

Delft Inclusive Design

A platform to grow awareness and provide resources for IDE faculty in order to promote an inclusive design perspective.

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Preface

My upbringing was not the 'normal' one everyone hears, where one goes to the same school or various schools in the same city up until they go to university. Up until I graduated from highschool, I had already lived in 3 different countries and 4 different cities in Europe. My parents enrolled me in international schools where there was a vast diversity of cultures. Until I returned to Spain, where I was born and where my family is from, I did not realize how special this diversity was and continues to be. It was the moment when I was going to school one day in Spain that I realized that in the eyes of a person who did not experience this diversity of cultures, the color of the skin and the looks of a person mattered to them. A friend, whose parents emigrated from South America, and who was born in Spain, not only was being bullied at school by fellow classmates, but she was looked at, and pushed around aggressively in the streets by adults. I never really knew how I could help her and others like her, up until Black Lives Matter movement happened. Just like many others, a dear friend wanted to speak out about what she had gone through as a Black English woman having lived and travelled all around the world. She gave me the incentive to start reflecting on myself and start informing myself about racism and how it appears in society. Although it took time, I learned that I can help grow awareness for ethnic and racial inclusivity in my studies and passion.

Inclusivity is a word that is often thrown around in design and in design companies, but rarely fully understood and taken into consideration. It is time we discuss these topics and learn how to create digital and physical products with ethnic and racial inclusivity. For this, we need to start from the content of inclusivity that we are taught at university and how we can develop ourselves as designers who inherently aim for inclusivity.

I want to give a special thanks to my supervisors, Maria Luce Lupetti, Gerd Kortuem, and Annemiek van Boeijen, for your patience, expertise and guidance. Thank you for opening your arms to inclusivity and my perspectives, as well as your support throughout this project journey.

I would also like to thank everyone who contributed to this project. Thank you to the students that I have interviewed and taken part of my questionnaires. Thank you to the teachers that I interviewed about their opinion on inclusivity and my work. Most importantly, thank you to all who have shared experiences of exclusion and their feelings and concerns regarding them.

Lastly, I would like to thank my family and my friends who have supported me during this experience. My friends that took time to listen to my struggles and helped me, and the ones that were busy with their own work and yet made time for me. Thank you to my friend and her mother who inspired me to pursue inclusivity within my studies. My boyfriend who helped me through my frustrations, cheered for my victories and encouraged me to think critically. Thank you to my parents who not only supported me and encouraged me my whole life to achieve my dreams, but also taught me that everyone is equal no matter the culture or skin color. Thank you to my brother, who encouraged me to pursue my dreams of studying in Delft, and who picked up the phone at any point of the day to help, motivate and give me advice.

- Miriam

Executive Summary

Today many products exclude users that have different ethnicity and race. Example of these in physical products are automatic soap dispensers and airport body scanners. The digital era has appeared and there are still digital products excluding users of different ethnicities and race, for example dating apps and algorithms used to find racism and discrimination on social media. Therefore, both physical and digital products continue to cause exclusion among users, mainly caused by the designer's implicit biases. Yet, the faculty of Industrial Design Engineering (IDE) at TU Delft has a scarcity of resources and courses available to integrate an inclusive design perspective for its students and staff. This project aims to raise awareness for inclusivity and set an example for the type of tools needed to carry out an inclusive design perspective in the IDE faculty.

Designing with an inclusive perspective acknowledges the diversity within a target group. Diversity and inclusivity come in different forms, also known as attributes, like accessibility (physical capabilities), age, ethnicity, gender, sexuality, race, and more. It is important for the IDE faculty to address the responsibility that students and staff have when designing products for a diverse group of users. The first step to achieve this is to create awareness for inclusivity and how personal experiences and implicit biases affect our designs. After creating awareness, it is important to have guidelines and tips that can aid students and staff to reflect and create inclusivity in their work.

The Delft Inclusive Design (DID) platform was designed to bring together inclusivity resources available in the IDE faculty as well as resources created by external parties. DID offers a wide variety of resources like podcasts, blogs, stock images, and activities for students and staff to learn more about inclusivity and form their own inclusive perspective. As the inclusive design perspective could be a new way of design thinking in our faculty, it has the potential to be integrated in the Delft Design Guide. Not only can it be part of the Perspectives Chapter, but also its different approach to the inclusivity attributes could also be integrated in the Delft Design Guide.

Additionally, an awareness activity was created for students and staff to test and reflect on their implicit biases. It is a 4 step process where one can uncover their implicit biases, understand how these biases come into play in design and reflect on ways in which biases can be worked through.

Apart from creating awareness, it is important that students and staff know what actions they can do in their day-to-day in order to carry out design from an inclusive perspective. Guidelines and tips can aid students and staff in this process, as inclusivity comes in different forms in each project and context. A guideline to aid when selecting imagery was created to aid students and staff to reflect on the inclusiveness portrayed in an image. This guideline sets an example to how more guidelines can take form and be useful to the IDE faculty.

Creating Awareness

Delft Design Guide

Ethnic and Racial Inclusive Design

Ethnic and Racial Inclusive Design (ERID) focuses on creating products and services that take into account the different attributes that appear in the target groups. Ethnic Inclusive Design focuses on the cultures users associate with, meaningful racial inclusivity than the biological traits users have. In other words, ethnicity is about how people feel regarding their cultural identity and race is how people 'look' regarding their physical appearance.

WHAT & WHY? Communities are becoming more diverse (Bui, Barwick, & Fink, 2020) and users are excluded

Design for Inclusivity

Design for inclusivity offers a perspective for designers to understand the complexity of the diversity in inclusivity. Inclusivity is not about designing for all but being aware of how diverse groups of users interact with a product differently and who is prone to being excluded from this interaction. This perspective requires a step of awareness before starting to design, in order to understand the unconscious bias of the designer. Learning how to design for inclusivity is essential in today's world as communities are becoming more diverse with globalization.

WHAT & WHY? With globalization we experience more diversity in our communities (Bui, Barwick, & Fink, 2020). The many digital products are commonly designed without taking diversity into consideration, resulting in products that do not include groups of people. The exclusion of people who are different in terms of their characteristics (physical and mental) and personality (social and cognitive) can affect their physical and mental health and potentially discriminate systematically. In addition, it makes designers appear to lack empathy and be indifferent to the presence of non-white people in their community. The world is becoming more diverse (World Population, 2022), while product design continues to be dominated by Western countries. For example, 70% of the UI/UX Designers in the USA are white and only 1% of UI/UX Designers are female, leading to misrepresentations of users in digital platforms that may not fit the socio-cultural characteristics of these designers (Zakaria, 2022).

Inclusive design is a progressive, measurable idea that attributes the accessibility, age, ethnicity, gender, race, ancestry, ability, and other factors to the inclusive design that aims to include people from different age groups. Ethnicity refers to the inclusive design that aims to include people of diverse cultural backgrounds. Gender refers to the inclusive design that aims to include diversity in gender and persons. Their roles in the inclusive design that aims to include people of different races, in other words, people with different color skin and

HOW? There are various and the most common are the inclusive design process and the inclusive design process. The inclusive design process is a process that aims to include people of different ages, ethnicities, genders, and other factors. The inclusive design process is a process that aims to include people of different ages, ethnicities, genders, and other factors.

Step 1: Awareness. It is what attributes within the product and service. Additionally, we understand what users and the way they design to product or services. Unconscious biases have been identified and how they affect the project and its play.

Step 2: Guidelines and the process. Guidelines and the process to provide it to minority groups and go to the market. During the process, each segment of the population should be aware of how the design process affects the research. During the "The

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PART 4: Reflection

INTRO As a product we have just completed the unconscious biases, prejudices, and stereotypes a designer may have, and a group often every process they design.

Lately reflect on what you have learned today:

CONCLUSION Product users designed with good intentions and from this the solution is different. Some required and consequently exclude many users. The same goes

PART 3: Let's take an example...

INTRO Imagine that some government website an elementary school teacher is unable to open a budget request to update the project budget. The website is not working for the teacher. The teacher is not able to open the budget request. The teacher is not able to open the budget request. The teacher is not able to open the budget request.

What is the cause of this problem?

What was the intention of the designer? Do you think that they designed like this on purpose?

PART 2: Let's learn about biases in design!

INTRO Everyone holds unconscious beliefs about others and social identity groups, and these beliefs often have a tendency to organize social events for categories. Do you know how these beliefs and stereotypes affect the design process? There is a lot of things that are not obvious to the designer.

PART 1: Implicit bias test

INTRO Let's do an activity to learn about implicit biases. Unconscious or implicit biases are social stereotypes that exist outside the conscious awareness. They are not necessarily negative or harmful, but they can be. They are not necessarily negative or harmful, but they can be. They are not necessarily negative or harmful, but they can be.

Do you have implicit biases of which you are aware of?

Creating Guidelines



Aim of the image and the target group	Sources	Follow-up questions
What is your target group? Do you have a demographic research on the target group?		
Representation of the people and atmosphere in the aim of the picture		
Does the image represent a different reality of the situation trying to be portrayed?	(Lowe, S. M., Taplin, D., Scheidt, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)	If yes: What is the desired message you want to convey in this reality?
Does the image look like it was staged? Is it a culture or people more than others	(Lowe, S. M., Taplin, D., Scheidt, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)	If yes: What could be the problem if it is staged?
The image favors specific race, age, gender, ability, body type, economic status, or other diversity group?	(TrewEEK, S., BaniSker, K., & Bowers, P. et al. 2021)	If yes: Is there a specific reason why? Is your target group fully represented in this image? Are you including other images to fully represent the diversity of your target group?
Are you excluding anyone in your target group?	(TrewEEK, S., BaniSker, K., & Bowers, P. et al. 2021)	Does this align with your aim? From your target group, who is prone to be excluded? Who is excluded in this image?
Does this image elicit or note stereotypes (age and/or gender)?	(Hugh Klein, Kenneth S. Schiffrin, 2009) (Coleman, R. R., & Yocham, E. A. C., 2008)	If yes: How does this affect the purpose of your image? What stereotypes? How does it affect the ones affiliated to this image and those who are not affiliated to this image?
Layout of the image		
Does this image utilize the reality are trying to say?	(Gutsche, R. E., Cong, X., Pan, F., Sun, Y., & DeLoach, L. (2022).	Does the image make use of hashtags or humor to reduce the seriousness of an inclusivity topic?
Does this image play a particular on or culture has a power than the	(Craig, R. L., 1993)	If yes: How is the distribution of power displayed in this image?
Are you able to test the image?	(Dickson, T. J. 2015)	With whom? How diverse was your testing group?
Does this image portray a different aim than you need?	(Dickson, T. J. 2015)	

D:D
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Delft Inclusive Design

We strive to design from an inclusivity perspective by creating awareness of implicit biases and sharing resources for design.

About DID
See Resources

Did you know...?

Content

o Preface.....	3
o Executive Summary.....	4
o Glossary.....	7
o Disclaimer.....	8
o Part 1: Project Setup.....	10
1.1 Introduction to the topic.....	11
1.2 The aim of this thesis.....	13
1.3 The approach.....	15
o Part 2: Introduction into Inclusivity.....	18
2.1 Terms useful to understand before starting.....	19
2.2 Conclusion.....	25
o Part 3: Context Exploration.....	26
3.1 Context: a short history lesson about migration in the Netherlands.....	27
3.2 How are people currently being excluded from society with products?.....	29
3.3 How are people from different ethnicities excluded from digital platforms?.....	32
3.4 Conclusion.....	40
o Part 4: People's perspectives.....	42
4.1 The people.....	43
4.2 The interview process.....	44
4.3 Observations.....	46
4.4 Conclusion.....	50
o Part 5: Designers perspectives.....	51
5.1 The process.....	52
5.2 The Influence of the Designer.....	55
5.3 Conclusion.....	60
o Part 6: Existing Resources.....	61
6.1 Existing Resources.....	62
6.2 Literature Research on Inclusive design guidelines.....	68
6.3 Conclusion.....	69
o Part 7: Analyzing TU Delft's approach.....	70
7.1 Analysis of the Delft Design Guide Book.....	72
7.2 Courses and education opportunities for students to learn about inclusivity at IDE.....	76
7.3 The importance of teachers in the education of inclusive design.....	77
7.4 Conclusion.....	79
o Part 8: Intermediary Results.....	80
8.1 Converging results of parts 3, 4, 5, 6 and 7.....	81
8.2 Opportunities created from research.....	83
o Part 9: The Delft Inclusive Design.....	87
9.1 Target Group.....	88
9.2 Requirements of the solution.....	89
9.3 Aim of the Solution.....	90
9.4 Delft Inclusive Design platform.....	91
9.5 The Design Process of the Platform.....	96
9.6 The Design Process of the Awareness Activity... 105	
9.7 The Design Process of the Guidelines.....	112
o Part 10: Evaluation.....	114
10.1 Concept Evaluation of the website.....	115
10.2 Concept Evaluation of the awareness activity... 118	
10.3 Concept Evaluation of the guidelines.....	125
10.4 Discussion.....	128
10.5 Conclusion.....	134
10.6 Recommendations for further research and development.....	136
10.7 Reflection on this project.....	139
o Bibliography.....	141
o Appendices.....	150
Appendix A: User interview notes.....	151
Appendix B: Designer interview notes.....	156
Appendix C: Analysing External Resources.....	160
Appendix D: Other guidelines and tips	165
Appendix E: Delft Design Guide Remarks.....	167
Appendix F: Delft Inclusive Design.....	175
Appendix G: Evaluation Procedure and Results.....	184

Glossary

Inclusive Design: Inclusive design describes methodologies to create products that understand and enable people of all backgrounds and abilities. It may address accessibility, age, economic situation, geographic location, language, race, and more. (Joyce, 2022)

Accessibility: In a design context, accessibility describes how many people can use the interface. This usually involves designing for people with various types of disabilities, such as vision, hearing, mobility, cognitive, etc. (Liu, 2018)

Systemic Racism: policies and practices that exist throughout a whole society or organization, and that result in and support a continued unfair advantage to some people and unfair or harmful treatment of others based on race. (CambridgeDictionary, n.d.)

Ethnicity: a large group of people with a shared culture, language, history, set of traditions, etc., or the fact of belonging to one of these groups. (CambridgeDictionary, n.d.)

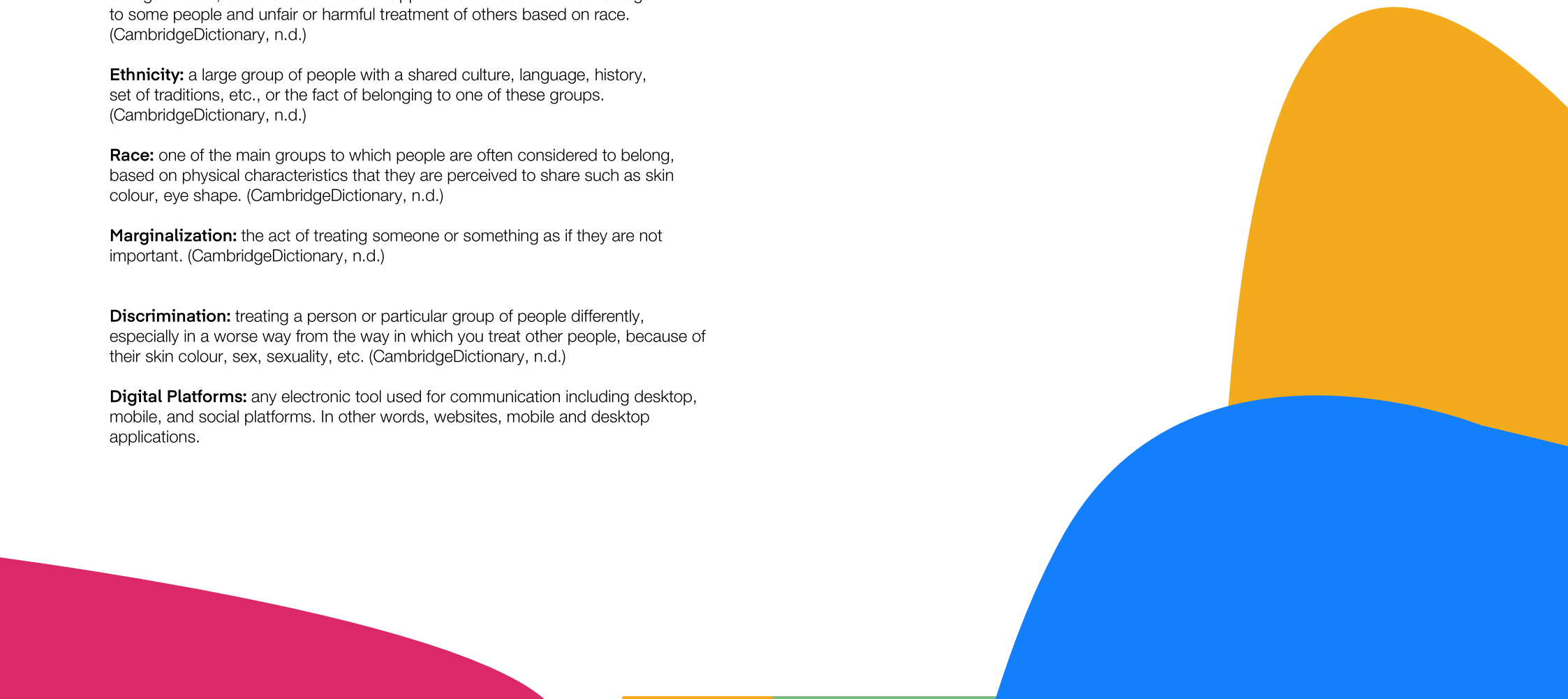
Race: one of the main groups to which people are often considered to belong, based on physical characteristics that they are perceived to share such as skin colour, eye shape. (CambridgeDictionary, n.d.)

Marginalization: the act of treating someone or something as if they are not important. (CambridgeDictionary, n.d.)

Discrimination: treating a person or particular group of people differently, especially in a worse way from the way in which you treat other people, because of their skin colour, sex, sexuality, etc. (CambridgeDictionary, n.d.)

Digital Platforms: any electronic tool used for communication including desktop, mobile, and social platforms. In other words, websites, mobile and desktop applications.

Model Minority: a minority demographic whose members are perceived as achieving a higher degree of socioeconomic success than the population average, thus serving as a reference group to outgroups (Rojas, 2009).



