedom. Another reason could be that the content selected for the prototype was not particularly inspiring or appealing, which reduced user engagement. Incorporating a more diverse range of content formats, such as videos, could assist in increasing user interest.

A database needs to be constructed to keep the content relevant and up-to-date. Ideally, the database will consist of action lists, success practices from Chalmers, key points summarized from papers, and other relevant resources such as TED talks and toolboxes. Genie leaders, advisors, and representatives will collaborate to contribute and audit updates, ensuring the Genie Action Toolbox provides efficient, dynamic, up-to-date, and reliable information.

Our proposed guidelines for design strategies are broadly applicable to websites, highlighting their relevance across various contexts. This broad applicability is advantageous as it provides valuable insights for a wide range of projects. However, general guidelines may also be perceived as a limitation due to their lack of specificity. In this instance, the UX considerations encompass several key attributes for enhancing tools aimed at gender equality, particularly from the hedonic perspective.

These include building and maintaining user trust and creating a diverse, equitable, and inclusive environment. Such considerations are crucial, as developing emotional connections and ensuring users feel safe are fundamental when addressing sensitive topics like gender equality. For future work, we recommend placing emotional support at the forefront, while adapting these broadly applicable guidelines to meet the specific needs of different tools or projects.

Our goal is for this research to empower users to take action in situations related to gender equality. Compared to the previous toolbox, this version provides more user-friendly interactions for accessing actionable plans suited to various contexts, making it easier for users to implement effective strategies that are tailored to their specific needs. With this tool, we envision users being able to discuss gender equality issues with confidence, backed by university-approved scientific references, and track progress at higher levels. Finally, we hope this tool will establish itself as an everyday tool in Genie's efforts toward gender equality. Furthermore, we aspire for everyone at Chalmers to gain the confidence to stand up for themselves after understanding the purpose and vision of the future app.

7.3 Ethical Issues

Collaborating with individuals from diverse backgrounds revealed a variety of needs and expectations, which we recognized as both an opportunity and an ethical challenge. Implementing solutions that addressed all these requirements proved difficult, particularly when certain approaches required expertise beyond our own. A key insight we gained was the recognition that users engage in tasks differently. This understanding guided our design strategy, leading us to create a data-driven solution that accommodates diverse user needs, ensuring fairness and avoiding skewed results that focus on a limited participant group. Ultimately, this approach enhanced the adaptability of our solution and expanded its applicability to a broader user base.

However, our work with a diverse group of participants also highlighted additional ethical considerations, particularly regarding the generalization of our findings. The demographics of the participants involved played a significant role in shaping our findings. As previously mentioned, the individuals who participated were already motivated to support gender equality in academia. This predisposition may have made them more patient with our design and could have resulted in higher ratings for the solution. Consequently, how the broader user base might respond remains uncertain. Furthermore, the noticeable gender imbalance among participants in all in-person events, with women being the majority, raises additional concerns about the representativeness of our findings. This imbalance highlights the ethical challenge of ensuring that our results are applicable to a wider, more diverse audience, while also acknowledging the limitations imposed by the makeup of our participant group.

Another ethical concern arises from the integration of an AI chatbot into our design

solution. Given the diverse range of questions users might ask, the chatbot needs to be generative to provide more flexible and tailored answers, which is more efficient than relying solely on predefined responses. However, this approach raises potential concerns. The AI needs to be trained with diversity, equity, and inclusion as guiding principles, and supported by sufficient academic resources to ensure reliable and unbiased responses. However, large language models may still inadvertently include biases and inaccuracies, especially if web browsing is enabled, which can be difficult to predict. This is particularly concerning because the chatbot is branded as "GenieAI". Users might automatically associate all information from the chatbot with the credibility of Genie, the initiative behind our product. This could lead to misplaced trust in the accuracy and reliability of the AI's responses, potentially reflecting poorly on the initiative.

Further challenges may arise with the increased use of this type of conversational tool on gender issues, especially if over-reliance on AI hinders real-world human-to-human interactions. Throughout the process, we saw the strengths of the AI chatbot as a flexible search engine, but configuring it to be more human-like and empathetic revealed that its effectiveness is limited by the knowledge it has been fed. Especially in the context of incident reporting, providing truly empathetic responses would require a richer knowledge base that incorporates real-world cases. A forum in the future could be beneficial for encouraging user interaction and providing data for fine-tuning the language model, beyond just relying on academic papers. Overall, working with the AI chatbot emphasized the importance and potential of combining technology with human insight to create a tool capable of effectively promoting social change.

Finally, the nudge design in the inspiration pop-up raises potential ethical concerns. While the intention was to encourage users to engage more deeply with the content, it can limit user choices. The unclear exit method, in particular, may cause frustration during interactions with the prototype, which can be avoided. In future developments, it will be important to ensure that nudges are transparent, guiding users towards better choices without restricting their freedom or leading to unintended negative emotions.

7.4 Future Work

The first area for future development is designing for long-term engagement. While a particular design may be effective, it does not necessarily ensure sustained user retention. When using a digital toolbox to find guidance or information, users are likely to stop using it once they have learned the way or acquired the knowledge. To enhance user retention, increase motivation, and make the app more enjoyable, future implementations can draw inspiration from Lewis's (2014) book *Irresistible Apps: Motivational design patterns for apps, games, and web-based communities*, and the study "Study on UX design in enhancing student motivations in mobile language learning" by Seppala et al. (2020) that explore motivational design and suggest design strategies. From the book, the relevant chapters Interface patterns

are about how the interface communicates with the user and how the user interacts with it, and Information patterns are interaction with content and consumption as well as organization of it. The study by Seppala et al. (2020) examined methods to boost students' motivation in using learning app, revealing that despite its popularity, the app had low retention rates. Based on survey data, statistical analysis, and state-of-the-art research, they proposed four design strategies aimed at enhancing engagement and motivation, which are relevant for future implementations. Additionally, to keep users continuously engaged with the toolbox after they become familiar with the knowledge, dynamic content is needed to maintain freshness, along with features that build community connection, such as an event calendar and forum. Follow-up surveys and metrics like monthly active users and feature usage can then be collected and analyzed to measure retention.

Secondly, more detailed user testing for the chatbot is needed. During the usability test, some users found that the customized chatbot required additional prompting to provide concrete answers, and that the longer responses were too time-consuming during meetings. However, others found the generation speed acceptable and appreciated the rich content. This aspect could be explored further in future research. Ideally, testing should be conducted in a real daily meeting environment, with chatbot interaction prompts recorded to gain a better understanding.