DISCLAIMER

The topic of this thesis includes discussion about racism and discrimination which can be an uncomfortable topic. Nevertheless, I hope it will help reflect on one's practices and therefore empower to become a better designer.

“When you decide who you’re designing for, you’re making an implicit statement about who you’re not designing for. For years we referred to people who weren’t crucial to our products’ success as ‘edge cases.’ We were marginalizing people. And we were making a decision that there were people in the world whose problems weren’t worth solving.”

- Monteiro, M. , 2019

Part 1: Project Setup

This chapter provides a general view of the project, its approach and its aim. Part 1 explains briefly the topic of ethnic inclusion in digital platforms and its importance in society. It continues with the initial aim of the thesis which is what was proposed to the exam committee at the beginning of this project. Nevertheless, this aim changed with the course of the thesis due research carried out in each search area set. Lastly, the approach with which this project was carried out is further explained, including the 4 search areas and their corresponding research questions.

1.1 Introduction of the topic

This thesis focused on inclusivity, initially focusing specifically on ethnic inclusion in digital platforms. It was carried out as a graduation project for the master of Integrated Product Design at the faculty of Industrial Design Engineering (IDE) at TU Delft.

For this project, digital platforms are considered as the following: any electronic tool used for communication including desktop, mobile, and social platforms. In other words, websites, mobile and desktop applications.

With globalisation we experience more ethnic diversity in our communities (Bai, Ramos, & Fiske, 2020). Yet, many digital products are continuously designed without taking ethnic diversity into consideration, resulting in platforms that make people feel excluded from the usage. The exclusion of people who are different because of their ethnicity causes them to feel invisible and careless. In addition, it makes designers appear to lack empathy and be indifferent to the presence of non-white people in their community (Jantji, 2021). The world is becoming more racially and ethnically diverse (World Population, 2022), while product design continues to be dominated by Western countries. For example, 76% of the UX Designers (in the USA) are white and only 37% of UX Designers are female, leading to misrepresentation of users in digital platforms that may not fit the same sociodemographic characteristics of these designers (Zippia, 2022).

Products that marginalise people based on their ethnic identity not only affect people emotionally but also physically and systematically. This project explores situations where digital platforms have not only discriminated but also was racist to ethnically diverse people.

In this project, one can observe that the excluded groups are mainly those categorized racially as non-white people or nationally as non-european or non-american people. For this reason, we can refer to this problem as systemic exclusion. As not only does this exclusion create emotional and physical harm, but also perpetuates limitations of opportunities for these groups. The root of this problem requires change in order for exclusion to no longer occur. In design, this problem is mostly unintentional, nevertheless, intentional or unintentional, this results in a feeling of exclusion and its harm is the same. For this reason, this project considers the outcome of the design to be more important than the

intention of the designer. Yet, it is essential to take into consideration that no human is perfect, and the trajectory to an inclusive design will include mistakes and improvements.

In recent years, inclusive design has become a buzzword for many companies to incorporate in their design practice and business model (Musgrave, 2022). Yet, many designers and tools taught on design for inclusivity actually refer to accessibility. Accessibility is an attribute of inclusive design that mainly focuses on inclusivity of users with mental and physical disabilities.

The Netherlands has a large history of immigration in the 20th century due to the independence of its colonies. These have brought ethnic and racial diversity to the country. Yet, to my experience, at the TU Delft IDE faculty the topics of inclusivity and ethnic diversity are rarely discussed. For this reason, the exclusion of ethnic groups continues as students are unaware of this situation.

1.2 The initial aim of this thesis

The initial aim of this thesis was to:

“Design a **tool** that can **seamlessly** and **effectively** be used by **designers of digital platforms**, in Europe, to create **inclusivity** of marginalized users from **different ethnic** groups, in their day-to-day practice.”

Let's analyze the different parts of the assignment:

Tool

Ideally, an aid for designers to have access at any time. To start off, I envision its first version to be in English and of digital form as the majority of users to have access and understand it. It could include clear guidelines for the designer to be able to apply it easily to their design practice. Future versions of this tool could entail other languages to be more inclusive of other cultures in the target group.

Seamlessly

The tool could be able to be easily integrated into their design practice, for this reason it must be seamless. This means that it will require low efforts for designers of digital platforms to integrate in their day-to-day life style.

Effectively

The tool must have a meaningful impact on the designer, their practice and their outcome. This means that the tool must solve a problem truly identified and be feasible to integrate.

Designers of digital platforms

From experienced designers to designers in-the-making, they should be able to have access to this tool and be able to integrate it in their designs. Mainly focusing on the scope of digital platforms which are defined as any electronic tool used for communication including desktop, mobile, and social platforms.

Inclusivity of ethnicities

Ethnicity is a very complex term. For this thesis, I will define ethnicity as the culture that the person identifies with. For example, I have lived for most of my life in different countries in Europe, nevertheless, the culture I associate with is Spanish as at home my family always adopted Spanish traditions.

As consequence of this tool, the designers could grow awareness about the people that they are including and excluding with their designed solution. They could be able to identify the parties that they have included and the consequences of including that specific group of users.

With the knowledge gained throughout the different research areas, this aim changed due to the complexity inherent in the topic of inclusivity. In Part 8.2 one can find the new aim and design direction.

1.3 The approach

The main topics and questions are explained in figure 1 and 2. This figure explains the areas that I consider should be addressed within the topic and the project as it encapsulates the target group's experiences and needs, their professional future, the most frequented inclusive material available and the IDE faculty's inclusive material available.

Initially, this project started with the 3 research areas which then expanded into 4, as there was a possibility to integrate the IDE faculty into the project. The project explores the following search areas:

- People's experience with ethnic discrimination in digital platforms
- The designer's professional experience with ethnic inclusivity
- Existing ethnic inclusive resources for designers
- Ethnic inclusive design resources for IDE students

Research questions were formulated for each search area to have a better understanding of the matter at hand, as seen in figure 1 and 2.

To understand the context of inclusivity and ethnic diversity, Part 2 explains their meaning, their consequences and their importance. This is a summary of what these terms convey and it was developed throughout the process of this project. Nevertheless, it deemed necessary to understand these concepts from the beginning of this report in order to understand the context of inclusivity in which this project dives deeper into.

To understand the people's experience with ethnic discrimination in digital platforms, literature research and 8 interviews were carried out among young designers and engineers of diverse ethnic backgrounds. Literature research was carried out to find more examples of discriminatory practices in digital platforms and to learn the causes and consequences and of these issues. Part 3 of this report, analyses 5 cases of discrimination with the help of a conceptual model of digital platforms I have developed. Additionally, also referring to research area 2, Part 4 explains the finding of the previously mentioned 8 user interviews.

The designer's professional experience with ethnic inclusivity was analyzed by means of 3 interviews with 'inclusivity experts'. Additionally, to understand the influence that the designer has to integrate inclusive practices within their

People's experience with ethnic discrimination in digital platforms	What are their experiences?
	What form do these experiences come in?
The findings for this research area are in Part 3 & 4.	

Existing ethnic inclusive resources for designers	Which inclusivity resources are available? Which of these are aimed at ethnic inclusivity?
	How can these resources be improved?
The findings for this research area are in Part 6.	

The designer's professional experience with ethnic inclusivity	What is their current practice?
	How much influence do they have to carry out these practices?
The findings for this research area are in Part 5.	

Ethnic Inclusive Design Resources for IDE students	What resources are available to IDE students?
	In what ways can these resources improve for IDE students?
The findings for this research area are in Part 7.	

Figure 1. Research areas 1 and 2 with their corresponding research questions.

Figure 2. Research areas 3 and 4 with their corresponding research questions.

company, 2 more interviews were carried out with other designers from different companies. To add more depth to the influence of the designers influence, a personal reflection on my own design work experience is also included. This research indicated the environment and the factors that need to be taken into account when integrating inclusive design practices into the designer's process. See Part 5 to read more about the designer's perspectives and the outcomes of its research.

Existing inclusivity resources for designers were collected and analyzed. A variety of these design tools were mentioned by the designers interviewed in the previous search area and the rest were collected from literature research that was carried out. Part 6 of this report portrays this research area which aim was to see the inclusive resources there are available for designers, which of these contain ethnic inclusive guidelines, and find the opportunities and improvements. Moreover, ethnic inclusive guidelines and tips were collected through literature research and with the previously mentioned interviews carried out with designers.

For the last research area, available inclusivity resources and courses at the IDE faculty were identified. The aim of this research was to identify which of these resources and courses use inclusive approaches and, consequently, identifying which resources create ethnic inclusion. One of these resources is the Delft Design Guide, a widely and frequently used guide by our faculty students and staff, which is also internationally known and used. Therefore, it has been analyzed and suggestions were created to implement the perspective of Design for Inclusivity. As result of this research, the design direction changed and the need for ethnic guidelines was highlighted. This analysis of the TU Delft resources available to IDE students can be found in Part 7.

By learning and understanding the outcomes of the research areas, it was clear to me the need for a space with a collection of resources to create awareness for inclusivity and guidelines for designing with an inclusivity perspective. For this reason, the final part of this thesis focused on the development of a platform for IDE students and staff that creates awareness for inclusive design and designer bias, provides guidelines and tips to integrate inclusivity, allows students and staff to share their experiences with exclusion and marginalisation, and, lastly, creates a community for students and staff to come together and discuss the topic of inclusivity in design.

Part 8 includes these findings and design scope as well as the knowledge gained throughout the project on how to design for inclusivity and the necessary steps to carry it out.

As result of this design scope, a new aim, requirements and an ideation process was carried out to find a solution for the design direction. This solution consists of a platform which creates awareness and provides resources and guidelines for the IDE faculty in order to promote an inclusive design perspective. The aim, target group, requirements, and design processes of the proposed solution can be found in Part 9 of this report.

Lastly, Part 10 describes the concept evaluation carried out to test the platform and the awareness activity and guidelines included within the platform. These were evaluated separately as they had different aims. The platform was tested among a questionnaire with 13 students and interviews with 2 staff members. Additionally, the awareness activity was tested in 3 parts through means of interviews. The three parts represent the 3 stages of awareness: short-term, medium-term and long-term awareness. With 2 weeks in between each part of the test. It was proven with this evaluation that when it comes to awareness it is essential to have a minimum of 3 sessions as the 1st session aims to provide the essential information and brings the user from an unconscious state, to a conscious state; a 2nd session to remind the participant of the learnings of session 1 and bring the participant closer to self-awareness; as session 2 will trigger the participant to remember and become conscious, session 3 will encourage the user to reach a self-awareness stage which with repetition will reach a meta-self-awareness stage. A guideline to choosing inclusive imagery was also evaluated in terms of its clarity, usefulness, and reflection quality. The guidelines proved to be a great first step towards creating guidelines to implement within the faculty students and staff. Part 10 also includes a discussion of these findings, recommendations for further research and ends with a reflection on the project.

Part 2: Introduction into Inclusivity

Designing for inclusivity is a complex problem which needs an introductory chapter that informs readers about the key aspects that are important to take into account when talking about inclusivity. This chapter explains how inclusivity is defined by various sources and the point of view that this project takes. Additionally, it distinguishes ethnicity and race, as well as explores the commonalities and the confusion that exists around these two terms. The causes of exclusion is an important segment of this chapter as it explains the effects on the users but also the terminology that is binded and frequently used throughout the practice of inclusive design. The chapter concludes with various tips to take into consideration when designing for inclusivity.

2.1 Terms useful to understand before starting

Throughout this research, I gained a deeper understanding of inclusivity and its terms. Here are the essential terms that need to be understood before continuing to read the report.

What is Inclusive Design?

The British Standards Institute defines inclusive design as “The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible, on a global basis, in a wide variety of situations and to the greatest extent possible without the need for special adaptation or specialized design.”(British Standards Institute, 2005). On the other hand, the Nielsen Norman Group defines inclusivity as “methodologies to create products that understand and enable people of all backgrounds and abilities. It may address accessibility, age, economic situation, geographic location, language, race, and more” (Joyce, 2022). Just like the British Standards Institute defines it, I heard several times in my design education that inclusivity was about designing for all and as many people as possible. It is after this project that I understand that designing for inclusivity is actually like Nielsen Norman Group define inclusivity: understanding and enabling people of all backgrounds and abilities. Additionally, as they mention inclusive design comes in different forms. Kat Holmes, Microsoft former director of inclusive design, defines these forms as ‘attributes’ and explains that inclusive design is a method (Holmes, 2020). Inclusive Design has different attributes at the moment (as these may change in the future as cause of globalization and diversification): accessibility, age, economic situation, geographic location, language, race, ethnicity, gender, and sexuality (figure 3). The only attribute of inclusivity that was taken into consideration in the British Standards Institute is actually accessibility. Lucia Liu defines accessibility in a design context as “how many people can use an interface. This usually involves designing for people with various types of disabilities, such as vision, hearing, mobility, cognitive, etc.” (Liu, 2018). In other words, accessibility is aimed to include people with physical and cognitive impairments. This imbalance between inclusivity attributes comes back in Part 6 when analyzing current existing inclusivity design resources.

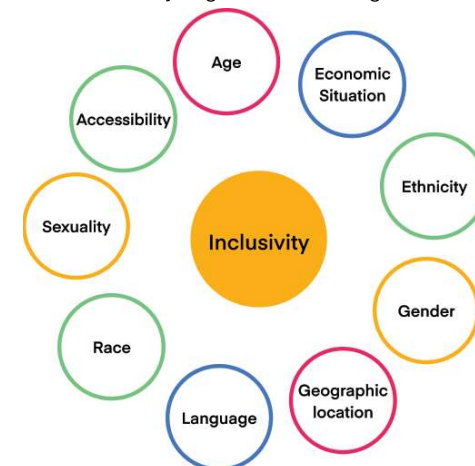


Figure 3. The range of inclusivity attributes.

Why did I choose ethnic inclusivity?

Ethnicity is not taken into consideration enough in inclusive design resources, and excluded people of this group are suffering the consequences, as seen in Part 3. Additionally, ethnicity and race are often confused and/or combined. Yet, they are two completely different terms, as seen in the next section. Ethnicity relates to the cultural association an individual feels part of, meanwhile, race is related to the physical and behavioral attributes of the person itself. Meanwhile reading research, I identified that many researchers confuse these two terms. For example, Silva and Kenney discuss the ethnic biases in algorithms, AI and platforms. Nevertheless, in their research they do not define these two terms and refer to a user profile on a platform with ethnic identifiable characteristics, meanwhile ethnicity does not have physical characteristics (Silva, S. & Kenney, M, 2019).

Moreover, ethnic diversity is very dear to me as my close friends are ethnic and racially diverse, feeling consequences of exclusivity, discrimination and racism. Ethnic and racial exclusivity have been for a long time part of politics and the system we live in. An example of this is the viaduct designed by Robert Moses. He deliberately designed a viaduct to prevent buses on which poor, mainly the Black population, depended on in order to prevent them from accessing Jones beach in Long Island. Therefore, this beach remained largely reserved for the white and car-owning middle class (Winner, 1980).

What is ethnicity? How is it different from race?

Ethnicity is a term that is quite hard to grasp as many define it differently. The Cambridge Dictionary defines ethnicity as “a large group of people with a shared culture, language, history, set of traditions, etc.” (Cambridge Dictionary, n.d.). Ethnicity is often defined differently by many as it relates to cultural attributes, yet in practice many mix ethnicity with race and nationality. Nina Jablonski, an anthropologist from Pennsylvania State University, who is known for her research into the evolution of human skin color, explains the difference between race and ethnicity: “Race is understood by most people as a mixture of physical, and behavioral attributes. Ethnicity recognizes differences between people mostly on the basis of language and shared culture.” (Bryce & Pappas, 2022). Race can be associated with what people see, in other words, with physical traits. Meanwhile, ethnicity is how a person feels and the culture they associate themselves to. Therefore, we could associate race with physical factors and ethnicity with behavioral and cultural factors. In this sense, if we take a black man who was born in America, we could say that his race is black and he may define his ethnicity as Black African American, because he may feel associated with the American culture and with his Black African culture too. But what if he is a black man who was born in America, and raised in Italy? Well his race would stay the same but his ethnicity would be different most probably. Nevertheless, we wouldn't know unless we were to ask him. Ethnicity is a subjective matter. Does he feel more affiliated to Italian culture, to American culture, or/and his Black African culture or even a different culture? I would not be able to tell you, that is why he has to be the one to tell us, simply because one would not know without asking him. Figure 4 portrays the complexity of ethnicity when one finds themselves in another country than their own.

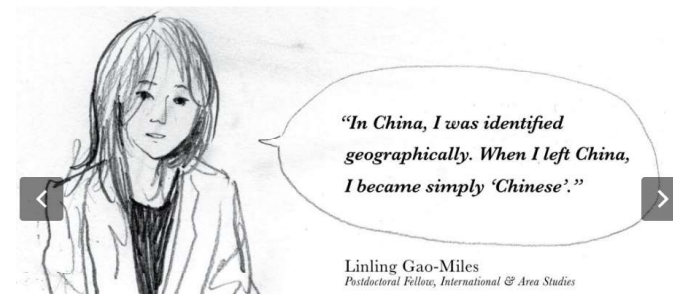


Figure 4. Illustration of Linling Gao-Miles by Leslie Ding (Washington University in St. Louis, n.d.).

What happens when something is not ethnically or racially inclusive?

Just like any other inclusion attribute, the lack of inclusivity is exclusivity. What is exclusivity? The Cambridge Dictionary defines it as “the act of not allowing someone or something to take part in an activity or to enter a place” (Cambridge Dictionary, n.d.). Exclusion can be an active action or a subconscious action. In either case, exclusion can create marginalisation. Marginalisation is defined by the Cambridge Dictionary as “the act of treating someone or something as if they are not important” (Cambridge Dictionary, n.d.). When we talk about ethnicity, marginalisation is caused by racism and discrimination.