Another area for future improvement is the interface design of our final product. As the AttrakDiff results suggested, the current design lacks the higher hedonic quality needed to make the toolbox more desirable. The simplistic design, while functional, feels somewhat unappealing and lacks a premium feel. Enhancing the visual appeal, introducing a mascot, and incorporating various media formats such as videos and animations could significantly improve user satisfaction and increase the toolbox's attractiveness to a wider audience. In particular, adding a mascot can foster an emotional connection with users, making the interface feel more approachable and engaging. Since the preliminary logo reads as "GAT" but can also be interpreted as "CAT", this creates a clever wordplay opportunity. Incorporating a cat mascot would play on this dual interpretation, adding an element of subtle humor and creativity to the design. This addition could introduce a sense of warmth and familiarity, helping users view the toolbox as a companion rather than a utilitarian tool. A unique mascot can further enhance the sense of identity and make the product memorable, while still addressing the sensitive topic of gender equality with care. High hedonic quality is essential for it to resonate on a deeper emotional level with its audience.

Last but not least, making the toolbox more inclusive is a key goal. This can be achieved through a more diverse participant pool for evaluation and by developing a desktop interface. Including participants with varying levels of awareness of gender inequality issues, as well as ensuring more diverse gender representation, can further enhance the generalizability of the toolbox across different user groups. The need for desktop interfaces was emphasized by several participants—some due to personal preference, and others noting that using a mobile phone during meetings can be perceived as exclusive. Implementing this design solution as a responsive web application can be an ideal approach, as it ensures compatibility across all plat-

forms. By engaging a broader range of users and incorporating additional platforms, the Genie Action Toolbox can become more inclusive and accessible. The academic resource-based content also makes it easier to adapt to more universities and even industries in the future, while integrating local statistics and culture for testing.

Reflecting on the entire journey of this project, it has been a privilege to collaborate on this innovative project with a prestigious university like Chalmers. As part of this academic institution, we have been deeply impressed by the passion and commitment to creating an inclusive environment from the stakeholders we engaged with, and we are confident in the positive changes our project can bring. While the design process for developing interfaces generally follows similar principles and our guidelines are broadly applicable, we are confident that our final results stand out due to their extensive interactivity and the thoughtful application of both pragmatic and hedonic quality attributes. We hope this innovation process could also inspire future research on how HCI can advance gender equality. We are proud to contribute to this innovative project and to be part of the forward-thinking journey toward advancing gender equality.

8

Conclusion

This thesis aimed to design and evaluate an interactive digital toolbox to increase user actions toward gender equality in academia. To guide the design strategies, the following two research questions were proposed:

RQ1: What should be considered from an UX perspective when designing the digital toolbox to support user actions toward gender equality in academia?

RQ2: What interactive elements in the digital toolbox are needed to increase user actions toward gender equality in academia?

To address the research questions, an iterative design process within the design thinking framework was carried out to develop the prototype of the Genie Action Toolbox, with a focus on the mobile interface. The process began with benchmarking 12 other gender equality digital toolboxes to establish a knowledge base in this area. A co-creation workshop, expert interviews, and focus groups were conducted to further understand user needs. Three different fidelity prototypes were progressively developed based on both quantitative and qualitative feedback from user testing. After three iterations, the answers to the research questions, summarized from the entire design process, are presented below:

RQ1: Considerations from an UX perspective **RQ2: Essential Interactive Elements**

- | | |
|---|---|
| 1. Features Aligned with Goals and Fulfilling User Requirements | 1. Interactive cards |
| 2. Clear and Intuitive Information Architecture | 2. Printable interactive checklists that track progress |
| 3. Support for Personalized Interaction | 3. Easy and quick access to important links |
| 4. Creating an Appealing and Visually Engaging Interface Design | 4. Curated chatbot with additional features |
| 5. Building and Maintaining User Trust | 5. Statistics with customizable parameters |
| 6. Establishing a Diverse, Equitable, and Inclusive Environment | 6. Search function |
| | 7. Contact |

These findings are intended to inform and inspire future research in the design of digital toolboxes focused on advancing gender equality in academia. Although we received positive feedback on our prototype, the user group we tested was predominantly composed of individuals who are already eager to contribute to gender equality. Future studies should involve a broader and more diverse participant pool to ensure the tool's effectiveness across different demographics. This project also included an initial exploration of integrating an advanced generative chatbot feature into our solution, which showed great potential and suggests the need for further investigation into the use of generative AI in the context of gender equality.

Overall, this research highlights the importance of user experience and interactivity in developing digital toolboxes that can effectively support gender equality in academia. While this study offers valuable insights, it also opens the door to new questions and opportunities for innovation. As technologies continue to evolve, it is crucial that they remain inclusive and reflective of the diverse needs of their users. We hope that this work will serve as a foundation for future advancements in this critical area.

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A

Appendix: Ideation Sketches

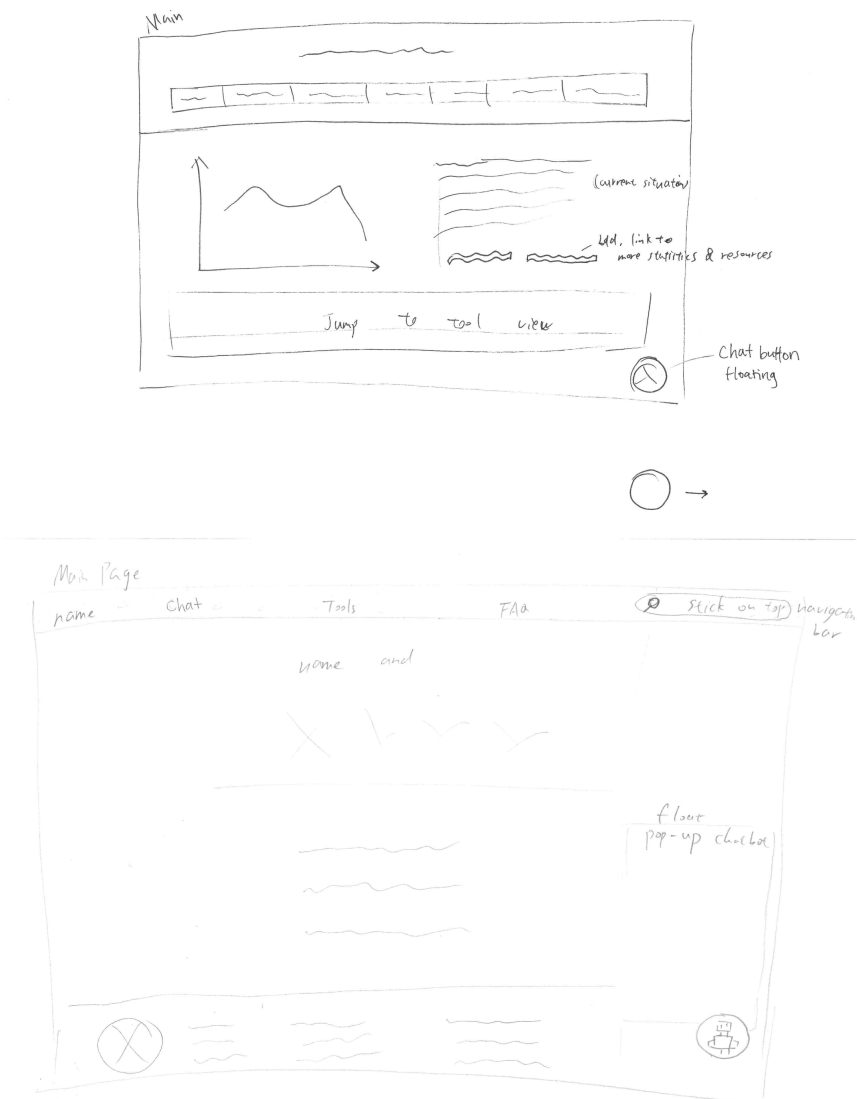


Figure A.1: The sketch of homepage.

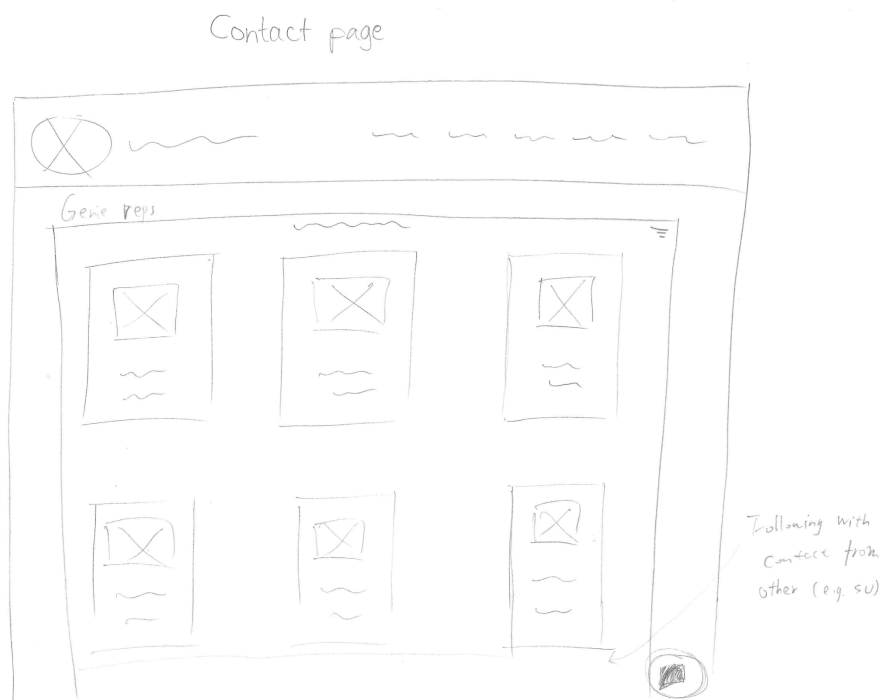
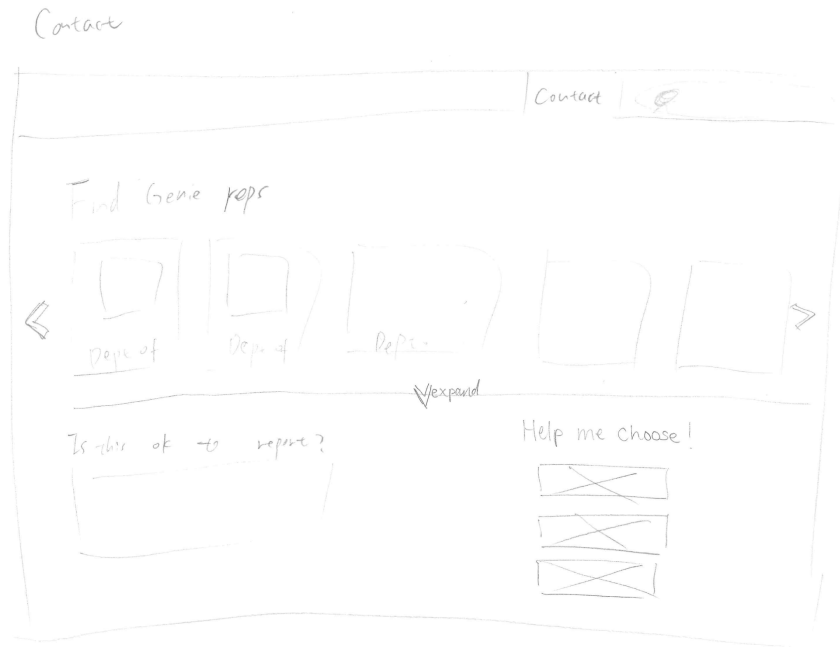


Figure A.2: Sketch of contact page.