The Cambridge Dictionary defines racism as “harmful or unfair things that people say, do, or think based on the belief that their own race makes them more intelligent, good, moral, etc. than people of other races” (Cambridge Dictionary, n.d.). Meanwhile, Cambridge defines discrimination as “treating a person or particular group of people differently, especially in a worse way from the way in which you treat other people, because of their skin colour, sex, sexuality, etc.” (Cambridge Dictionary, n.d.) With these two definitions it is quite hard to understand what exactly is the difference between the two concepts. Celeste Headlee, a communication and human nature expert, explains how racism and discrimination are often confused as the same concept while being different concepts: “Racism is the belief that a person’s personality, behavior and morals can be traced back to race, and the belief that one race is superior to another. For example, thinking that Asian people are better at math is racist. One is attributing qualities to another person based solely on their race” (Headlee, 2019).

Just like exclusivity, racism can be an active action or a subconscious action. It is an active action, for example, when a store clerk watches their black customers more closely than the white customers. It is a subconscious act when, for example, a hiring manager feels a white candidate is more qualified than a Latino

candidate with similar experience. We all are likely to have assumptions embedded in our mind about how people are likely to behave based on how they look. This is the unconscious bias, the assumptions that we have learned from society that influence our subconscious.

Celeste continues explaining the concept of discrimination: “Discrimination on the other hand, is acting on these racist thoughts. It can also be an active action or a subconscious action. An active action can be a landlord deciding they do not want to rent to any Latinos. An unconscious action can be a hiring manager disproportionately employing white males because the manager is unaware of their unconscious biases and protesting that they are not racist.” (Headlee, 2019).

In terms of design, when someone is excluded because of their ethnicity or race, they feel marginalised because they feel transparent and not taken into consideration in a design.

What is the cause of design marginalisation?

The cause of design marginalisation is systemic racism and discriminating actions perpetuated by the designer and their environment when creating the product.

As Headlee mentioned “we are all likely to have unconscious biases” (Headlee, 2019). Everyone has had different experiences that have shaped them since they were born. As babies and children grow, they are observing the environment in which they are in. They observe how people act, behave, speak, etc. I might as well call babies ‘sponges’ as they soak up all the inputs that they receive through their senses. They learn as they soak up these observations and they recreate them. How many videos have we seen of children saying a bad word in public. Do you think they magically made up that word in their mind? They probably do not even know what it means, they just heard someone say it and found it an interesting word because of the reactions they receive when saying it.

What can we do about unconscious biases? What types of unconscious biases are there?

Already by trying to understand what unconscious biases one may have, one is a step closer to changing them. After revealing these unconscious biases, then one can start changing their actions and behaviour towards their biases. Once they have been able to work on themselves, then they can approach the environment in which they have influence in, either that is work, family, or school, and speak out about this matter (Oberai, H. and Anand, I.M., 2018) (Callister, 2022). Unconscious bias, also known as cognitive bias, can come in different forms (Hughson, 2019).

Harvard University developed Project Implicit which is dedicated to educating, learning and uncovering unconscious biases. They developed the Implicit Association Test (IAT) which has multiple topics to test unconscious biases. It reports one's attitudes or beliefs about these topics and provides some information about oneself's unconscious mental models (Project Implicit, n.d.). The IAT topics range from weapons, to religion, to sexuality. Although the IATs are not a true indicator of people's beliefs, they do encourage people to start tapping into hidden stereotypes and prejudices (DavidsonMorris, 2021)(Heazlewood, 2017).

As seen in figure 5, there are many types of unconscious biases. Nevertheless, the biases one may be able to recognize are those that mostly appear in the work environment. Himani Oberai and Ila Mehrotra Anand (Assistant Professors at the Institute of Business Management, at GLA University, Mathura, India) explain the following biases in the work environment (Oberai, H. and Anand, I.M., 2018):

Halo effect

It is the tendency that our overall impression of a person influences how we feel and think about their character. For example, "He is great public speaker; therefore, he will be a great leader and good at managing others". (Oberai, H. and Anand, I.M., 2018) (Cherry, 2020).

COGNITIVE BIAS CODEX

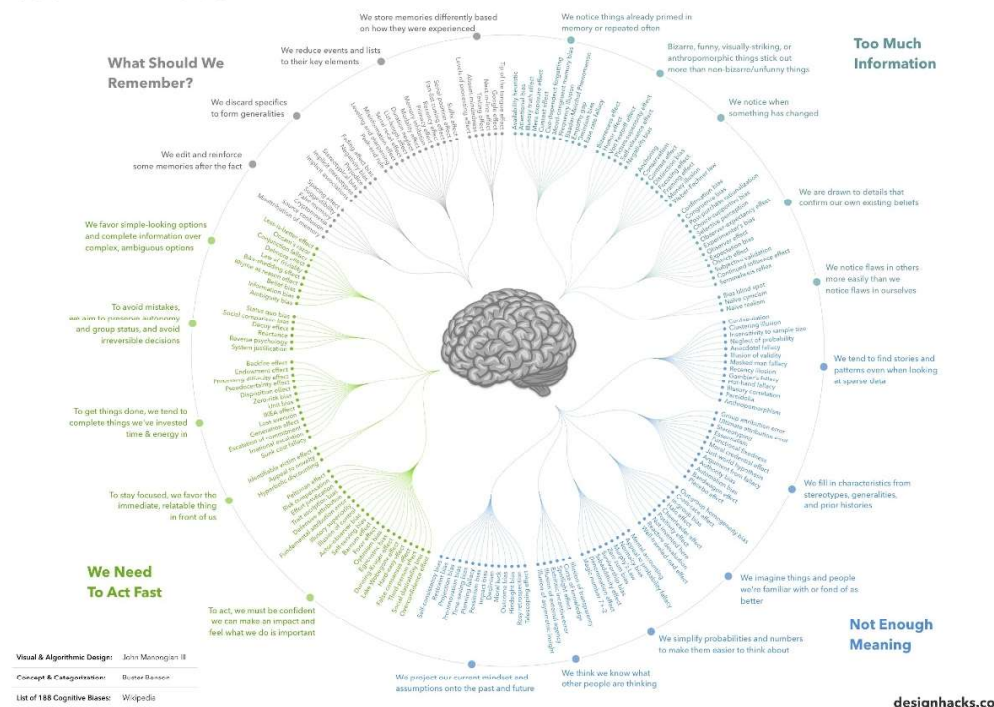


Figure 5. Illustration types of cognitive biases (Desjardins, 2021).

Affinity bias

Describes how we subconsciously gravitate towards people who we feel share our interests, beliefs, and background. It is also called as "like me" bias. For example, we belong to same place, we graduated from same college, etc. (Oberai, H. and Anand, I.M., 2018) (Caccavale, 2021).

Conformity bias

The tendency people have to behave like those around them rather than using their own personal judgment. In other words, the unconscious bias caused by peer pressure.

This is very commonly seen in interview rooms; when an individual observes that most of the interview panel members are leaning toward/away from a certain candidate, they tend to move toward group thinking rather than giving voice to their decision. (Oberai, H. and Anand, I.M., 2018) (Mcooms School of Business, 2022).

Cloven hoof effect

It occurs when generalizing one negative aspect of a person in all areas of performance. For example, "She has a very poor dressing sense; therefore, she is lazy and very unprofessional". (Oberai, H. and Anand, I.M., 2018).

Attribution bias

The tendency to explain a person's behaviour by referring to their character rather than any situational factor. In essence, it leads us to overestimate the weight of someone's personality traits, and underestimate the influence of their individual circumstances. In other words, when we do something good, we tend to own its success. But when we fail at something, we blame others for it. (Oberai, H. and Anand, I.M., 2018) (Caccavale, 2021).

Beauty bias

It is the tendency to think that most beautiful/handsome individuals will be the most successful people at work. For example, some recruiters will always try to look for attractive physical attributes to fill a particular role. (Oberai, H. and Anand, I.M., 2018).

Confirmation bias

One of the most dangerous biases. It is the tendency of people to favor information that confirms their existing beliefs or hypotheses. We do this because we want assurance for our opinion. (Oberai, H. and Anand, I.M., 2018)(Noor, 2020).

Why is ethnic inclusion important? Why do we need to know about marginalization, racism, and discrimination?

Very simple. The fact that it may not affect you personally, does not mean it does not affect somebody else. In Part 3, examples are shown containing experiences that ethnic and racially diverse users go through when dealing with everyday products. These examples explain the situations objectively and portray the consequences.

In summary, being ethnically excluded from products bring those who experience it emotional and physical effects as they feel invisible and shameful (UnitedNations, 2018). It creates disempowerment and restricts opportunities for marginalised groups. Additionally, it affects society as it perpetuates stereotypes, prejudice and stigmas that are inaccurate, potentially causing systemic racism (OpenLearnCreate, 2020). Systemic racism is defined by the Cambridge Dictionary as "policies and practices that exist throughout a whole society or organization, and that result in and support a continued unfair advantage to some people and unfair or harmful treatment of others based on race". For example, there is clear evidence that in The Netherlands, house-seekers with an immigration background are less likely to be invited to view an available house than those with no immigration background and yet same characteristics (European Commission, 2021). Additionally, racial and ethnic exclusion is a dehumanizing action as it deprives someone of human qualities, personalities and dignity (Brander et al., 2020)(Park, Y.O. and Park, S.H., 2015). This is not surprising as there is a long history of dehumanizing certain minorities in certain social segments, for example the long history of anatomy books featuring white people (studies show that 76% of bodies in anatomy book feature white people) (Eveleth, 2019) (Segran, 2021). This leads these excluded groups to feel unimportant and not worthy to be represented in such visuals. Another dehumanizing story in the medical sector is the long history of enslaved people to be part of medical experiments. These studies have deprived the minority groups of their dignities and their human qualities, as well as life. Up to this day, there is evidence that many doctors continue to underestimate the Black patients pain and view them as less intelligent (Raphael, 2020) (Segran, 2021).

When and how do we address ethnicity in our research and when not?

As mentioned before, we cannot proclaim a person's ethnicity, as it is subjective, we can only make assumptions of their race based on the physical appearances. Therefore, when talking about ethnicity in design, in order to categorize people (only if really necessary and adds value to the research), one has to think of culture. If one asks another: "What is your ethnicity?" The other person will answer among other, the culture they associate with, their race, and/or their nationality among other things. There are many ways to answer this question because of the confusion of what ethnicity really means.

Nevertheless, it is only socially correct to ask someone's ethnicity in a study if it is essential for the research and it may be a defining factor to test the assumptions of the research. It is essential to inform participants why their ethnicity and/or race is being collected and how it would be used. When creating a questionnaire, first it is important to understand what the subject regards as ethnicity and/or race. Or define the definition of ethnicity and/or race that the research is taking into account. If one decides to make a closed ended question about ethnicity and/or race, the options should be according to the definition of ethnicity and/or race used in the research. Additionally, having an "other" category, might be, well, othering. It is critical to allow participants who do not fit into any of the existing categories a chance to answer in a way that is still accurate to them (Klassman & Anderson, n.d.).

Additionally, as social construct, one shouldn't need to know what is the ethnicity of a stranger. If one is befriending someone, the topic of ethnicity will appear naturally by the way the person describes themselves and where they are from. If one feels comfortable with the other person and vice versa, and is very intrigued with what their ethnicity is, one can ask politely: "If I may ask, what culture do you associate with the most?". This will allow them to politely not answer the question or provide an accurate answer to their ethnicity.

2.2 Conclusion

This chapter introduces the importance of designing for inclusion. Ethnic exclusivity causes ethnic diverse users to feel marginalised from experiences, products, groups, etc. It is this marginalisation that is caused by individuals, either consciously or subconsciously. These individuals have unconscious biases that cause the subconscious marginalisation. Therefore, these individuals are unconsciously discriminating users based on their ethnicity (or race if they are judging by their physical traits or other inclusivity attributes). This act of discrimination can be based upon racist thoughts that are subconscious to the individuals. For this reason, this **thesis will focus on the unintentional forms of design caused by factors that the designers did not consciously uncover.**

As one will see throughout this report, designing for ethnic inclusion, actually inclusivity in general, is **not just an act of design, it is a act of understanding, learning and improving the unconscious biases designers (individuals) have.** Additionally, this thesis will portray the need to first address the topic of inclusivity before going into attributes of inclusivity such as accessibility or ethnicity. Learning an inclusive design perspective is not an easy process and it is not meant to be as such, but it makes it easier to do it with others in one's closer circle. It is important to take into consideration that it is a slow process and requires self initiative and proactiveness.

Part 3: Context Exploration

As the first research area, this chapter focuses on the exploration of the context of ethnic diversity in the Dutch environment and examples of products that are discriminatory towards ethnic and racial diversity. The chapter includes a short introduction on the history of immigration in the Netherlands and why there is ethnic diversity in the Netherlands. This is followed by examples of products that are discriminatory to people with different ethnicities and races. Continued by an analysis of cases in digital platforms that are also discriminatory towards minorities in ethnic and racial groups. For this analysis, conceptual models were developed in order to understand the factors that play a role in this discriminatory digital platforms and identify where the cause of this practice lays.

3.1 Context: a short history lesson about migration in the Netherlands

As designers from the IDE faculty are majorily from the Netherlands, the aim of Context Research is to understand the origin of the diversity existing in The Netherlands.

According to The Netherlands Scientific Council for Government Policy, in 2018, one in 5 Dutch people have at least one parent who is from abroad (Jennissen, R. et al, 2018). After the Second World War, the Netherlands was in ruins as its industry was destroyed, buildings were burnt down, and the unemployment rate was unimaginable. These factors together led to four waves of major immigration.

The first wave originated from the Dutch East Indies, which consists of today's Indonesia. This first wave lasted 22 years from the moment the nationalist party of Indonesia declared itself an independent republic in 1955 (Koks, E., 2020). This wave consisted of "repatriation" movement where Dutch-Indos were offered a possibility to go to the Netherlands. It started off with only those who could provide paperwork that recognized and registered them as Dutch citizens (Koks, E. 2020) (Geenen, R. 2020). In 1949, those Dutch-Indos who did not have the paperwork or were not able to integrate into the Indonesian society were also allowed to go to the Netherlands. In 1967, the Dutch government fully terminated this repatriation option (Geenen, R. 2020).

As result of the independence of the former Dutch East Indies, the Netherlands created the Charter of the Kingdom of the Netherlands which established that Suriname, the Antilles and the Netherlands, were separate yet equal partners within the Kingdom of the Netherlands. As result, this caused the second wave of immigration where Creole people travelled to the Netherlands to carry out educational studies or other personal reasons. Between 1975 and 1980 Suriname gained its independence from the Netherlands which caused more Surinamese to flee to the Netherlands for fear of political and economic ramifications as consequence of the independence (Ogle, J. 2011). For similar reasons there has also been large migrant groups from the Dutch Antilles which are to this day still part of the Kingdom or the Netherlands (History of immigrations in the Netherlands, n.d.).

The third wave originated from the labour migration, due to the oil crisis, where the Dutch state recruited workers from Southern Europe such as Greece, Italy, Spain and Portugal, and from Turkey and Morocco in the 1960s and 1970s (History of immigrations in the Netherlands, n.d.)(Wikimedia Foundation, 2022). Many of these workers moved to the Netherlands permanently, married and had

children meanwhile providing money to their family back home. In 1974 the Dutch government introduced a law on family reunification which gave families the right to leave together therefore allowed families left behind in the workers original home to come to the Netherlands (History of immigrations in the Netherlands, n.d.).

The fourth and last wave consists of asylum seekers from as results of wars such as Yugoslavia but also Iran and Iraq. This wave is still happening today as the Netherlands is open to grant asylum to people who would be in danger if they were to return to their own country (Rijksoverheid, n.d.).

These waves have resulted in a diverse cultural and ethnic diversity that exists

Migration background	Population				
	Total	Dutch background	With migration background	1st generation migration background	2nd generation migration background
	number				
Total	17,590,672	13,151,772	4,438,900	2,412,344	2,026,556
Dutch background	13,151,772	13,151,772			
With migration background	4,438,900		4,438,900	2,412,344	2,026,556

Figure 6. Total population of the Netherlands in 2022 analysed in two groups: Dutch background and migration background.

Africa	749,780	749,780	372,120	377,660
America	751,689	751,689	405,127	348,562
Asia	1,025,304	1,025,304	573,733	449,571
Europe (excluding Dutch background)	1,889,704	1,889,704	1,054,016	835,688
Oceania	24,423	24,423	9,348	15,075
European Union (excl. Dutch background)	1,164,767	1,164,767	663,761	501,006
Caribbean Netherlands	6,216	6,216	3,431	2,785
Indonesia	349,301	349,301	91,556	257,745
Morocco	419,272	419,272	173,279	245,993
Surinam	359,814	359,814	176,127	183,687
Turkey	429,978	429,978	204,249	225,729

Source: CBS

Figure 7. Total population of migration background of the Netherlands in 2022 analysed by its different continents and countries.

3.2 How are people currently being excluded from society with products?

Meanwhile, some designers are currently focusing on privacy and bringing children and technology closer together (Habib, H. et al, 2021) (Dietz, G. et al, 2021) (Reinhardt, D. et al, 2021), many designers are looking into the improvement of chatbots, AI and physical products to prevent discrimination among different racial communities (Schlesinger, A. et al, 2018). For example, back in 2016, Hankerson et al. were already asking themselves whether technology has race and showed examples of technology excluding users (Hankerson, D. et al, 2016).

Focus & Procedure

This project focuses on unintentional forms of design caused by factors that the designers did not consider in their design process. Therefore, a selection of examples of products from all around the world are portrayed. Three examples of racial and ethnic exclusionary practices are portrayed. These encapsulate 3 diverse examples in which the unconscious biases of the designers have influenced the outcomes of a design, which could have been avoided by testing with more users. For more examples on racial exclusion in design, refer to Cindy Jantji's Master Thesis from the TU Delft who created a list with a great number of examples of racial discrimination (Jantji, 2021).

Aim

The aim of these examples is to identify how exclusion appears in products and how they discriminate certain groups of users.

Example A: Dummies in car carsh tests

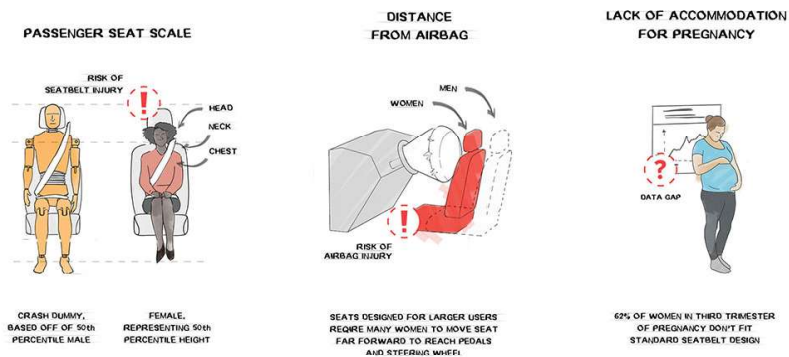


Figure 8. Illustration by Andrew Jernberg (Criado Perez, 2019).

Car crash tests are done with male dummies. In recent years, Europe has integrated a law to integrate a female dummy. This results in a 'female' dummy that is a scaled down version of a male dummy and the female dummy is only mandatory in one of 5 crash tests (Criado Perez, 2019). Additionally, different ethnic and racial groups have distinct body types and have different measurements, yet, only male dummies are taken into account.

Example B: Soap Dispensers



Figure 9. Automatic soap dispensers being used by a white skinned person followed by a picture of the same dispenser not working for a black skinned person, followed by a picture of the same dispenser working with a napkin. Source: Chukwuemeka Afigbo/ Twitter

Automatic soap dispensers use light sensors to provide users with a touch-free possibility, creating a more hygienic and sanitary solution in restrooms. Reports show that the light sensor works properly with white users but do not function for dark skintoned users. This is caused by the type of sensor used as it detects the light reflected from the user's hand. In the case of a person with a darker skin, the surface of the hand absorbs the light instead of reflecting it, leading the device with no reaction (Plenke, 2015).

Example C: Airport Body Scanners

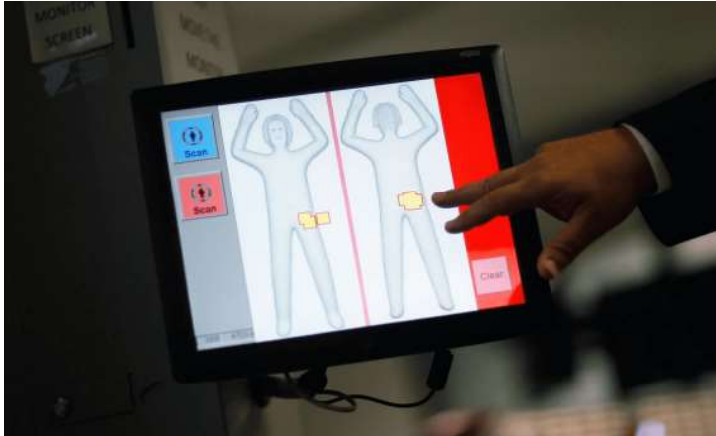


Figure 10. Airport body scanner recognizing a check area for a user in the hip and the backside. Source: Joe Raedle/Getty Images

Airport body scanners are designed to detect masses on individual's bodies or inside their clothes. Everyone's body masses and distributions are different. For this reason, these scanners tend to discriminate in particular individuals like transgender, black, sikhs and muslims. Alarms are set off falsely on individuals that wear head coverings for cultural and religious reasons. Additionally, racial discrimination regularly occurs among Black women because of their hair. As it tends to be textured and thick, alarms detect 'something' in afros, braids, or twists in the hair (Iyama, 2021).

Outcome

The previous examples show that every designer has their own biases and circumstances they are used to and consider these as the 'normal' and 'general' situation. These designers believe that what is normal to them, is normal to everyone else too. As mentioned in Part 2, when the designer fails to uncover their unconscious biases and how these have shaped their designs and practices, they risk the exclusion of certain groups from their designs.

3.3 How are people from different ethnicities excluded from digital platforms?

As we are immersing ourselves into the digital era, there are already many examples of how digital products have excluded its users. As the initial aim entailed understanding of how exclusion takes place in digital platforms, I carried out desktop research in order to understand how exclusion was being created.

Focus

The previous examples referred to cases in the day to day life where the interaction between a person and a product, either physical or digital, concluded in discrimination. Now, I study 5 cases of discrimination carried out in digital platforms, as digital platforms is the scope of the project.

Aim

To understand how discrimination occurs in digital platforms, the different ways it comes in, and how the designer was of influence in each case.

Procedure

Until now, benefits have outbalanced the negative aspects of the digital era and its products. Nevertheless, people are constantly being marginalized by applications everyday. The following pages show a selection of cases gathered throughout this project, from desktop research and experiences of people interviewed during the course of the project. This collection of cases show the different ways that discrimination has appeared in digital platforms. Apart from explaining the case, they are also analysed in order to understand the how the platform failed to include groups of users. To understand the complexity and differences of the digital platforms, I have developed a conceptual model for the analysis of these cases.

What is considered a digital platform?

This project defines digital platforms as any electronic tool used for communication including desktop, mobile, and social platforms. In other words, websites, mobile and desktop applications.

Conceptual model of Digital Platforms

Figure 11, shows the conceptual model of a digital platform I built to analyse these digital platforms based on my own experience. A digital platforms mainly comes in 4 forms which involve the digital platform and the target audience. The first type of digital platform is that where the digital platform is aimed and used as information providers. For example, government websites, weather applications, vlogs, etc. The second type of digital platforms are used as service to offer the target group's goods. For example, car sharing apps, shopping websites, etc. Thirdly, this platform is used to connect the target audience between themselves. For example, dating apps, texting apps like Whatsapp and Telegram, etc. Fourth and lastly, is a mix of type 1, 2 and 3, a platform where users are connected between them, there is an exchange of goods and it is used as information provider. For example, social media applications: Facebook, Instagram, etc. All digital platforms are made of the following components: their aim, their content and their functionalities.

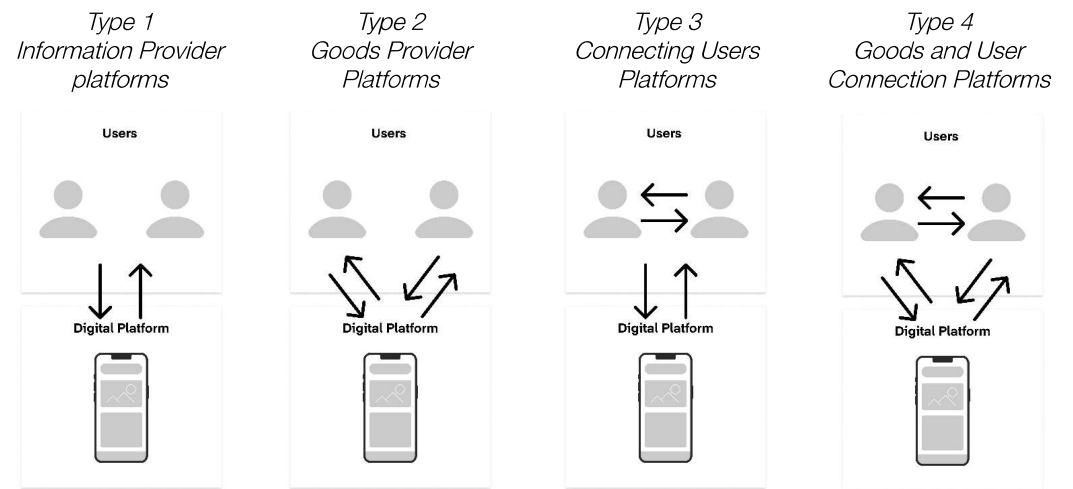


Figure 11. Conceptual models of digital platforms.

Case 1: Uploading a picture to the UK government website fails to work as a dark skin woman, when compared to light skin woman.

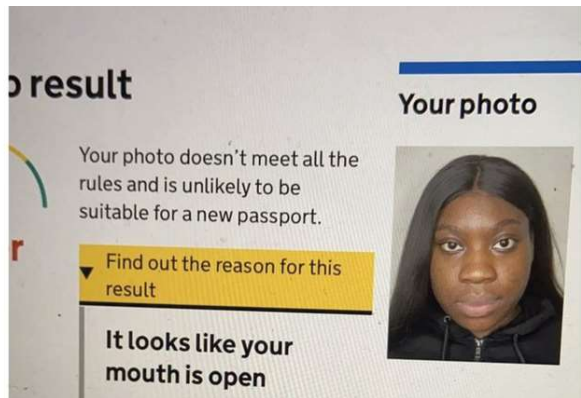


Figure 12. Elaine Owusu shows that she is wrongly told to upload a new picture because her mouth looks like it is open (Lieu, 2016).

What is the situation?

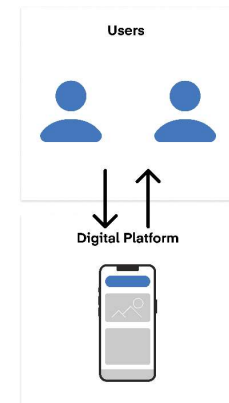
Elaine Owusu is unable to upload an image of herself to update her passport because the website AI believes that her mouth looks open in the picture, see figure 12 (Lieu, 2016).*

What are the consequences of this occurrence?

As Elaine is not able to get her passport fixed, this may result in reduced opportunities which can solidify segregation within society (De Font-Reaulx, P., 2017). In other words, inequality of opportunities as, among other consequences, Elaine may not be able to travel without a passport, may not be able to work in the UK. If this functionality is not improved, it results in inequality and segregation.

What type of platform is this and what went wrong?

This is type 1 of digital platforms, the information platform. In this platform, the problem is actually quite complex, as the functionality comes from institutions that have decided to have the functionality integrated, the designer who designed the user experience and the engineers who created the algorithm. Clearly there is a mal-function of the functionality which originates from the lack of testing with a broader group of users.



*This has not only happened in UK government websites. There are reports of the New Zealand government website that had similar issues with asian ethnic groups.

Case 2: AirBnb host cancels reservation of user and discriminates user

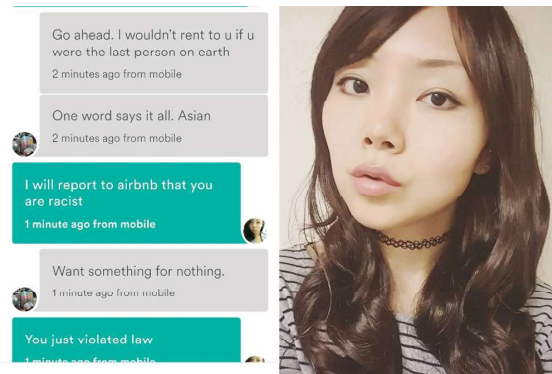


Figure 13. A screenshot of the discriminatory conversation and a picture of Suh (Miller, 2017).

What is the situation?

Dyne Suh's Airbnb host Tami Barker canceled the reservation at the last minute during a snowstorm despite having confirmed in text messages (figure 13) (Miller, 2017).

What are the consequences of this situation?

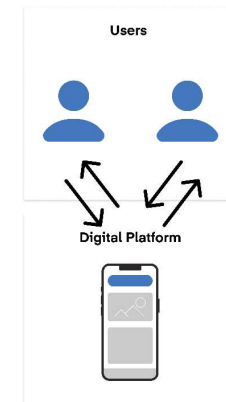
Suh mentions the following on her Facebook post, "The more we speak out, the harder it becomes for people to ignore, deny, or trivialize our lived experiences of being discriminated against like this day-to-day". She continues saying, "If we

want racism and discrimination to end, we cannot keep suffering in silence, and we cannot stand idly by when it is happening to other people of color and other oppressed minority groups. We are in this together." (Miller, 2017).

Racism, both structural and interpersonal, are fundamental causes of health inequities, health disparities and disease. According to the Center for Disease Control and Prevention, across the US, racial and ethnic minority populations experience higher rates of poor health and disease in a range of health conditions, including diabetes, hypertension, obesity, asthma, and heart disease, when compared to their White counterparts. Consequently affecting the life expectancy among Black/African Americans which is four years lower than that of White Americans (United Nations.n.d.).

What type of platform is this and what went wrong?

This is the second type of platform, the digital platform is used as service to offer the target group's goods. In this case, a functionality within this platform was misused by the target audience. The functionality of chatting between the users was misused to create discrimination by the host. The misuse of the platform originates from the human-factor of the platform, but also the designer could have been aware of this possible outcome from the design.



Case 3: Dating apps



Figure 14. Tinder Ad. image: (HealthyFramework, 2022)

What is the situation?

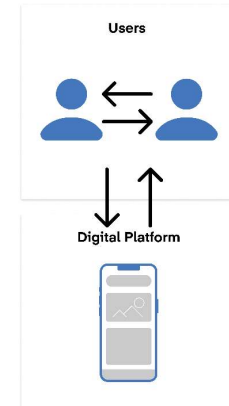
Dating app users are being discriminated based on their skin color (figure 14). For example, Sonjia Mackey experience messaging from white users right after signing up. Some of them discriminating against her skin and others commenting on the beauty and exotic nature of her Black skin (Kibugi, 2022). In a different way, multiple users of dating apps became hopeless of these dating apps because they weren't receiving "matches" on these platforms due to their race represented on their pictures (User Interviews, 2022).

What are the consequences of this situation?

Users racially discriminated on dating apps share sentiments of feeling judged and invisible on the bases of their skin. These experiences not only affect the users emotionally and physically, but it also perpetuates stereotypes that are simply not the reality.

What type of platform is this and what went wrong?

This is the third type of platform where the aim is to connect users to each other. In this case the aim of these apps are the malfunction and source of the problem. It is a combination of the fault of the designer and the users. The designer should have tested this platform with a wider range of users from different ethnicities and races. Additionally, the designer should have explored the different outcomes and impacts a platforms like this would have on society.



Case 4: Reporting racist comments on Instagram

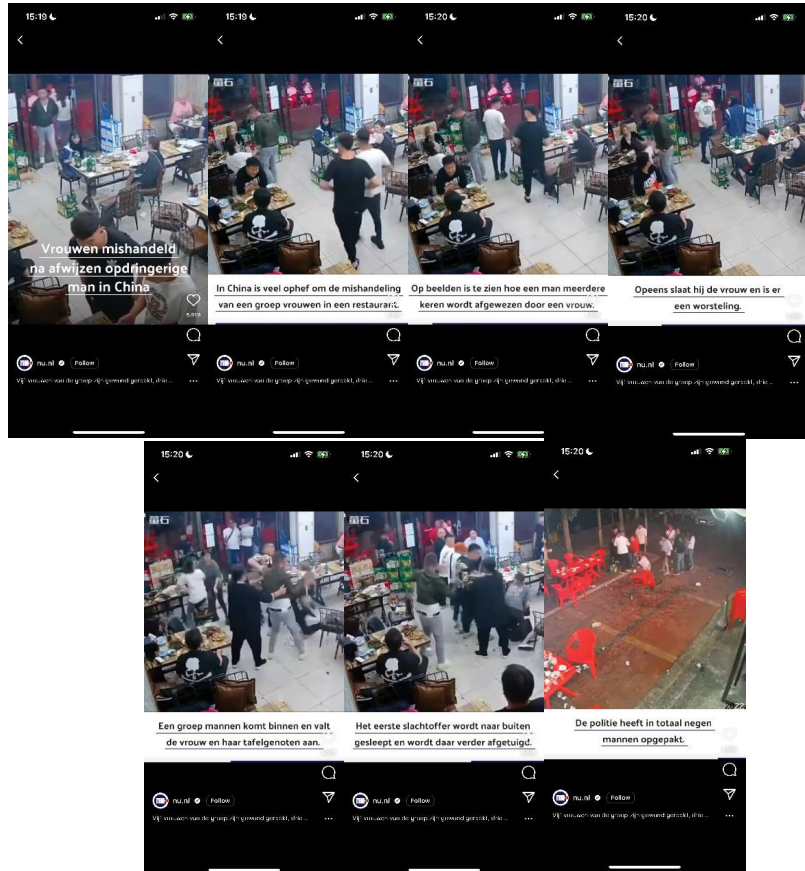


Figure 15. A series of screenshots that explain the content of the news story on Instagram (Interviews, 2022).

What is the situation?

Nu.nl a news platform posted a news story on Instagram portraying a story that takes place in China (figure 15). The story explains the harassment of a group of woman at a restaurant by a group of men. A girl I talked to explained that while reading the comments of the story, she identified some racist comments that were being discriminatory which she reported to Instagram as hate crime. She then received a decision taken by Instagram to reject the girl's report by explaining that these comments are according to the Instagram community rules (figure 16).

What are the consequences of this situation?

"It made me quite angry, why is it not seen as racism? The comments for me implied that they have a certain negative stereotypical view on Chinese people. Since the comments implied this therefore I felt like it should be reported, it can hurt others. Apparently Instagram thinks otherwise. I find it also weird that a corporation in that way kind of decides what is racist and what not. I think this

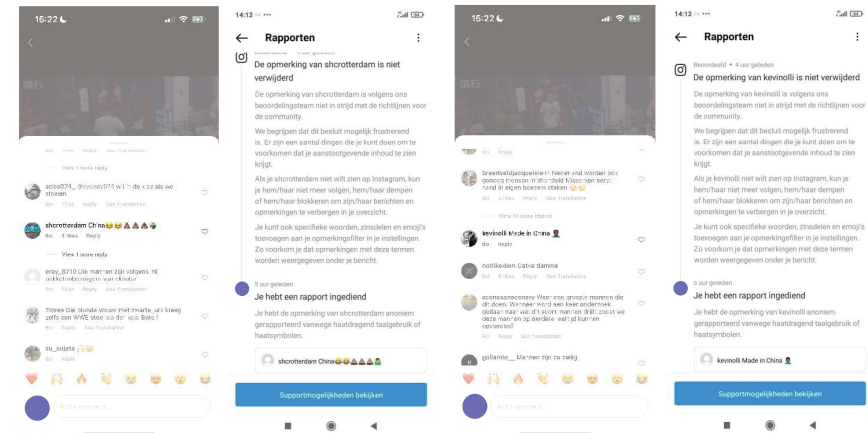


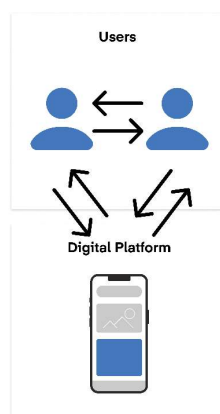
Figure 16. The report of racist and discriminatory practices being rejected by Instagram (Interviews, 2022).

reporting system is not checked by humans but by ai so therefore the machine decides what is racist and what not. If I feel hurt by these comments than why does a human not also look at it? How can a machine decide this? It is kind of confusing.”