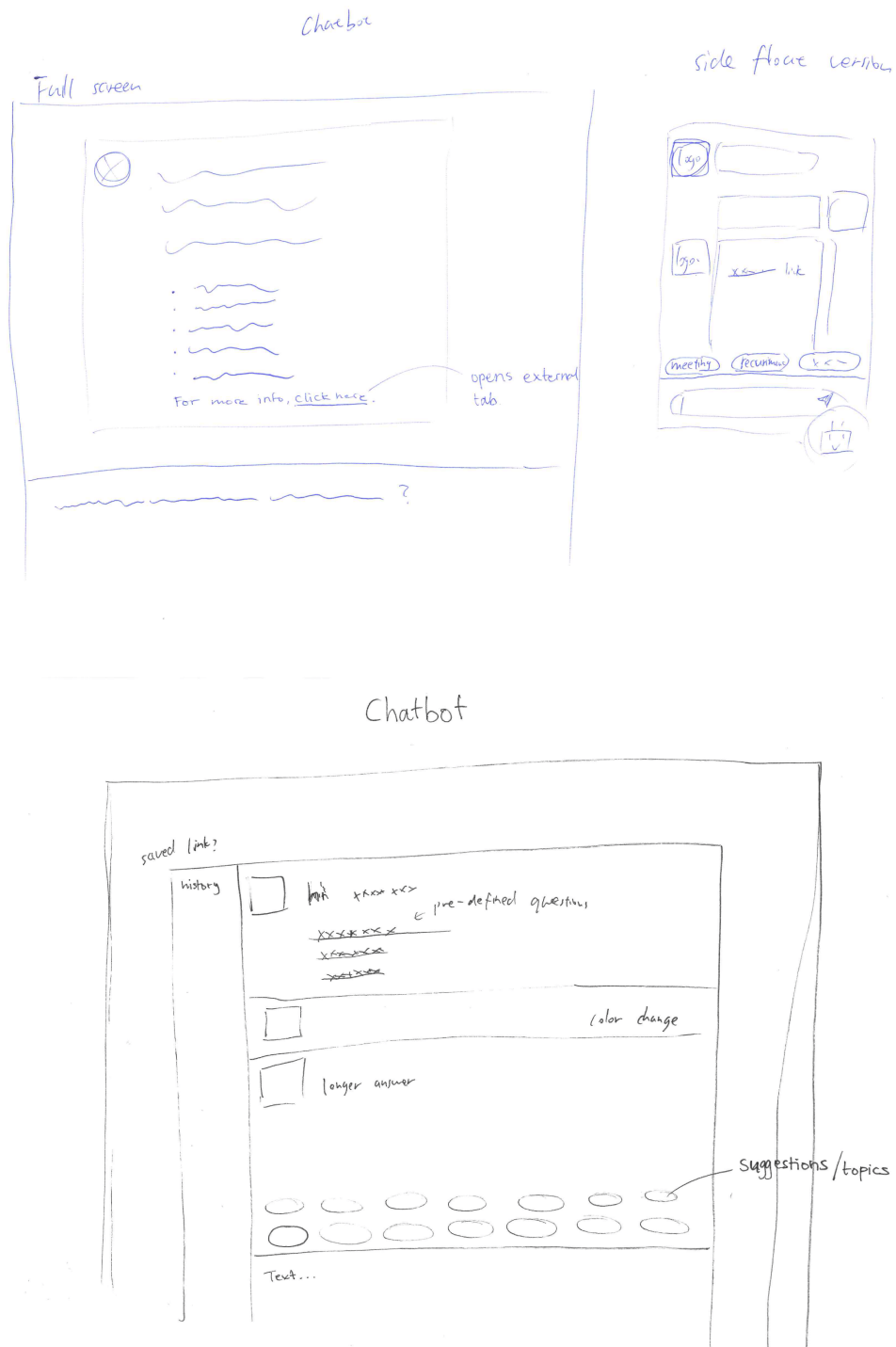


Figure A.3: Sketch of chatbot page.

B

Appendix: Wix Website Interface

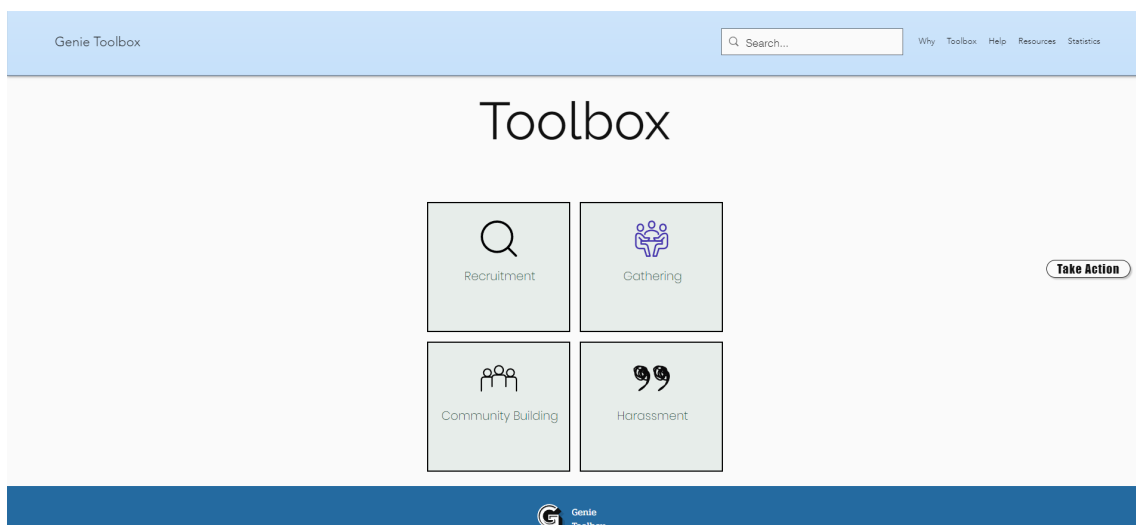


Figure B.1: Toolbox page.

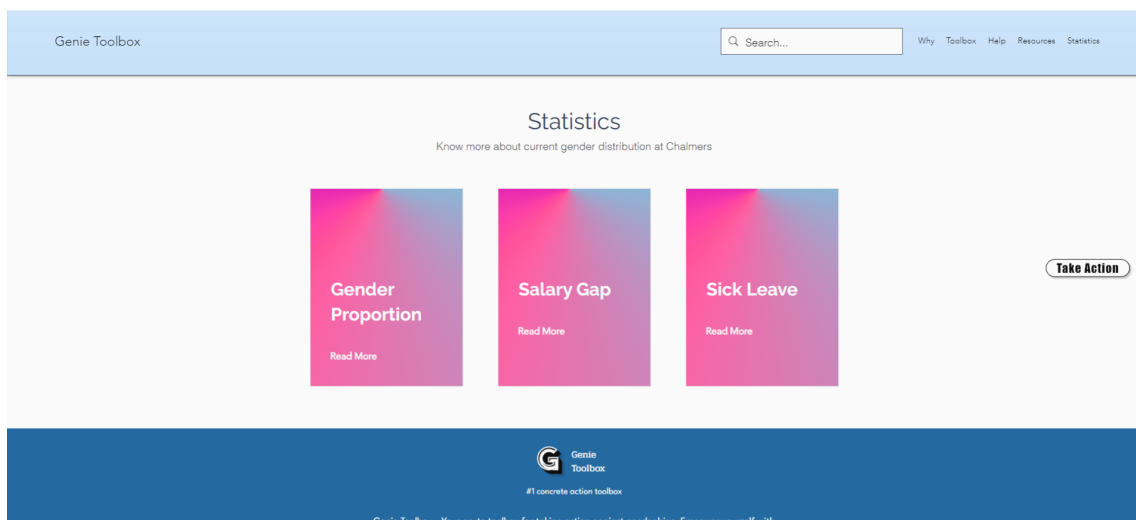


Figure B.2: Statistics page.