“How it affected my life is not that big to be honest. I will still keep reporting such comments since I feel like it is important that I try. I am hopeful that one day the comment is regarded as racist by such machines. Maybe I am even helping to train the machine by reporting these comments and therefore contributing to a more accurate AI system”

What type of platform is this and what went wrong?

This is the fourth type of platform, the platform is used an information source, exchange of goods between users, and connect users. In this case, a functionality within this platform was misused by the target audience (the comments section)and a functionality of the platform is not working correctly (the AI that defines which comment reports are misused or which are not). The misuse of the platform originates from the human-factor of the platform, but also the designer could have been aware of this possible outcome from the design.



Case 5: Cosmetic Ads

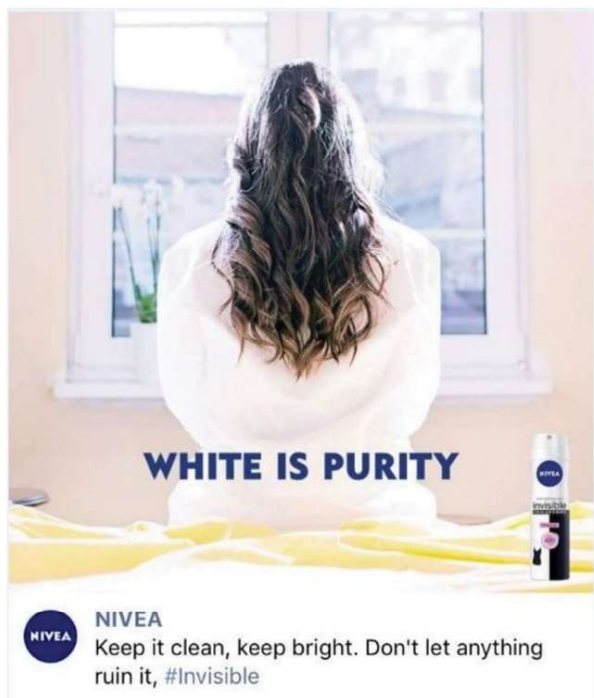


Figure 17. Nivea's campaign "White is purity" in 2017 (Parker & Wright, 2018)

What is the situation?

In 2017, Nivea published an ad targeted to the Middle East community that goes with the phrase: White is purity (see figure 17). 2 days after it was published, Nivea removed the ad due to the backlash it received on social media. Viewers considered this ad to be racist and allude to white supremacy (Parker & Wright, 2018).

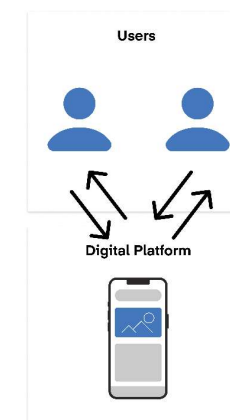
What are the consequences of this situation?

Dylan Parker & Guin Wright explain the implications of this situation: "Essentially, the main implications of an association of whiteness with the conceptual notion of purity is twofold; which is to assert caucasian superiority on both an ethically abstract basis (e.g. to be morally pure and therefore inherently righteous) and a distinctive physical one (e.g. to not be tainted by dirt, or any any projected impurity). That is to say that the dichotomy consciously proposed by NIVEA serves not just to distinguish and separate blackness from whiteness, but to define whiteness itself by its lack of purity, thereby directly categorizing blackness not only as impure, but also as a direct threat to the purity of whiteness — or as they put it themselves, "...protection that keeps black clothes black and white clothes white for longer."

What type of platform is this and what went wrong?

This could be any type of platform, as it is the content that are included in all platforms, in this case an image. The source of the problem is the designer and managing group approving these images.

*There are other cosmetic brands that also created controversy because they eluded racism. For example, Dove and Pears Soap (Conor, 2017).



3.4 Conclusion

All these cases represent different ways in which ethnicity and racism is a result of a designer's task, all without the intention of discriminating.

It is important to point out that type 2, 3 and 4 of digital platforms will have the **human factor that is likely to effect negatively the platform** (as the social construct will not be changing dramatically soon, there will continue to be people who discriminate and be racist on these platforms). Nevertheless, the designer can learn how to improve these situations and how to design for it. Additionally, functionalities in digital platforms can always be misused or be of malfunction, it is important to foresee early on these scenarios in order to have a solution and improvement for them. Lastly, imagery is of great importance, it is how everyone perceives the world and its diversity, only if it is empowered. As seen, if it is misused, it can negatively affect society and perpetuate more discriminatory practices and racist thoughts and actions.

Either it is unintentional or not, the consequences of these cases of discrimination have affected many. Designers have a choice to become aware of these cases or not. They allow or not certain features that perpetuate discrimination. Designers should be aware of the ways that their platform could be used and missused. All designers have different experiences that have shaped them and their designs. For this reason, many may not be aware of the different practices their designs perpetuate or even the people that they are excluding. We are already experiencing this lack of awareness in AI, for example with facial recognition softwares for unlocking a phone. This AI excludes certain users because of the library the AI models have been trained on. The library is dependent on the Machine Learning designer who tend to come from same universities and move among the similar environments. This will cause the library to be biased towards certain people, in this case the AI is biased toward people of color (Najibi, 2020).

As seen in many of these examples and cases it is quite **hard to understand the pragmatic difference between ethnic discrimination and what is racial discrimination**. Many researchers like Ambekar, A. et al. and Saravanan, M. refer to ethnicity as nationality (Ambekar, A. et al, 2009)(Saravanan, M., 2017), yet the definition used in this project includes nationality as long as a person feels part of that culture. In these examples and cases it is very hard to know

as a designer, the culture that a user associates to. Additionally, many of these cases are highly influenced by the human factor, which are the other users in the platform. These users only focus on what they see, meaning that they look at their physical and biological traits which link to race. None of these cases are only ethnic discriminating, as they all have a touch of racism included. For example, you would think Case 5 may be more ethnic discriminating than others as this case doesn't clearly include the human factor. Nevertheless, this ad is racist, because it makes one believe that one race is superior to another race with the phrase "White is purity". It is also ethnically exclusive as it makes people feel like they cannot associate themselves with this ad because of the culture that is affiliated to this ad. Thus, ethnicity and race are interconnected when it comes to design.

This analysis of discrimination cases in digital platforms portrays the need to design for ethnic and racial diversity and how these two concepts are closely related. Yet it is important to understand how people in the Dutch environment experiences exclusion practices. Thus, the following Part of the report will focus on understanding the user's perspective through interviews.

Part 4: People's perspectives

This chapter continues exploring the first research area, with the people's perspectives in the Dutch context, in other words, what experiences have discriminated people had and what they perceive as a discriminatory practice. As result of an interview process, the interviewees ethnic background as well as possible influencing factors are portrayed. Additionally, observations from the interviews are explained objectively. Lastly, the chapter concludes with a list of insights for the final solution designed.

4.1 The people



In order to understand the point of view of people being discriminated because of their ethnicity, interview's were carried out. The target group of this thesis project consists of designers either in-the-making or those who have already been practising design. Nevertheless, discrimination appears in the day to day life of people that are not only designers. For this reason, the target group of this interview was not restricted to designers only. The interviewees were choosen to represent the ethnic diveristy that can be found in the Netherlands, considering both nationals and internationals. The group interviewed had the following characteristics:

Number of participants: 8

Age group: 20-28 y.o.

Professions: Students, Photographers, Designers, Engineers

Gender: 4 Male, 3 Female, 1 LGBTQ+

Nationalities: 3 Dutch (2nd Generation migrating Indonesian family, 1st Generation migrating Chinese family, 2nd Generation migrating Brazilian and Indonesian family), 1 from Dutch Colonies (Curacao) and 4 Internationals (American of 1st Generation Vietnamese origin, Indonesian nationals).

It is essential to note that this group of interviewees does not include all ethnic diversity in the Netherlands. Additionally, it is a set users from specific generations and it highly influences the outcomes of the interviews. This set of interviewees does not take into consideration the Turkish and Moroccan immigrant communities in the Netherlands, therefore, there is a possibility that the conclusions will exclude them.

4.2 Interview process

As some of these topics can be very personal, it was essential to maintain an open conversation, rather than an interview. Interviewees seemed to be more nervous if it was called an interview, as it meant that they had knowledge about a particular topic and interviewees seemed to be more reluctant to sharing pieces of information. For this reason, after two interviews, these interview processes were called 'conversations about discrimination and racism on digital platforms'. As soon as the discussion was handed over to the interviewee, conversations were richer and more valuable, as interviewees felt comfortable.

Aim

The aim for this interview was to gain depth on their experience with discrimination and exclusion. The interviewees were listened to and were asked follow-up questions to gain more depth and richer knowledge in the topic of discriminating experiences. Additionally, to create more engagement with the interviewee and to test a designer dilemma (that had appeared throughout desktop research) on race and ethnicity representation on imagery, a scenario was used.

Procedure

The main questions asked to start and continue the conversation were mainly about the current and previous experience in digital platforms when it comes to racism and discrimination. These questions were the following:

- How would you define your ethnicity if it is related to the culture you feel affiliated to?
- Have you felt experiences of discrimination? Marginalisation? Or racism?
- Can you share some of these experiences with me?
- How do you think designers can get involved in creating inclusivity?

After the interviewees would have relaxed and were open to freely share their experience, an reflection exercise was used to further explain the interviewee's point of view about representations and normalization. Therefore, a scenario was set in which they had to choose between two options. The scenario was the following:

"Imagine your company/institution(where they work or study, an institution they are close to it and interact with it) wants to use new images for their website. They can choose between two options. Option one is a picture which represents the current situation of ethnic diversity between the people at this institution/company. There are 10 people represented where 6 are White Dutch (3 males and 3 females), and there are 4 people of different ethnicities, Black, Asian, Latino, Middle Eastern (2 male and 2 female). Option two is a picture of the diversity they aim to have (they want to portray that they are open to diversity and invite people from different ethnicities). This picture includes 5 pairs of different ethnic groups of which one is female and one is male. Therefore, a pair of White, a pair of Black, a pair of Latino, a pair of Asian, and a pair of Middle Eastern. Which of these two options would you rather see and why?"

In this exercise there were no pictures provided, as there was a risk elements in the pictures would influence their perception and reasoning. The aim was for their answers to be solely focused on the matter at hand of ethnic diversity and not about a picture looking "correct".

4.3 Observations

All participants have different experiences with discrimination when it came to ethnic and racial exclusion from digital platforms, yet their points of view were similar. When it came to imagery and the scenario proposed, various showed similarities in how inclusive imagery should be portrayed. All in all, observations are concluded from these interviews. These observations group the similar and diversity of answers that interviewees provided. Designers can learn from these observations in order to understand what the opinion of people that are discriminated because of their physical factors (race) and the culture they affiliate themselves to (ethnicity). The notes gathered from these interviews can be found in Appendix A.

It becomes a problem of normalisation rather than racism caused by the designer's choice. 5 people mentioned examples of racism on digital platforms that originated from the human interaction factor of the digital platform (not what the designer intended for the app).

As mentioned in Part 3, it is essential to understand the difference between designer's actions in an app and the misuse of the application and its functionalities. Digital Platforms where users interact with each other has to take into account the 'human factor', meaning that the designer needs to be aware of the misuse of the digital platform and its functionalities, how this misuse can affect other users in the platform and find a solution in order for the platform to be a safe place for everyone. If there is no possibility to find a solution, the designer must inform their users about the possible risks of this platforms and functionalities. especially social media, there needs to be a difference between. As the example in Part 3, many users talked about dating apps. These apps, the users are the ones that judge the other users based on merely a picture of the person and two sentences to describe the person. Interviewees mentioned bad experiences with hate messages and marginalization as the cause of the 'human factor' in the app.

There are generational differences when it comes to racism and marginalisation in the Dutch society.

3 of the 4 interviewees with Dutch relationship, mentioned that when they talk about experiences with racism or marginalization, they approach their close family and, sometimes, friends. Nevertheless, even if they feel comforted by their families, they also feel to an extent that they are not understood because of generational differences.

“I need to talk about these issues and experiences and need to act on it.” -Interviewee 2

“Although I can talk to my family about it, my parents would just tell me to ‘not let these things affect my life.’. Meanwhile, my grandparents would tell me to not stand out, to keep up good grades to have a decent job.” - Interviewee 3

Currently, the ‘normal’ is to think that picture including other ethnicities other than white, are ‘racewashing’.

When discussing imagery with the interviewees, they mentioned that the majority of the times they see an ad with a different race than white people, they think it is like ‘greenwashing’ for sustainability. This project defines it as ‘racewashing’. Some interviewees mentioned it was because the images felt ‘fake’ and ‘unnatural’. Others mentioned that it is just because all ad campaigns suddenly have chosen to be inclusive (especially after BlackLivesMatter Movement). Another interviewee even mentioned that it is part of the process for an image to feel like ‘racewashing’. They explained that to normalize

inclusivity in images, they have to start somewhere, and it is inherently going to be an awkward moment where the ad will feel like racewashing but eventually, people will get used to it and will be normalized, like it has been for the fashion sector. this concept is explained with figure 18.

Casira Copes, a Social Justice Writer who graduated with a degree in advertising mentions that there even is another layer to consider in imagery that many have not noticed yet and that is colorism (Copes, 2021). Colorism is a practice that favors those with lighter skin than those with darker skin. “You’ve seen this woman before[referring to image 19]. Maybe not this exact woman, but a version of her. Lightly tan skin. Big loose curls. Definitely not a White woman. Maybe a Black woman? Mixed with some other race? The elusive Blasian?” she mentions (Copes, 2021). It is an ilusive image because it combines characteristics of a black womand and a white woman at the same time. Campaign managers choose an

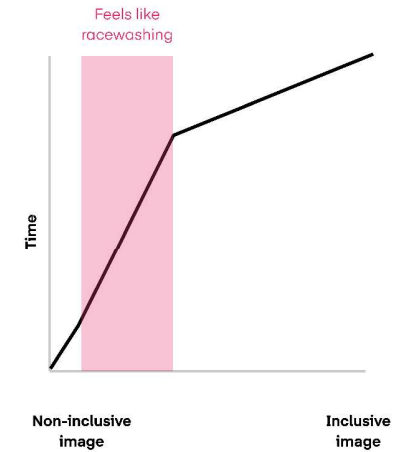


Figure 18. Acceptation of an race-diverse image in time.



Figure 19. Picture of a lightly tan skin woman (Copes, 2021).

image like this because if they use a darker woman, white people will not buy their products, and vice versa. Casira encourages that a change to happen “Eradicating colorism and starting down a path of true acceptance of all skin tones begins by taking steps such as mindfully adding darker shades to the visual advertising mix” (Copes, 2021).



Figure 20. Picture published on Facebook group of the IDE faculty of TU Delft showing 3 girls at work promoting racial diversity at the faculty (Facebook, n.d.).

All interviewees believe images should be genuine and representative.

In the scenario proposed, interviewees struggled between one option or the other, because as a minority one sees a picture which represents themselves, one feels empowered and capable of doing what this individual is doing in a picture (as seen in figure 20). On the other hand, if one is looking at a picture, for example, for a job application, and there is someone on the picture that one identifies with, they will be motivated to apply for this positions. Nevertheless, later they may be shocked when meeting their team and there is no one like them, and the picture was just a marketing image. For this reason, interviewees rather see genuine and representative photos, because if the reality of these photos are ‘fake’, they would feel lied to and segregated.

For this same reason, seeing people on ads, media and platforms allows different people from different ethnicities to identify with them and get encouraged to achieve higher positions and reach higher ‘dreams’.

“Now it would be important [seeing your ethnicity being represented in media] because when you are younger its subconscious but when you grow up, if you don’t see anyone like you being there [represented in images], you don’t imagine you can be there.” -One of the interviewees mentioned when discussing the importance of ethnic representation in media. Like this interviewee, many mentioned similar opinions. For this reason the power of the designer is limited, as much of this representation also comes from media in our environments, for example, one interviewee mentioned:

“Kids really take what they see. If you show them from an early age what is normal, then they will adapt to that. For example, the Dutch football team is full of black people now [see figure 21 for reference], this not only inspires other black kids to become a footballer one day but also shows other ethnicities that black people can also be footballers.”



Figure 21. The Dutch National Football team (9gag, n.d.).

There are differences and superiority within ethnicities too. In the context of The Netherlands.

"I shouldn't compare, but if this happened to another race or ethnicity (not white) [referring to a racist encounter on digital platforms], they would absolutely be slammed into the ground." - Dutch Interviewee from Indonesian decent

This is not new to hear as there have been encounters where within diversity of ethnicities there seems to be also superior ethnic groups to others. This of course depends on the country one is. For example, Samuel Jack is the president of the Association of African Students in India. He talks about his experience with racism in India: "racism is practised in some quarters and by some Indians. This is evident in the manner in which we are treated when we seek extension for our visas, in the problems we face in getting accommodation in the country, and in the general treatment of viewing us with suspicion". In India, racism is related to the hierarchical caste system, where Black people, Dalits and untouchables are at the bottom of the hierarchy (The Hindu, 2017).

Racism is also visible in the Netherlands, and the Asian community seems to have less attention than other ethnic groups. Jessy Wong, from the Diversity and Inclusion Panel at Leiden University explains 'Despite the increased attention in Dutch media, there is little awareness in society about this topic. This is because many think that the number of people of Asian descent in the Netherlands is low, when in fact there are around a million of them, a considerable proportion of the Dutch population. Asians are also seen as the "model minority": a minority that adapts to the so-called dominant culture and is not quick to cause problems. People often fail to recognise that this group faces discrimination and racism. The lack of recognition is out of line with the idea of an inclusive society. This form of discrimination and racism also needs to be taken seriously.' (Wong, 2022).

There is no superiority among races and ethnicities, only lack of awareness between races and ethnic groups.

Among females there appears to be a need to talk about racism and experiences.

The 4 females that I interviewed seemed to want to express their experience and hear other people's experiences too. They feel like there should be a community to discuss this topic and create awareness.

The males did not mention the need to talk about racism and experiences with others. 2 of these male interviewees mentioned that they let things 'slide', in the sense that they do not mind anymore, they had to 'learn to live with it'. This is a practice called 'model minority' meaning a minority that adapts to the so-called dominant culture and is not quick to cause problems (Wong, 2022). Nevertheless, it seemed that subconsciously they try to provoke these racist and discriminatory people by doing the things that they were discriminated for. For example, one of these participants mentioned that they eat a warm rice breakfast, and the roommates would look at him weirdly and continuously ask why he does that. In response, he purposely eats more warm breakfasts with rice in front of them to provoke them and normalize that anyone can eat anything they want at any time of the day.