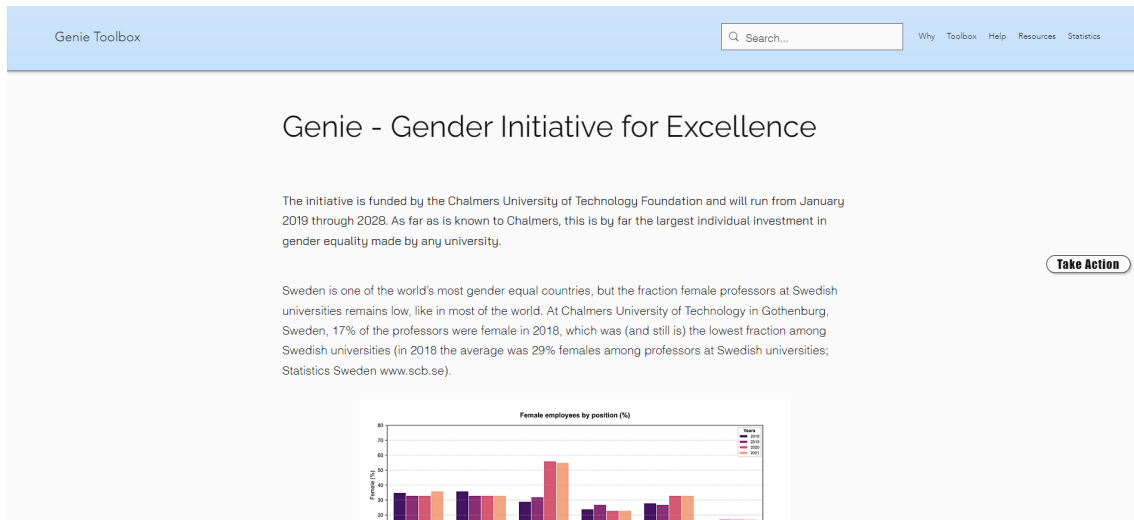


Figure B.3: Homepage.

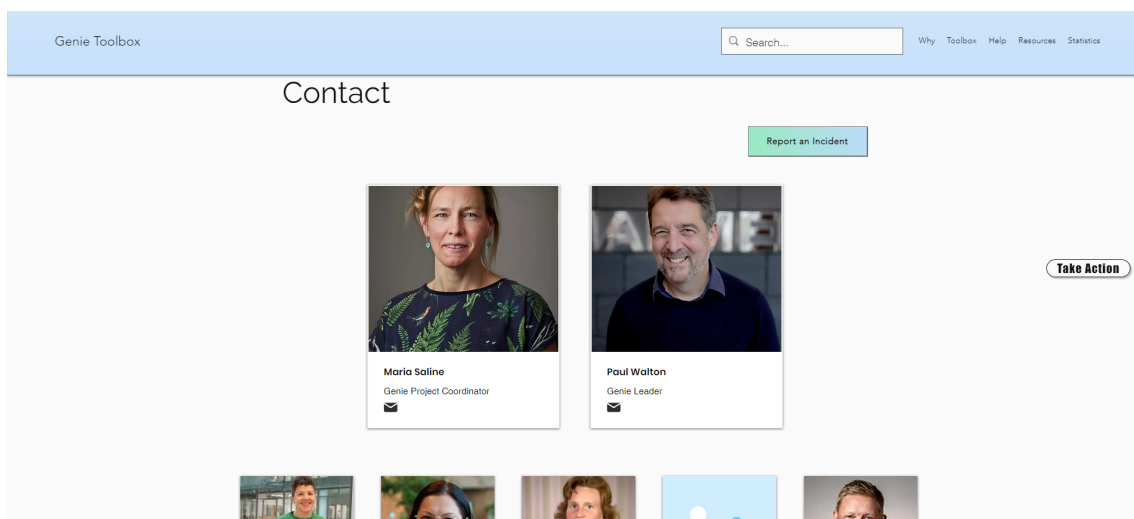


Figure B.4: Contact page.

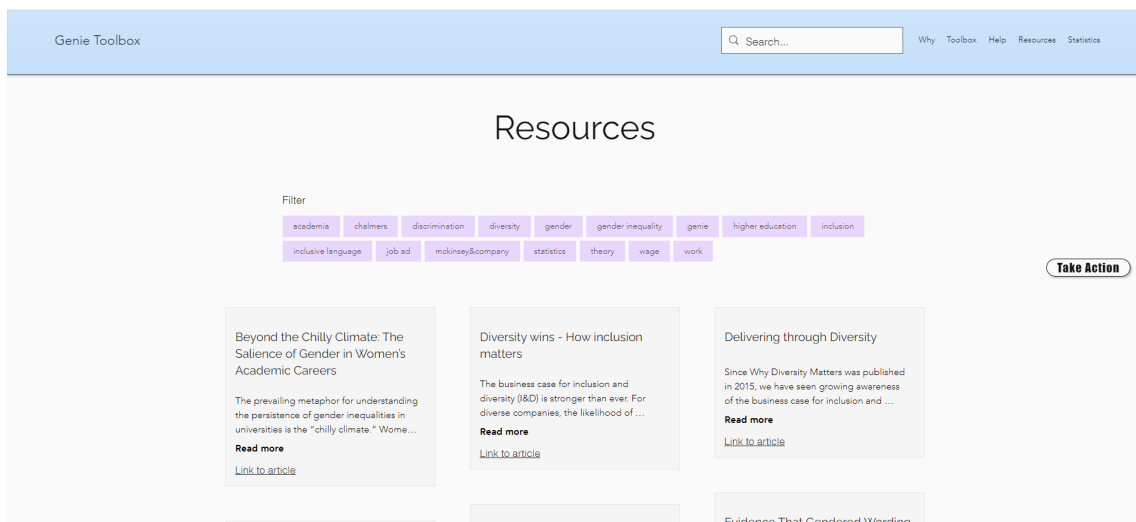


Figure B.5: Resources page.

C

Appendix: ChatGPT Comparison

Regular ChatGPT

1. what do i say to the meeting leader if he interrupts me all the time

Dealing with interruptions in a meeting can be frustrating, but it's important to handle the situation professionally and effectively. Here's a suggestion on how you might address the issue with the meeting leader:

"Excuse me, [Leader's Name], I appreciate your input and insights, but I've noticed that I'm getting interrupted frequently during our discussions. In order for us to have a more productive meeting and ensure that all viewpoints are heard, could we perhaps establish a system where everyone gets a chance to speak without interruption? This way, we can ensure that we're making the most of our time together and fostering an environment of mutual respect."

This approach communicates your concern about the interruptions while also proposing a solution that focuses on maintaining productivity and respect within the meeting.

3. im in a meeting and am getting interrupted over and over again. how

Genie Genie

2. I feel excluded in this meeting. What can I do?

Feeling excluded in a meeting can be challenging, but there are steps you can take to address the situation and advocate for a more inclusive environment. Here's a checklist based on insights from the documents and general good practices:

1. ****Self-Reflection****: - Reflect on why you feel excluded. Is it due to the meeting dynamics, the topic, or perhaps the behavior of specific individuals?

2. ****Seek Clarification****: - If something said in the meeting was unclear or seemed exclusive, ask for clarification in a polite and constructive manner.

3. ****Express Your Feelings****: - Find an appropriate time to express your feelings to the meeting facilitator or a trusted colleague. Use "I" statements to describe your experience without placing blame.

4. ****Contribute Proactively****: - Prepare for meetings by reviewing the agenda ahead of time and coming ready with ideas and questions. Your active participation can help you feel more included.

5. ****Seek Allies****: - Identify colleagues

can i get my ideas out to the meeting

Getting interrupted in a meeting can be frustrating, but there are several strategies you can use to ensure your ideas are heard:

Assertive Communication: Politely but firmly address the interruptions by saying something like, "Excuse me, may I please finish my thought?" or "I'd like to complete my point before we move on."

Nonverbal Cues: Use nonverbal cues such as raising your hand or making eye contact with the interrupters to signal that you haven't finished speaking.

Summarize Your Point: If you're interrupted midway through, quickly summarize your main point and ask for confirmation that everyone understands before moving on.

Be Concise: Keep your contributions concise and to the point to minimize the chances of being interrupted. Avoid going off on tangents or providing unnecessary details.

Address the Interrupter Directly: If one person is repeatedly interrupting you, politely address them directly. You might say, "I appreciate your input, but I'd like to finish expressing my idea before we discuss alternatives."

Request Meeting Norms: If interruptions are a recurring issue, consider discussing meeting norms at the beginning of the session. Encourage participants to allow each person to finish speaking before offering input.

Follow Up in Writing: If you're consistently unable to fully express your ideas during meetings due to interruptions, con-

who share your commitment to inclusivity. They can provide support and may help amplify your voice in meetings.

6. ****Recommend Best Practices for Inclusive Meetings**:** - Suggest the adoption of inclusive meeting practices, such as ensuring everyone has the opportunity to speak, rotating meeting leadership, and using inclusive language.

7. ****Request Feedback**:** - Ask for feedback on your contributions to understand how they're perceived and how you can increase your impact.

8. ****Professional Development**:** - Consider professional development opportunities that could enhance your confidence and effectiveness in meetings, such as communication or leadership training.

9. ****Formal Feedback Mechanism**:** - If the issue persists, consider using formal channels to provide feedback, such as HR, especially if you believe the exclusion is symptomatic of a larger organizational culture issue.

10. ****Self-Care**:** - Experiences of exclusion can be stressful. Ensure you're taking care of your mental and physical health outside of work.

Remember, creating an inclusive environment is a shared responsibility. Your efforts to address feelings of exclusion not only benefit you but can also contribute to a more inclusive culture for everyone.

How do I seek clarification in a polite way? What should I say in this meeting to be taken seriously?

Seeking clarification in a meeting politely and effectively involves using respectful language and framing your questions in a way that shows your engagement and de-

sider following up with an email outlining your thoughts and suggestions.

Request Facilitator Support: If the interruptions persist despite your efforts, ask the meeting facilitator for assistance in maintaining order and ensuring that everyone has an opportunity to speak uninterrupted.

By employing these strategies, you can increase the likelihood that your ideas are heard and respected in meetings, even in the face of interruptions.

5. My boss don't listen to me what should I do?

Dealing with a boss who doesn't listen can be frustrating, but there are steps you can take to address the situation:

Assess the Situation: Reflect on why your boss might not be listening. Are there communication barriers? Is there a lack of trust? Understanding the root cause can help you address it more effectively.

Choose the Right Time and Place: Find an appropriate time to address your concerns with your boss. Choose a private setting where you won't be interrupted.

Be Assertive, Not Aggressive: When discussing the issue with your boss, be assertive but not confrontational. Clearly express your thoughts and feelings without being aggressive or accusatory.

Provide Constructive Feedback: Instead of simply stating that your boss doesn't listen, provide specific examples of when you felt unheard. Offer suggestions for how communication could be improved.

Listen to Your Boss: Communication is a two-way street. Make sure you're also

sire to understand fully. Here's a guide to help you navigate this process, ensuring your contributions are taken seriously:

Checklist for Seeking Clarification Politely

1. ****Start with Positive Acknowledgment**:** - Acknowledge any points you found insightful before asking your question. For example, "I appreciate your insights on our project direction, especially the innovative approaches you mentioned."
2. ****Use Open-Ended Questions**:** - Encourage elaboration with open-ended questions. Instead of asking yes or no questions, frame your questions to prompt more detailed responses. For example, "Could you elaborate on how we plan to implement this strategy?"
3. ****Express Genuine Curiosity**:** - Show genuine interest in understanding their point of view. "I'm interested in learning more about your perspective on this. Can you provide more details?"
4. ****Clarify Your Understanding First**:** - Summarize what you've understood so far before asking for clarification. This shows you've been paying attention and allows the speaker to correct any misunderstandings. "From what I've gathered, our focus is on X and Y. Could you clarify how Z fits into our overall strategy?"
5. ****Be Specific About What You Need Clarification On**:** - Pinpoint exactly what you need more information about to avoid broad, unfocused questions. "I'd like to understand more about the timeline for this project phase. Could you specify the key milestones?"
6. ****Use Neutral Language**:** - Avoid using language that might come off as accusatory or confrontational. Phrases like

actively listening to your boss and considering their perspective.

Seek Clarification: If you're not sure why your boss isn't listening, ask for clarification. They may have reasons for their behavior that you're not aware of.

Focus on Solutions: Instead of dwelling on the problem, focus on finding solutions. Brainstorm together with your boss on how communication can be improved.

Consider Seeking Support: If the situation doesn't improve or becomes unbearable, consider seeking support from HR or a trusted mentor within the organization.

Evaluate Your Options: If the situation doesn't improve despite your efforts, you may need to consider whether this job is the right fit for you in the long term.

Remember to approach the situation professionally and with a solution-oriented mindset.

"Just to clarify" or "I'm curious to know more about" are helpful.