It is normal for humans to want to talk and discuss these matters as humans are social animals, nevertheless, talking about a topic that is personal requires a safe environment to discuss it with and with people one is safe with (Teachers, 2020).

*"We feel like we are talking into a void."
-Interviewee 2*

*"I haven't talked about it with anyone other than my family."
-Interviewee 2*

*"We need to talk about these things, and also intervene in situations where people are being racist."
- Interviewee 4*

4.4 Conclusion

This Part revealed the user's point of view when it comes to ethnic inclusion, consequently answering the 2nd research area. The results of these interviews are able to paint the bigger picture of what are the people's experience when dealing with ethnic exclusion and racism in digital platforms as well as how they would like to see ethnic diversity in imagery.

The previous observations has been translated into insights:

- There is a **need for growing awareness and sensitizing all communities** about ethnic diversity and unconscious biases.
- The **youngest generations** of ethnic minorities are ready to start **speaking out** and changing the exclusive environment.
- All **ethnicities and races** should be **considered equally**, no matter the different attention they get.
- There is a need for a **safe space** for students and designers to **discuss their feelings** and consequences to ethnic **exclusion**.

When it came to the designer dilemma on inclusive imagery, the following insights were translated from the observations:

- **Public acceptance** of ethnic diverse imagery will **take time but will persevere**.
- Ethnic and racial minority groups consider **inclusivity images** should be **representative** and resemble **genuine** people in context.

Part 5: Designers perspectives

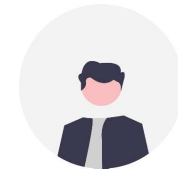
This chapter takes into account the second research area, in other words, the designer's perspective on inclusive design practices. The chapter includes interviews carried out with a total of 5 designers, where 3 designer's explain the situation of working with companies meanwhile maintaining a inclusive design approach. A second interview with 2 designers was carried out to understand their experience integrating inclusive design approaches in their companies. This last interview also includes a self reflection, as I also have a year of working experience. The chapter concludes with the steps a designer should carry out when proposing inclusive design approaches to their colleagues and superiors in the working environment.

5.1 The designers experience

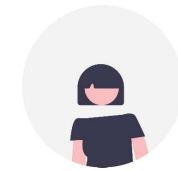
In order to learn how designers are implementing inclusivity in their work, their inclusivity tools and identify the influencing factors, it was important to interview designers that are considered to be “inclusivity experts” by their companies.

The Designers

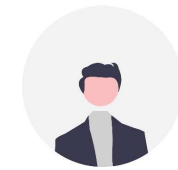
In order to understand the designer’s point of view and identify how do designer’s inclusivity practices currently look like, interviews with 3 designers from different companies in The Netherlands were carried out. These designers are considered as the ‘inclusivity experts’ of their companies. Although they are all of Dutch nationality, to have diversity in their answers, they were chosen based on the company they worked for and the university they graduated from.



UX Designer at Hike One with interest in Inclusivity and promoting it within the company



Inclusivity Expert and UX Designer at KOOS Service Design



Inclusivity Expert and UX Designer at Soda Studio

Number of participants: 3

Age group: 25-35 y.o.

Gender: 2 Male, 1 Female

Nationality: Dutch

Years of Design Experience: 3-6 years

Aim

The aim of this interview was to learn from these 'inclusivity experts' the important aspects to take into account when designing with inclusivity in mind, the resources they use in this practice and limitations they may encounter.

Procedure

With a semi-structure interview, all interviewees were asked similar types of questions to open up about the inclusive practices that they carry out, and the limitations they come across. The interview questions were asked in a proactive manner, to be able to gain the essence of their experience and answer the research questions. In Appendix B, one can find the notes taken during the interviews. The general questions asked to interviewees were the following:

- What tools/resources has you worked with for inclusivity?
- When in the design process do you implement these resources?
- What limitations do you encounter when designing for inclusivity?
- What recommendations would you give to designers entering the inclusivity field for the first time?

Insights

Although all participants have different ways of approaching inclusive design due to the environment and factors in which they work, they all have several points in common.

It all starts with a change of mindset and awareness

Learning one's biases and acknowledging how one's experiences shape their designs. Inclusivity is not about having a perfect product but seeing what boundaries there are and what we can do within them.

This is an insight that is seen throughout most sources found during this project. It is important to understand oneself before trying to understand someone else. For this reason, growing awareness for oneself and their actions is essential and the first step towards creating inclusion in general. Antonio Grillo, Tobias Skuhra, and Thomas Duester, explain in their podcast that there is no difference between inclusivity for digital products than physical products as the process to become aware of it and the guidelines for implementation are the same for all products (Skuhra, Duester, & Grillo, 2021).

In a company, inclusion can influence different departments.

Organisation and team (recruitment and diversity of opinions), design practice (empathise, define, ideation, prototyping and testing), sales/marketing (financial benefits).

Be aware that designing with inclusivity is not an idealistic world, there are always limitations (time, budget, resources, etc). There is no one way to solve for inclusivity:

"Every project is different and we should apply inclusivity different to every one of them"
– Designer 3

All companies are trying to do inclusivity in the way that they think is possible and applicable to them, in other words, with no specific design guidelines but things to take into account.

There is not one place widely known to have the essential resources for inclusivity.

Every designer that is interested in the topic of inclusivity searches for their own resources. There is no community that designers can get in touch with to discuss about inclusivity topics.

*"We all want to learn about the topic but how do we do that?"
- Designer 2*

*"It's really mouth to mouth right now."
-Designer 3*

Inclusivity needs to be normalized in the design practice.

The designers interviewed are called 'inclusive design experts' but really they are not experts, they just have an interest in the topic. Nevertheless, it is a factor that differentiates a company from another as their companies are a step closer to achieving more inclusive design practices.

*"If we want to make a positive impact in as many people as possible, we should be responsible in also teaching our client and our teams about the opportunities and [importance] we can have on people."
- Designer 2*

Inclusive design methods are different for every step of the design process.

All designers mentioned that there is a clear difference in how inclusive practices differ in each step of the design process. As they all have different design approaches, the design thinking process was used to align with the guidelines they provided.

Empathize phase

Learn about one's biases and how these have shaped one as a person and your design process. By identifying biases one is able to identify in other phases how to change their biases and exclusive practices.

Define phase

Once having understood the users needs, one needs to take into consideration everyone's perspectives equally, without prioritizing one or another. If a persona is built, learn to create inclusive persona's by building spectrum and not using stereotypes.

Ideate phase

The ideation phase does not have specific guidelines as it is the part of the process where the designer should not have any barriers and constraints.

Prototype phase

When creating prototypes, it is important to take into consideration aspects of different users like for example their gender, ethnicity, race, and age, to understand how it may make a difference to the product designed.

Test phase

Involve and test with different users meanwhile maintaining equality. Test with people from marginalized communities too.

5.2 The influence of the designer

With the previous subchapter we can understand the actions designers can take when designing. Yet it is important to take into consideration the influence the designer has in their company in order to integrate a new inclusive design perspective.

It is very important to understand the power that the designer has to implement and promote inclusive practices within their work context. For this reason, I have contacted 2 more designers that were able to describe to me, in form of an interview, the freedom and power of a designer within different companies.

A designer fresh out of school may think that designers have all the power in the world to include inclusive design methods and practices in their day-to-day work without any limitations. Nevertheless, according to the interviews carried out, this is not the case. The ability for a designer to use inclusive design practices in their work depends not only on the designer but also on the company.

Additionally, this chapter portrays 3 Cases of designers in 3 different companies and with different work experiences. These cases are built on a discussion where these 2 designers and myself discussed in 45 min the matter at hand: the influence of the designer in the workplace. Therefore, one of these cases consists on my personal reflection given my year of experience in the design field.

The Designers

The designers interviewed have interests in inclusive design methods. All interviewees are from different nationalities and have different work experience. They all work for different sized companies: from startups to fully grown design agencies.



UX Designer at inSided



UX Designer at IKEA



(Myself) UX Designer at FastForward.ai

Number of participants: 3

Age group: 24-35 y.o.

Gender: 2 Female, 1 LGBTQ+

Nationality: Romanian, Chinese, Spanish

Aim

The aim of this interview was to learn from designers what they can do and their influence to integrate inclusive design practices in their day-to-day work.

Procedure

A discussion between 2 designers and myself was carried out in a timeframe of 45 minutes. A question was presented and the participants would discuss their answer to the question in turns. Already knowing beforehand, the organization structure of the company, the following questions were suggested within the discussion:

- What influences the freedom of a designer to incorporate inclusive design practices inside a company?
- If you were to propose new inclusive design practices inside your company, how do you think you would achieve this?

Study Case 1: inSided by Gainsight

Company Background

inSided is a leading provider of community engagement technologies. It provides an integrated and complete set of applications to build, integrate and manage branded customer communities across digital touchpoints and devices. inSided was acquired by Gainsight earlier this year and have 100 in the department of inSided.

The organization structure is the following:

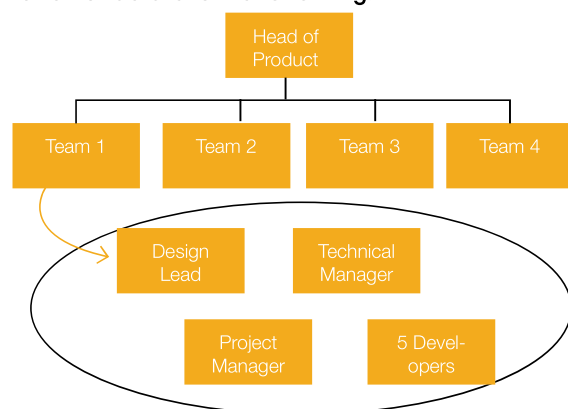


Figure 22. Organization structure at inSided. Each team under the head of Product has 8 players: the Design Lead, Technical Manager, Project Manager and 5 developers. (Interviews, 2022).

What influences the freedom of a designer to incorporate inclusive design practices inside a company?

A UX Designer working at inSided considers that the maturity of the product is an aspect to take into consideration when proposing inclusive design practices. This aligns with the UX Maturity Levels recognised by the Nielsen Norman group in figure 23 (Pernice et al., 2021). The more UX mature the company becomes, the more possibilities to shape the process to be inclusive, according to this UX Designer. Additionally, they consider the company size to also be influential. This designer considers that the more people in the company, the more power is given to the people. This way the more power the designer has to propose new design practices. Nevertheless, it is important to bring the business point of view into play, especially to the Project Managers, Product Owners and rest of the Design Team. This designer considers that when proposing new design practices, one should consider the business perspective of inclusivity like for example: boarder reach of the user group and give specific examples of how to achieve it.

If you were to propose new inclusive design practices inside your company, how do you think you would achieve this?

For this UX designer it is very important to understand the position in which you are inside the company, as well as your ability to do storytelling.

As a designer working in a design team with a Design Lead, providing designs for your team composed of Project Owners and Project Managers, one must start adapting their personal design process. Adapting the personal design process to create inclusivity in their design practice is the first step. It will most likely require extra efforts and time. Once done with the task that incorporates inclusive processes, in the presentation of the results with the rest of the team (including the PO and PM) should emphasize the richness and advantages of working with inclusive processes. A clear proposal should be done to implement inclusive processes among the team members in the future.

It is always nice to create a community inside the company to talk about inclusivity. This community can easily be a slack channel within the company dedicated to sharing ideas, push discussions to start reflecting on the topic.

"As a junior/medium/senior designer you can also just create a Slack channel with the rest of colleagues in the design team and share ideas on inclusivity and other methods. This pushes discussions and in the end it is what makes a difference in people's minds." -Designer 1

Stages of UX Maturity

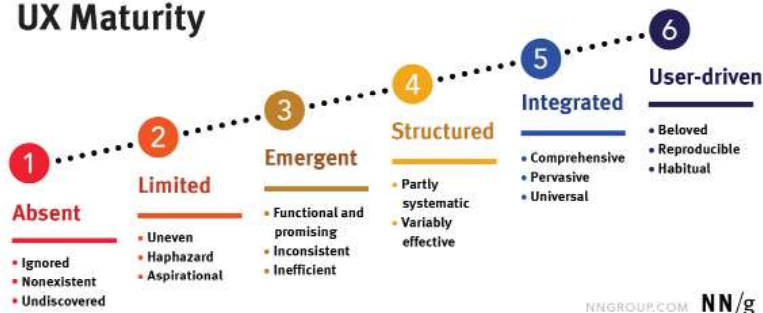


Figure 23. Stages of UX Maturity (Pernice et al., 2021).

Study Case 2: IKEA

Company Background

As many would already know, Ikea is a multinational conglomerate that designs and sells ready-to-assemble furniture, kitchen appliances and home accessories. Design not only takes place in the design of furniture but also in the design of the platforms used in-house. For example, a platform that allows IKEA workers to document the products that are in store and their location, for other workers to reach and collect.

The organization structure is the following

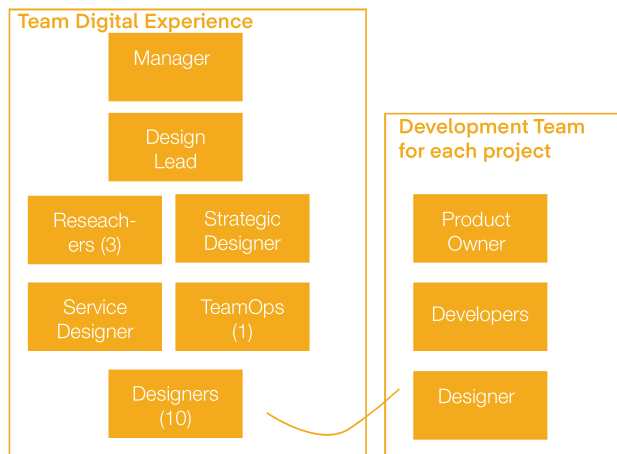


Figure 24. Organization structure at IKEA Team Digital Experience. Each designer has a development team attributed to their project (Interviews, 2022).

What influences the freedom of a designer to incorporate inclusive design practices inside a company?

The interviewed designer currently working at IKEA mentions that it depends on the company values which, generally, would go in hand with the company size. According to this designer, "Bigger companies may have an idea of what inclusivity is" because it is in the company values and DNA. Many big companies have workshops and trainings with their employees to discuss certain topics like sexual harassment or even inclusivity in the work space. This designer mentions that bigger companies have more resources available than smaller companies would have.

If you were to propose new inclusive design practices inside your company, how do you think you would achieve this?

Communication is the key, mentions the designer. A designer must be able to defend their designs and the reasons behind their choices. This applies to using inclusive processes too. A designer must be able to defend and communicate convincingly the following questions:

- Why is this design/process important?
- Why should it be done this way?

"Communication is very important, and explaining the reasoning behind why the approach you took is important and why you did it in this matter, is the right way to present the important of your work and your methods."-Designer 2

Study Case 3: FastForward.ai

Company Background

A startup which helps companies go digital with the FastForward.ai platform. They provide services like Campaign building and management as well as providing different digital platforms and marketing platforms to empower companies. The company is based in Amsterdam and has currently 20 employees yet many are remotely located.

The organization structure is the following

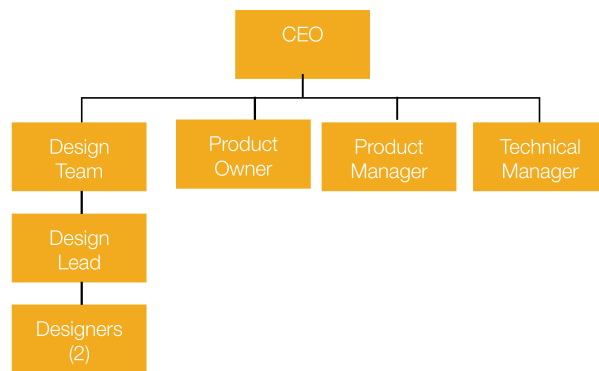


Figure 25. Organization structure at FastForward.ai (Interviews, 2022)

What influences the freedom of a designer to incorporate inclusive design practices inside a company?

From my perspective, the main factor that influences the possibility to incorporate inclusive design practices in a company is your position within the organization as well as person proactiveness.

The designer's position is the most important, as if you are a Junior UX Designer you are likely to not have much influence on the rest of the designers. Yet, a Junior UX Designer can introduce the topic and discussion within the team. A Senior

UX Designer has a higher influence on the rest of the designers as they are the most experienced. A Lead Designer poses as a leader, therefore if they integrate inclusive design processes, they will encourage the whole team to carry these out. If one is Head of Design, they are responsible for the design team and have the most power to influence the design process but also to portray the value of these processes inside the organisation. This is because Head of Design has direct contact with the Product Owners, Product Managers and even CEO of the company (in the case of FastForward.ai).

If you were to propose new inclusive design practices inside your company, how do you think you would achieve this?

Build a product within a project and integrate the inclusive guidelines that one has found. In the process, talk and involve the Design Team (including the Design Lead) by asking for advice or just presenting them with the topic. Once done with the task and one is ready to present the work, invite the Product Owner and other parties that one is regularly involved with to join the meeting. Present your findings and be clear about the benefits of creating inclusivity and implementing it into the project. Lastly, add guidelines to how inclusive approach could be done in the design team and create value for the company and its workers.

If it all runs smoothly, the Design Team will start implementing a more inclusive design approach. If not, it will be up to the designer to continue being proactive and using these inclusive design approaches and continue defending their work and the inclusive design approach among co-workers. Ideally, in a small company one would also be able to reach the CEO, depending on how close the designer is to them (figure 26). When dealing with the CEO it is important to explain not only the impact on the users but also the economic benefits of using inclusive design processes.