7. ****Thank the Speaker**:** - Always thank the person for providing the additional information. It reinforces positive communication and shows appreciation for their effort to explain. "Thank you for clarifying that, it really helps me see the bigger picture."

8. ****Maintain Open Body Language**:** - Non-verbal cues like nodding and maintaining eye contact demonstrate your engagement and encourage openness from others.

9. ****Follow Up Appropriately**:** - If the clarification provided in the meeting wasn't sufficient, consider following up after the meeting through email or a one-on-one conversation for further discussion.

10. ****Contribute Your Perspective**:** - After seeking clarification, if you have ideas or suggestions, share them confidently. This can demonstrate your critical thinking and commitment to the project's success.

By adhering to these guidelines, you'll be able to seek clarification in a manner that's respectful and conducive to productive discussion, ensuring that you're taken seriously in meetings.

Give me example of a statement I can tell my manager NOW so he pays attention to what I am saying. Be concrete and short

Certainly, here's a concise and impactful statement you can use:

"I've identified a potential improvement area that could enhance our project's efficiency and outcomes. Can we schedule a moment to discuss my observations and

suggestions?"

4. During meeting (predefined questions)

Given the extensive content provided from various sources, if you have a specific question or topic in mind that you'd like to explore further, please let me know. This will help me provide a more focused and relevant response based on the documents available or my own knowledge base.

How do I deal with not being listened to at a meeting?

Addressing the issue of not being listened to during meetings involves strategic communication, building alliances, and sometimes, organizational change efforts. Here's a checklist to help you navigate and improve your visibility and impact in meetings:

1. ****Prepare and Distribute Agenda Items in Advance:**** - If possible, contribute to the meeting agenda by proposing items for discussion. - Share your points or questions with the meeting facilitator or key participants beforehand to ensure they are expecting your contribution.
2. ****Speak Up Early:**** - Try to make your first contribution early in the meeting. Early comments can help establish your presence and encourage others to listen to your contributions later on.
3. ****Use Assertive Communication:**** - Start your sentences with "I think," "I believe," or "In my experience" to state your views confidently. - Be concise and clear in your speech to retain attention.
4. ****Build Alliances:**** - Develop relationships with colleagues who can support your ideas in meetings. - Consider

discussing your points with some attendees beforehand to gauge their reactions and possibly gain their support.

5. ****Seek Clarification and Reinforcement:**** - If interrupted or if you feel not heard, politely interject with phrases like, “May I finish my point?” or “To circle back to what I was saying. . .” - Use reinforcement from previous discussions or agreements to strengthen your position.

6. ****Leverage Non-Verbal Communication:**** - Maintain eye contact with others when speaking to command attention. - Use open body language to appear approachable and confident.

7. ****Request Feedback:**** - After making a point, ask for feedback or thoughts from others to encourage interaction and demonstrate your interest in collaboration.

8. ****Follow Up After Meetings:**** - If critical points were overlooked or rushed, follow up with key individuals or the group via email or in person to revisit these points.

9. ****Evaluate Meeting Structure and Culture:**** - If the issue persists, it may be useful to provide feedback to the meeting organizer or your supervisor about how meetings are conducted. - Suggest improvements such as round-robin sharing or more structured discussion times to ensure everyone is heard.

10. ****Seek Mentorship and Training:**** - Consider seeking mentorship on effective communication and leadership within meetings. - Participate in workshops or training sessions on assertiveness, public speaking, or effective meeting strategies.

Remember, consistently applying these strategies can gradually change how you

are perceived and treated in meetings. It's also important to evaluate the organizational culture and consider whether there are systemic issues affecting not just you but others as well, which might require broader organizational interventions.

I am sitting in a meeting and no one is listening to me. What should I do?

If you find yourself in a meeting where you're not being listened to, here are immediate steps you can take to regain the floor and ensure your contributions are heard:

1. ****Directly Address the Meeting Leader:**** Politely interject with a statement like, "Excuse me, [Meeting Leader's Name], I have some insights on this topic that I believe are important for our discussion." This signals your intention to contribute something of value.
2. ****Speak with Confidence:**** When you do speak, be clear, concise, and assertive. Use a steady tone to convey your points confidently, which can help draw attention and show that your contribution is worth listening to.
3. ****Use Body Language:**** Sit up straight and lean slightly forward. Use hand gestures moderately to emphasize your points. Making eye contact with others as you speak can also help draw and maintain their attention.
4. ****Reference a Previous Point:**** Tie your contribution to something already mentioned, e.g., "Building on what [Colleague's Name] said earlier, I think..." This technique can make your input seem more relevant and encourage others to listen.
5. ****Ask for Feedback:**** After making

your point, ask the group for their thoughts or feedback. For instance, "I'd love to hear the team's thoughts on this approach." This can encourage engagement with your ideas.

6. ****Use Names:**** When relevant, directly address or reference someone by name to engage them specifically, e.g., "As [Name] pointed out earlier, I agree and would add..." This can help bring the focus back to the discussion and your contribution.

7. ****Follow Up After the Meeting:**** If you feel your points were still not adequately heard or discussed, consider following up with the meeting leader or relevant colleagues individually. Sometimes, one-on-one conversations can be more productive.

Remember, the goal is to assert your presence and ensure your contributions are valued, without coming across as confrontational. If this is a recurring issue, consider having a private discussion with the meeting organizer or a mentor for advice on improving your visibility and effectiveness in meetings.

6. How to silence a too outspoken team leader during a meeting?

Addressing the situation with an outspoken team leader during meetings can be challenging, but there are respectful and effective strategies that can help ensure more balanced participation from all team members. Here's a checklist based on insights from the provided documents and Genie Knowledge Base:

1. ****Prepare a Structured Agenda****: Clearly outline agenda items and allocate specific time slots for each discussion point. This can help keep the meeting fo-

cused and limit time available for any one person to dominate the conversation.

2. **Set Clear Expectations**:

Before the meeting, communicate expectations for participation. Encourage diverse viewpoints and establish that the meeting's goal is to gather input from all participants.

3. **Implement a "Round-Robin" Technique**: To ensure everyone has the opportunity to speak, go around the room and allow each person to share their thoughts on the topic at hand. This can prevent any one individual from monopolizing the discussion.

4. **Use a "Parking Lot" Method**:

If the outspoken leader tends to bring up off-topic issues, introduce a "parking lot" where unrelated points can be noted and addressed at a later time. This helps keep the meeting on track.

5. **Encourage and Support Other Voices**:

Actively invite contributions from quieter team members by asking for their opinions or suggestions on specific matters. Recognizing and validating diverse perspectives can enrich the discussion.