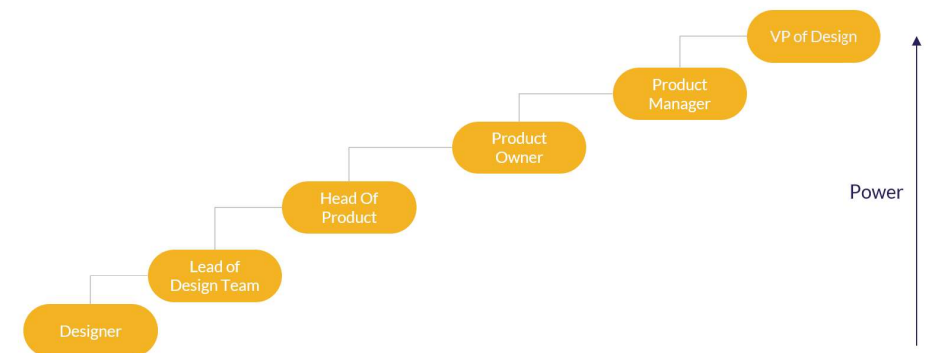


Figure 26. Graphic designed with my personal generalisation of the distribution of power in a company.

5.3 Conclusion

This Part reveals the research to the research area 2 with the following research questions: What is the current inclusive design practice? How much influence do designers have to carry out these practices? The insights of these designers portray the essential guidelines to create inclusivity in designing platforms.

The first step to integrate inclusive design practices is to **become aware of exclusionary practices in one's work as well as the biases that one has unconsciously**. Secondly, before implementing inclusive design practices, one has to **understand what limitations** a project has in order to foresee how many resources, time and budget they have to integrate inclusive design practices. Thirdly, **use the inclusive design guidelines** in the different parts of the design process and **reflect on the impact of these**. Who is included in the project? Who has the risk of being excluded in the project? Lastly, when the designs are done and going to be presented, **practice the way the designs and approach are going to be communicated**. What value does it bring to the project? What value does it bring to the company? What value does it bring to the client? It is important to target the right people in one's organization to encourage that all designers start implementing inclusive design processes themselves. Understand one's own position inside the organization. Who can one influence and get in touch with?

Currently, unless inclusivity is part of the company values and an initiative of the organization, **the designer is responsible for integrating an inclusive design approach**. It is the **proactiveness of the designer** and their **personal dedication** that creates inclusivity inside a project. In the next chapter, the resources available to designers will be analyzed and guidelines will be identified for designers to use in their design process.

Part 6: Existing Resources

This chapter corresponds with the third research area, analysing current existing resources for ethnic and racial inclusivity in design. Mainly focused on literature research, with reference to several tools used and mentioned by designers during the interviews from Part 5. Existing resources with the inclusive approach are gathered and mapped out to find areas where the resources are weak, it is discovered that resources are mainly focused on the 'accessibility' attribute of inclusivity rather than social attributes like ethnicity and race. The preferred resources based on their content are further analyzed and their strengths and weaknesses are found and are transformed into advice for future designed guidelines. Additionally, guidelines that are focused on ethnic and racial inclusivity are gathered for the end goal of this project.

6.1 Existing resources

The aim of this resource exploration is to find and understand what resources designers have available to them. How do they look like? What type of information do they provide?

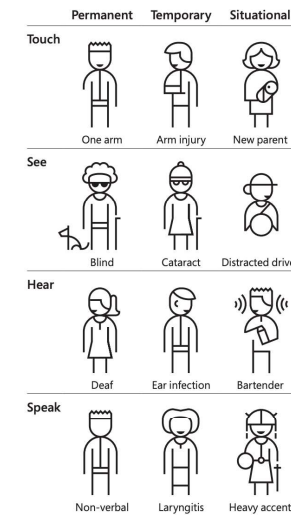


Figure 27. Examples of permanent, temporary and situational impairments (Microsoft).

Beginning with the exploration, I wanted to understand the resources that are currently available for designers and what is being used. The aim was to understand what the strengths and weaknesses of these resources are and understand where the needs and opportunities rise for this thesis. For this task, I defined resources as an asset that can help designers to design inclusivity, this can be a book or a guideline booklet created by a designer or an organisation. Anything that gives clear steps of guidance to designers when it comes to inclusivity.

As results of desktop research and talks with designers, which were discussed in Part 5, it was clear that there was one dominant resource: **the Microsoft Inclusivity tool**. Books, lectures, designers, online courses all reference it, yet it only touched upon one type of inclusivity: Accessibility. According to Kat Holmes,

inclusive design is a method of design, meanwhile accessibility is one of the many attributes of inclusive design (Homes, K., 2020). Accessibility focuses on the physical and mental impairments that a user may experience, and as Microsoft defined, this impairment can be permanent, temporary, and situational. Examples of these impairments can be found in figure 27.

According to the Nielsen Norman Group, inclusive design addresses accessibility, age, culture, economic situation, education, gender, geographic location, language and race (Joyce, A. 2022). I consider these to be the attributes that Kat Holmes refers to in her book 'Mismatch'.

To understand the diversity in resources, **I mapped out 20 resources** I found during desktop research and placed them in a C-box, where the horizontal axis refers to how the tool methodology and the vertical axis refers to the different attributes of inclusive design (figure 28).

As result of this research, we can observe several factors. To start off, the majority of the tools are mainly text based. This means that it requires a lot of attention from the reader to be able to read through all these tools without any reference to visual images and examples. Seeing the exceedingly amount of text and information causes fatigue from the users which will be prone to stop and skip parts of the tools that may be essential. Moreover, there are considerably more tools that focus on the attribute of accessibility than any other inclusive design attribute (in order words, attributes that associate to sociodemographic factors). These aspects create an opportunity to create a tool that is 'example based' which is visual and encourages the users to identify the differences between good and bad design practices, rather than a tool that is 'information based' that will require active attention span. It also creates an opportunity to create tools that focuses on sociodemographic attributes such as: age, culture, economic situation, education, gender, geographic location, language and race.

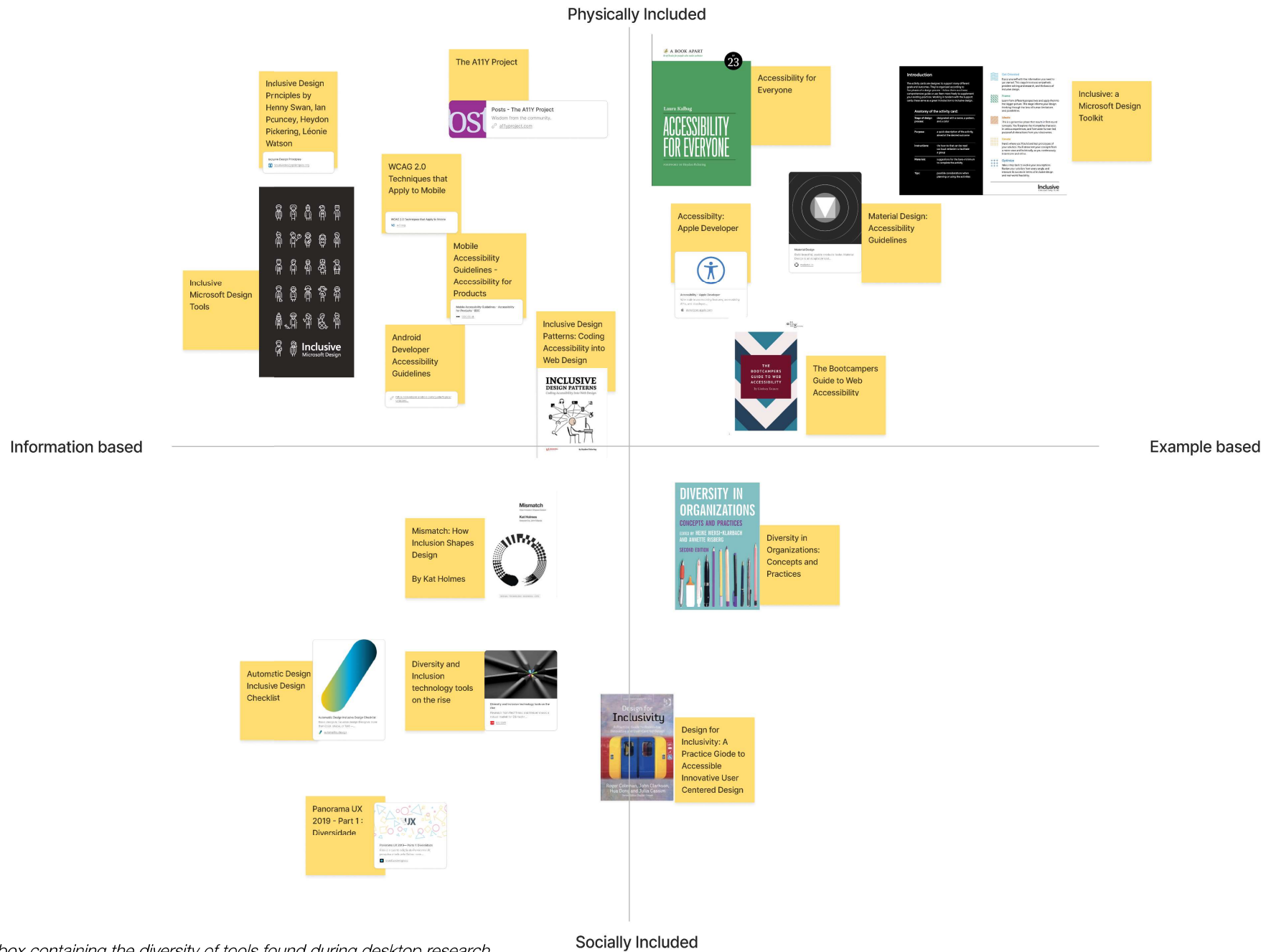


Figure 28. C-box containing the diversity of tools found during desktop research.

If we were focusing on the inclusivity attribute of Accessibility, I would consider the 'sweet spot' of the C-Box to be the quadrant that lies in 'Physically Included' and 'Example based'. This is because my experience in using tools has led me to look for tools that show clear examples of work that are good and what are bad. Additionally, if I were shown only text, it would create fatigue and would lead me to skip part of my reading or even stop reading the resource. I consider resources need to be clear, engaging and reflective. For this reason, I decided to analyze the resources in this 'sweet spot' to learn from them and implement their strengths into the assignment.

The 'sweet spot' resources were analyzed in a Harris Profile to understand what their strengths and weaknesses are regarding a set of criteria. These 'sweet spot' resources are shortly explained in Appendix C. This set of criteria was formulated by taking into consideration personal observations while researching these guidelines (from the previous paragraph) and key criteria mentioned by designers. Designing for inclusivity is a complex problem and, as seen from Part 4 and 5, there are multiple ways to design with an inclusive perspective. For this reason, all the criteria are considered equally important:

- Quality of guidelines: are they self explanatory?

Criteria collected from personal experience and observations

- Additional resources: does the resource mention further resources to deepen the knowledge in inclusivity or the inclusivity attribute at hand?

Criteria collected from personal experience and observations and designer interviews

- Guidelines are related to the different stages of the design process: One thing is to portray guidelines, but have the creators grouped them according to the design process for readers to be able to understand more easily?

Criteria collected from personal experience and observations

- Explanatory videos: Do the guidelines use explanatory videos to aid their text descriptions?

Criteria collected from personal experience and observations

- Community for designers to discuss inclusive design: Do the resources invite readers and users to talk about perspectives in inclusivity and share opinions?

Criteria collected from designer interviews

- Ability to reach designers all over the world: is the resource open source and available for designers from different points of the world to access?

Criteria collected from personal experience and observations and designer interviews



	Quality of guidelines	Additional resources	Guidelines are related to the different stages of the design process	Explanatory videos	Community for designers to discuss inclusive design	Ability to reach designers all over the world
	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺
Accessible for Everyone by Laura Kalbag	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺
Inclusive. A Microsoft Design Toolkit	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺
Apple's Accessibility Guidelines	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺
Accessibility by Material Design	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺
The bootcampers guide to web accessibility by Lindsey Kopacz	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺	- - + + ⁺

Figure 29. Harris profile presenting the evaluation of the resources found in the 'sweet spot' of accessibility.

Insights of resources

These 5 resources portray the difficulty of building resources for inclusivity. This difficulty can be seen in the types of examples and how the guidelines are explained. Microsoft clearly exceeds the rest of the resources as it has clear tools to use in different steps of the design process. Meanwhile, other resources don't differentiate their guidelines or tools with regard to the design process.

Designing for inclusivity is a complex situation as there are different types of inclusivity and different designers and professionals that can carry out inclusivity. As we see in "The Bootcampers guide to accessibility" inclusivity can also be done by developers. Yet, 'Accessibility' by Material Design is for UX designers. There is no one way to creating a guideline. Nevertheless, it is important to note the following aspects make a difference in the comprehension of guidelines:

- include **examples** of how to apply design guidelines during different phases of the design
- add **use cases** to show designers how to it is applied to real life scenarios
- the **importance of designing for inclusivity** and its **impacts** to encourage its use
- **accessibility in digital form** so that it can not only **reach users** all over the world but could also be **easily updated** and further improved and **show videos** of the guidelines in use

6.2 Literature research on Inclusive design guidelines

In the process of finding the previous mentioned resources, there were additional guidelines found that did not fulfill the criteria of resource yet was a guideline important to consider to grow further awareness on inclusivity and actions designers can take to carry out an inclusive design perspective.

Meanwhile looking for the design resources that would fit the 'resource criteria', I am across many designer blogs and individual suggestions and guidelines for inclusivity. Additionally, during the interviews described in Part 5, designers gave recommendations for students and future designers to take into account. As these short guidelines and tips were not part of a bigger source like a book, a website, or a research publication, they did not take part of the analysis in the previous section. Nevertheless, I find them essential and interesting for its implementation in this project, therefore, they will be kept into account in the design solution proposed in Part 9. The list of results from this section can be found in Appendix D.

In figure 30, one can see how these guidelines were grouped and categorized according to the information it provided.

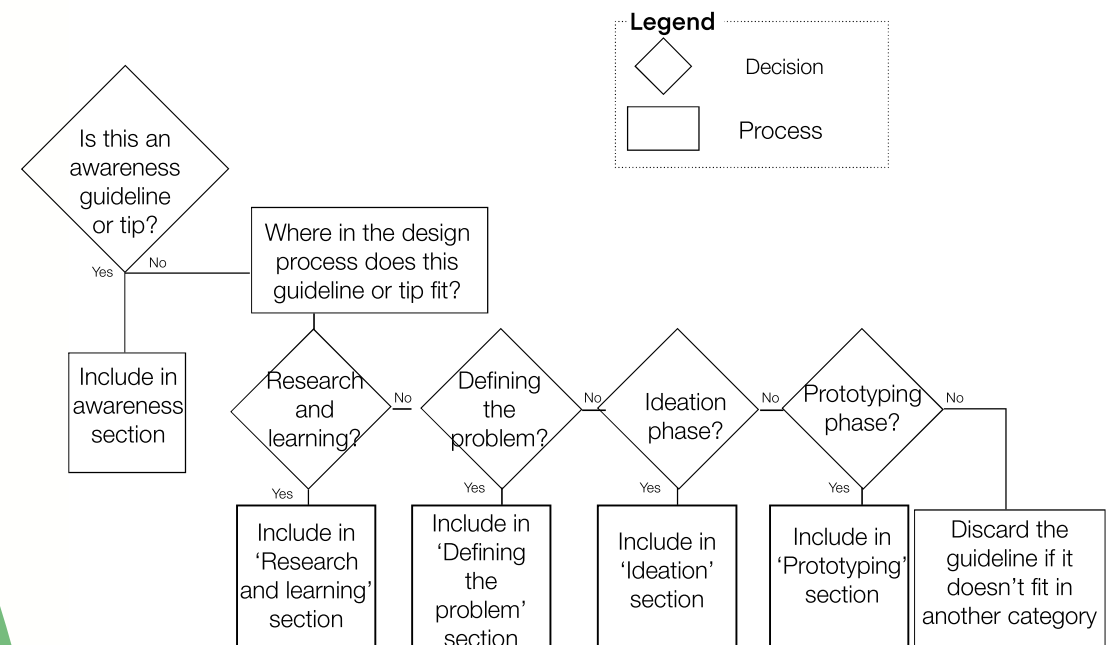


Figure 30. Personal developed mental model describing process of categorization of guidelines and tips.

6.3 Conclusion

This chapter corresponds to the research area 3, where the following research questions were answered: Which inclusivity resources are available? Which of these are aimed at ethnic inclusivity? How can these tools be improved?

The takeaways from this chapter are the following:

- The majority of inclusive design resources are aimed at the inclusive attribute of accessibility.
- The resources available for ethnic inclusive design are merely guidelines and tips, rather than a collection of guidelines that make a resource. There is a scarcity of resources that have been scientifically published and proven.
- A guideline must include examples and use cases.
- Inclusive Design resources must include a section of awareness and explanation of the importance of inclusivity and its impacts
- A digital resource is more easily found on the internet and likely to reach more users around the world. It is also easier to edit and maintain as the publishing time is almost immediate.

Part 7: Analyzing TU Delft's approach

As the scope of this project entails the faculty of Industrial Design Engineering (IDE) at TU Delft, this chapter reports the analysis made on the materials and courses provided by the faculty regarding the topic of inclusivity in design. The chapter starts with the analysis of the Delft Design Guide (DDG) from an inclusivity lense to understand how an inclusive design perspective can be implemented into the book. Additionally, the course specific to inclusivity that is provided in the Master's curriculum is analysed. This chapter also includes a reflection about the role of teachers in the education of designing with an inclusive perspective. Lastly, the chapter ends with a conclusion and a design direction for this project regarding the findings from previous chapters as well as this chapter.

To my experience, in the Master of Integrated Product Design at TU Delft, there are not many resources that sensitize students towards the topics of Diversity and Inclusion. I consider myself interested and motivated to find projects and resources that entail Diversity and Inclusion. The only resources I was able to find within the faculty were the Delft Design Guide (DDG) that seems to give a minimal input on methods on how to design with other people with different backgrounds, and an elective coordinated by Stella Boess.

As conclusion of Part 5, currently in order to carry out inclusive design it seems to be a personal proactiveness and responsibility. Yet, from my opinion it is time for all designers-in-the-making to become more sensitized with the topic of inclusivity in design throughout their education. In this Part, the DDG is analyzed to involve a perspective of Design for Inclusion as well as recommendations to involve inclusivity in the daily practice of a designer. The teacher's role is analyzed in the environment of Design and Inclusion. Lastly, conclusions from these findings are drawn and guidelines are created for the design direction and design of the tool to be designed.