6. **Leverage Private Feedback**:

If the situation persists, consider providing feedback to the team leader in a private setting. Focus on the impact of their behavior on team dynamics and the value of hearing diverse perspectives. Offer constructive suggestions for improvement.

7. **Promote Leadership Training and Development**: Encourage the team leader to participate in leadership development programs that emphasize inclusive leadership styles and the importance of leveraging diverse team strengths for improved decision-making and innovation.

8. **Review Meeting Effectiveness**:
After the meeting, solicit feedback from participants on the effectiveness of the discussion and openness of the dialogue. Use this feedback to make adjustments for future meetings.

9. **Model Inclusive Behavior**:
As the meeting facilitator, demonstrate the behavior you wish to see. Listen actively, value all contributions, and manage the discussion to prevent any individual from dominating.

Implementing these strategies can help create a more balanced and inclusive environment during meetings, ensuring that all team members feel heard and valued.

That's what could I do during if the meeting is already started?

If you're already in the midst of a meeting and need to manage an outspoken team leader, here are immediate actions you can take:

1. **Redirect the Conversation**:
Politely interrupt and thank the outspoken leader for their input, then redirect the conversation to someone else. For example, "Thank you for that insight, [Name]. I'd like to hear [Another Person]'s thoughts on this topic as well."

2. **Use the Agenda as a Guide**:
Refer back to the agenda to keep the meeting on track. For example, "Let's ensure we cover all our agenda points. Moving on to the next item..."

3. **Implement Time Limits**:
If not already in place, suggest implementing brief time limits for each speaker to ensure everyone has the opportunity to contribute. For example, "Let's try to keep our comments to two minutes so we can hear from everyone."

4. ****Ask Specific Questions to Others****: Direct questions to quieter team members to encourage their participation. For example, "I'm interested in hearing [Quieter Person]'s perspective on this."

5. ****Summarize and Move On****: If the leader dominates the conversation on a specific point, summarize their statement and suggest moving forward. For example, "You've made a good point about X, [Name]. To ensure we cover everything, let's proceed to Y."

6. ****Use Nonverbal Cues****: Nonverbal cues, such as raising your hand or using a signal for taking turns, can help manage who speaks and for how long without interrupting the flow of the meeting.

7. ****Call for a Break****: If the dynamic becomes too one-sided and difficult to manage, calling for a short break can help reset the conversation and give you an opportunity to speak privately with the outspoken leader if necessary.

8. ****Wrap Up and Plan Follow-Up****: If time runs out due to lengthy contributions from the leader, wrap up the meeting respectfully and plan for follow-up discussions or meetings where others can contribute their thoughts in a more balanced environment.

These strategies can help balance the conversation during the meeting, ensuring a more inclusive environment where all team members feel their voices are valued and heard.

D

Appendix: User Test 2 Questionnaire

Scenario 1 ✕ ⋮

You are working at Chalmers and need to run a meeting to start a research project. This project is multidisciplinary and will involve people from various backgrounds. You need to ensure that this meeting is as inclusive as possible.

Task:

1. Navigate to the Inclusive Meeting Guidelines page.
2. Search for the Inclusive Meeting Guidelines page.

Navigating to Inclusive Meeting Guidelines was hard/easy *

	1	2	3	4	5	6	
Hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Easy

Searching for the Inclusive Meeting Guidelines was hard/easy *

	1	2	3	4	5	6	
Hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Easy

How did you find the Inclusive Meeting Guidelines? *

Short-answer text
.....

Comment

Short-answer text
.....

D. Appendix: User Test 2 Questionnaire

Scenario 2 ✕ ⋮

You are in a conference outside of Sweden and they are interested in the current situation of gender equality at Chalmers.

Task

- Find the paper published by Genie by using tag*

*tag is a label and is often indicated by a # ('hashtag') to something for the purpose of identification or to give other information.

*Dictionary: Tag is a label attached to someone or something for the purpose of identification or to give other information.

Finding the paper published by Genie was hard/easy *

	1	2	3	4	5	6	
Hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Easy

Comment

Short-answer text
.....

Scenario 3 ✕ ⋮

Your colleague from Computer Science Engineering told you about her experience of being mistreated by her boss. She would like to have some guidance from the university and department, but does not know where to find and asked you. You show her the Genie toolbox website and navigate to the page in question.

Task:

- Find the link to "Safe at Chalmers" and the Equality representative in Computer Science Engineering.

Finding the link to Safe at Chalmers was hard/easy *

	1	2	3	4	5	6	
Hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Easy

Finding the Equality representative in Computer Science Engineering was hard/easy *

	1	2	3	4	5	6	
Hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Easy

How did you find the link to Safe at Chalmers? *

Short-answer text
.....

Comment

Short-answer text
.....

Scenario 4 ✕ ⋮

You are in a meeting and want to express some ideas to the team, but are constantly getting interrupted by the leader and no one is helping you. You open the Genie toolbox on your phone for help.

Task:

- Use AI to get help

⋮

I find the AI itself to be useless/useful *

	1	2	3	4	5	6	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Useful

The suggestions provided by the chatbot was *

- Useful
- Useless
- Not applicable/concrete
- Better than I thought
- Ok
- Other...

Comment

Short-answer text
.....

Evaluation of Attractiveness ✕ ⋮

We would like to invite you to evaluate how attractive the prototype is, please access the link below. This questionnaire is limited to 20 participants, so first come first serve. It is only 1 page with 10 multiple-choices.

<https://esurvey.uid.com/survey/#40b2a808-5c44-43f4-b5a0-3298cc244bcc>

! Default language is in German, change to English in the upper right corner.

I have answered the questionnaire above. *

Yes

No


Does the color palette in the prototype suit the purpose (taking actions towards gender equality)? *

1 2 3 4 5 6


Inharmonious Appropriate

Which color suits the purpose the best? *

Olive Green



Pumpkin Orange



Comment

Short-answer text
.....

D. Appendix: User Test 2 Questionnaire

Final Questions ✕ ⋮

5 scale questions.

How did the prototype meet your expectations? *

1 2 3 4 5 6

Inadequate Excellent

Did the inspiration pop-out at the beginning spark your interest? *

1 2 3 4 5 6

Not at all Absolutely

I would call this an action toolbox *

1 2 3 4 5 6

Strongly disagree Strongly agree

Do you think you get the support and/or content you need from the prototype to take actions? *

1 2 3 4 5 6

Not at all Fully

Do you feel that this prototype will increase actions of your own accord? *

1 2 3 4 5 6

Not at all Definitely

Final comments/suggestions

Long-answer text