7.1 Analysis of the Delft Design Guide book

As the aim of the project is to improve the tools and resources to create more inclusive design practices, there was an analysis done on the second and last published English version of the DDG (van Boeijen, A.G.C., Daalhuizen, J.J., & Zijstra, J.J.M., 2020). This was chosen as it has become a book that students in Delft have used and relied on throughout their whole studies. Additionally, it is also used worldwide by designers as the book has been translated in various languages other than English.

The aim of this analysis is to identify the points in which the inclusive design perspective can be incorporated. This incorporation would create awareness, encourage reflection and give action points on how to involve inclusive design practices in the design process.

The recommendations given from this analysis depend on how the editors would like to incorporate inclusive design practices into the TU Delft design methodology. There are three options:

- Make inclusivity inherent in the design process. This would mean that all designers are taught to create inclusivity in their work from day one. The new generation of designers will all have inherently the inclusive design perspective.
- Distinguish inclusive design as a perspective like sustainable design is currently distinguished inside the book. Designers would have the liberty to choose to design with this perspective or not.
- Distinguish inclusive design as a perspective and add inclusive design practices inherently into the design process.

This report will encourage the third option as inclusive design is something that should be inherent into the design process (as gathered from the conclusions gathered from the interviews with designers) but should also be an active and reflective process (as gathered from the conclusions gathered from the interviews with users). For this reason, the recommendations will be based on including a perspective and approach of inclusive design, and reflections and actions for the individual methods to include.

Perspectives

The main improvement that should happen in perspectives is the reflection of meaning of that perspective. Questions that involve the diversity of the target group like the following should be included in each perspective:

- Who is included when using these perspectives? Who is prone to be excluded in these perspectives because of the system in which the perspective it involved?
- How is user diversity portrayed in the perspective? How does it influence the perspective?
- To what extent is there a systemic injustice perpetuated through this perspective? How is the designer planning on solving it?

Approaches

As mentioned previously, there are different attributes that correspond to inclusive design, such as accessibility, ethnicity, race, gender, age, etc. Ethnic and Racial Inclusivity (figure 32) would be an ideal approach to include within the “Approaches” chapter.

Additionally, similarly to the perspectives, all approaches should focus on including a reflection and awareness moment. Topics like the following should be included into the approach:

- When doing research on the context and on the target group, it is essential to take into account the diversity within the target group. Recruit participants with different backgrounds and identities. Reach out to participants outside of your regular network and reach out to researchers with variety of backgrounds.
- When creating prototypes, do not assume one size fits all. Design with the spectrum of diversity within the target group. Test the prototype with a diversity of users.
- Involve perspectives of other designers too. It is essential for designers to hear out other perspectives and opinions to create a less biased project.

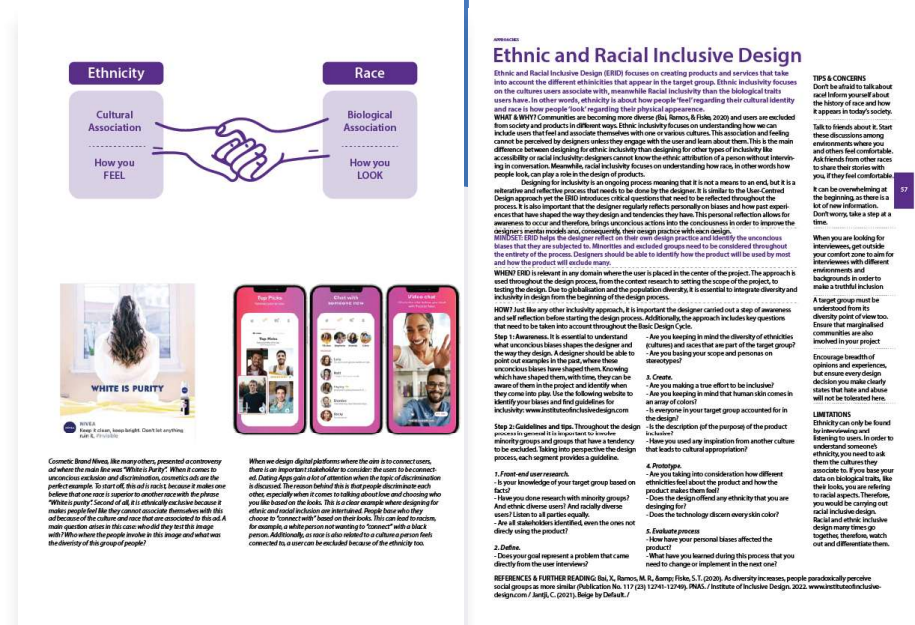


Figure 32. The approach page of Ethnic and Racial Inclusivity recommended to include into the Delft Design Guide. (see full version in Appendix E).

Models

Models that help explore, discover, analyse and understand the design domain require the following guidelines and reflections:

- Explore the diversity of the target group and how this influences the design domain
- Data collection of personal information such as age, gender, sexual orientation, nationality, ethnicity, and race require explanations of why it is relevant and how it will be used in the research.
- If designing in a different cultural context, understand the differences between the personal culture and the investigated culture.
- Grow awareness of how personal biases affect the designs and products designed.
- Take advantage of diversity within the design team to make a more inclusive product.
- If one is researching magazines, news and articles, understand that the information may be biased to the writers and the marketers.
- Diversity can also be shown in visual representations. Visual representation is advised to be genuine and representative of the relevant context.

Models that are used to define the user group need to specifically watch out on the following points:

- Who are you including with your problem definition? Who are you excluding?
- Within the context of the problem definition, who is prone to being marginalised (because of a systematic consequence such as lack of resources)?
- How diverse are the personas developed? To what extent are they based on stereotypes? To what extent are they based on the people one actually interviewed?
- To what extent is the problem statement based solely on statements from the research done with users? To what extent were the designer's assumptions included in the problem definition?

Takeaway

In order for the next generation of designer's to be inherently inclusive, the Delft Design Guide requires to integrate inclusive design tips and guidelines throughout its perspectives, approaches and methods included in the book. Integrating the perspective of Design for Inclusivity will create awareness of its importance and what the mentality of the perspective is. Including approaches such as Accessible Design, Racial Design, Gender Design, will give specific guidelines for designers to take into consideration when dealing with different attributes of the inclusive design perspective. **Meanwhile including small yet impactful tips and guidelines throughout its approaches and methods would encourage users to inherently become inclusive throughout the design process.** The main guidelines and tips are focused on the diversity of the target group and how that is represented in research, problem definition and testing. Important questions like who is inherently included and excluded from the design scope are emphasized. As well as the importance of understanding the influence of personal biases on the design process and end product.

7.2 Courses and educational opportunities for students to learn about inclusivity

At the faculty of IDE at TU Delft there are three possibilities where students can learn about inclusive design. The first opportunity appears in the Bachelor course called **Understanding Humans**. Cindy Jantji, a graduation student developed a self-awareness activity about the issues of skin tone inclusivity in product design (Jantji, 2021). This activity would ideally be introduced in an assignment during the course. The second possibility is the opportunity to part take in the **elective course for Master students provided by Stella Boess (Inclusive Design)**. This elective is mainly focused on the collaboration between the inclusive design lab and the NGO Visio Foundation, mainly focusing on projects for users with visual impairments (Boess, S., 2022). Lastly, the third opportunity for students to learn about inclusive design is a **graduation project**. Students can choose to search for a project that is provided by teachers.

There may be more opportunities that this project may have not seen. Nevertheless, the following question rises: "If this project wasn't able to find them, what other students were not able to find them either?". This leads to the conclusion that communication is not clear and centralised when it comes to sharing information about inclusive design within the faculty of industrial design. Additionally, these 3 opportunities are not enough for students to rely on to learn about inclusivity. There needs to be more resources provided to students for them to learn about the need and the process of how to do inclusive design. During a conversation with Rebecca Baugh, a diversity, equity and inclusion facilitator in both higher education and freelance work, she consistently mentions that implementing diversity is not a one-time occurrence. Baugh emphasized that diversity and inclusion are a continuous process that individuals need to be engaged with in order to carry these out (Baugh, 2022). For this reason, students require more opportunities to be sensitized with inclusivity. Furthermore, Elif Ozcan Vieira, the Diversity, Equity and Inclusion representative of the IDE faculty at TU Delft, has started a collective among staff members (called DXI collective) to focus on the awareness of these three topics. Yet, among students, this type of community does not appear to exist at the moment.

Students need more resources and opportunities to get in touch with inclusivity. Either it is more courses that are mandatory or not, or if its resources like books or websites. Students need to be taught the importance for inclusivity in university. As Baugh mentions, **implementing inclusivity is an iterative process and not a one time action**. Therefore, this subchapter shows the opportunity for the faculty of IDE to implement more content and opportunities to learn about inclusivity in design.

7.3 The role of IDE teachers in the education of inclusive design

On the 23rd of November 2017, Estela Mara Bensimon gave a lecture to teachers about diversity and inclusion. She asked the question “Why do universities perform so much better for white students than for minoritized students?” (Boess, S., 2022). Personally, I would first answer the following: whether white or not, international students don’t receive help from the government to be able to study in The Netherlands, with the exception if you have been already in the Netherlands for 5 years. It starts being a systemic problem. Secondly, I would answer: Minority students are not even given the chance because the way teachers treat them.

Estela continued explaining that normally when this question is asked, the accessibility to the university is the first moment of tension. Nevertheless, nobody looks at what happens after accessing the university. The question rises: What happens to minority groups when they have entered university? At TU Delft a binding study advice (BSA) applies to all bachelor degree programmes. It means that all students in their first year must achieve a certain amount of ECTS to be able to continue with their education. If they do not achieve this number of ECTS within the first year of their bachelor degree, their registration will automatically terminate and they will not be able to register for the same study programme within 4 years time (TU Delft, 2022). Thus, if student’s put in enough hard work and dedication into their courses, they should be able to reach this minimum requirement, right? As teachers, Estela mentions, success is normally defined as the commitment and the effort that students put on their work. Therefore, if students have difficulties in these areas, they are blamed for not being successful. Teachers think that their role is to communicate content, and if students are not absorbing it, it’s their fault for not doing so. Nevertheless, Estela explains that teachers need to dive deeper and think: institutional commitment and the teacher’s efforts will translate in the minoritized student’s success. Teachers spend the most amount with their students, if students are failing it is because there is something missing in the teacher’s class.

The Landelijk Netwerk Vrouwelijke Hoogleraren (LNVH) is a network, knowledge and advocacy organization - with more than 1500 affiliated female associate professors and professors. In 2020, the LNVH studied the proportion of female professors in all Dutch universities (LNVH, 2021). All dutch universities have reached the mark of 20% female professors, except for one university: Delft University of Technology. How can we focus on creating diversity in the university

if we don't represent diversity? To bring substantive diversity, the faculties and professors have to change.

How to start changing to be more inclusive? Estela explains that the first step is to look at the data, enrolment, passing rates, by race and ethnicity. Since many times one cannot do that, teachers need to be trained to look at their classrooms. Analyze the course level data by passing rates, scholarships, etc. Estela emphasized that this is where and when one sees inequality. The course syllabus is also very important because it is the communication between how the professor feels about the subject and its students, as well as the course expectations. Revise the content of the syllabus, the tone used, the approaches and groups created. Analyze the content from the perspective of inclusivity, pictures used, students a teacher includes and excludes with their courses. In order to build community and inclusiveness, address all students by their first names. If a teacher has ethnic heritage, include the story and make it present in the communication. This shows students that teachers are also trying to be inclusive and that they are working towards an inclusive classroom.

Although this is a very brief idea of what Estela Mara Bensimon explained in her lecture, it is important reflection for the institution and educators. As the faculty of IDE at TU Delft starts to become more diverse in terms of gender, it is still important to portray the diversity and open mindedness that is strived to achieve, inside the classrooms. The faculty needs more people and projects to speak out about diversity in inclusivity, in order for change to happen. This not only concerns students but also staff members who are part of the IDE faculty.

Lastly, creating **an inclusive environment is hard to achieve and the first step is to achieve it is personal reflection**. Nevertheless, to make a change, according to Estela, "the people who have the power should take the initiative". She continues by saying "Don't forget, inclusion starts with an I." (Boess, S., 2022).

7.4 Conclusion

This chapter portrays the need for more tools and resources for **staff and students to have access to in order to carry out inclusivity**. TU Delft needs to promote a safe environment for students and staff to discuss how their experiences with race and racism impact their research, education and life. Although a community is starting to exist among staff at the IDE faculty, students need to have a community for themselves too. As we have seen in Part 2 and 3, it is essential to start discussions about inclusivity and consequences of exclusivity. Inclusivity must have a place in the IDE faculty in order to improve how inclusivity is being carried out today. Part 4 shows the voices of students from the TU Delft that are experiencing such exclusivity. The following Part will converge all the insights found during the previous parts and will conclude with a design scope where the IDE faculty is an essential factor.

Part 8: Intermediary Results

This chapter focuses on converging all the results that correspond to research questions 1, 2, 3 and 4. From analysis of discrimination cases on digital platforms, people interviews, designer interviews, analysis of current inclusivity material and TU Delft inclusivity resources, four main takeaways are identified that require attention in the solution proposed by this project. From these takeaways, 5 possible design directions are identified. As inclusivity is a reflective process, I believe that from these 5 possible design directions, only 3 of them should be considered for this project as they will be they building blocks for the rest of inclusivity opportunities.

8.1 Converging results of parts 3, 4, 5, 6 and 7.

Ethnic & Racial Inclusivity

As we saw in Part 3, ethnic and racial inclusivity are quite hard to distinguish for each other. It is very likely that if you are designing for either one, you will most likely encounter the other too. Ethnicity can only be found by interviewing and listening to users. In order to understand someone's ethnicity, one needs to ask them the cultures they associate to. If one bases their data on biological traits, like their looks, one refers to racial aspects. Therefore, one would be carrying out racial inclusive design.

As designers, we need to watch out and differentiate between the two (figure 33). If we are working with race, thus, physical characteristics, we need to also ask ourselves how users may feel regarding this design solution. Asking for their association to a culture, would be asking them about what culture they feel most connected to. When designing with this feeling of belonging and culture, one needs to watch out for what the design can mean for other cultures.



Figure 33. Ethnicity and Race are connected yet are different terms.

Awareness

In all research sections it is noticeable the importance of awareness. Awareness is the building block of inclusivity. In general, as observed from the examples from Part 3 and the inputs of users from Part 4, I believe that everyone, designer or not, should start sensitizing themselves and the ones around them as exclusion is not only a design problem but also a social construct. For this reason, the cases of exclusion and discrimination in Part 3, that refer to the digital platforms with the human factor, tend to discriminate because of the other users on the platform itself. These users need to be sensitized to the idea that everyone is different, equal and is accepted in society. Nevertheless, as the scope of this project is on design, I will focus on the designer's role in awareness. As several designers and sources mention in Part 5, awareness comes first by self reflection from the designer themselves. This first self reflection would consist of understanding how past experiences and upbringing have shaped the way the designer thinks and designs. Learning about implicit or unconscious biases are of most importance, as everyone has unconscious biases yet because they are implicit or unconscious, we do not understand them until we discover them. Once we discover these, we can watch out for the biases interference and change the way we react or respond to them, ideally, driving away from the bias itself. Therefore, one has to become aware of inclusivity and what it entails before carrying out any design practice or guideline related to inclusivity.

Step 1: grow awareness for inclusivity in the design practice within the faculty (students and teachers) and make it an iterative process

Step 2: grow awareness for the differences between aim and outcome in the design practice within the faculty (students and teachers)

Step 3: grow awareness for the different designer dilemmas and identify ways in which they could be solved (students and teachers)

Figure 34. Steps towards awareness

Intention Vs. Outcome

As seen in previous examples, unintentional forms of discrimination result in discrimination. Designers need to understand the power of their designs and influence in people's lives. Although the intentions of the designers may have been good in the examples presented in Part 3, they still discriminated users which had a negative effect. Designers need to understand the responsibilities that come with design and their implications for users. Nevertheless, intention and outcome will only be understood once the designer knows their biases and tendencies.

Designer Dilemmas

Throughout the user interviews an existing designer dilemma was discussed with users in Part 4. This dilemma entailed the topic of ethnic and racial representation in imagery that emerged during desktop research. With the help of conversations with ethnic diverse users, I was able to understand that the dilemma was no longer either representing all ethnicities and races in an image nor the population representation. It became a dilemma about portraying a genuine image and what is considered genuine. The action of discussing dilemmas with others, especially with the group that is being excluded, helps designers with a deeper understanding of what the dilemmas are. Therefore, as the users and the designers suggest, it is important to discuss design inclusivity topics between designers of different backgrounds. Not only does it help understand what inclusivity is and why it is important, but also because it helps gain deeper knowledge on specific topics within inclusivity and helps designers have richer guidelines to design for inclusivity. Figure 34 shows the concluded steps towards awareness in order to reach full awareness of the importance of inclusivity, the difference between intention and outcome, and the design dilemmas.

Inclusivity Guidelines

There is a growing need and opportunity for designers to have inclusivity guidelines and resources in one same place as Part 4 and Part 5 show. Designers need to understand and know what they can do throughout the design process to carry out inclusivity as well as have one place where they can have all important and insightful resources.

8.2 Opportunities created from research

Whether it is to design for ethnic inclusivity or another inclusivity attribute, these four main takeaways result in five different scope opportunities to focus on during the rest of this project:

- Create awareness about inclusivity
- Teach the meaning of intention and outcome
- Solve Designer dilemmas
- Create a community for designers to discuss inclusivity and its approach
- Create a platform for inclusivity resources

Analyzing TU Delft's Approach has shown the lack of information provided by the faculty to carry out inclusive design practices. Students and teachers are not sensitized to carry out design practices as they have limited amount of information provided to them throughout their education as well as scarcity of opportunities to implement these. For this reason, from the five different scope opportunities discussed, only 3 of them can be carried out:

- Create awareness about inclusivity
- Teach the meaning of intention and outcome
- Solve Designer dilemmas
- Create a community for designers to discuss inclusivity and its approach
- Create a platform for inclusivity resources

The reasoning behind this is the following: How can designers learn about intention and outcome of a design, without knowing what biases shaped these? And how can a designer understand the designer dilemmas without learning where the dilemmas rise from?

The research carried out until now, has shown that inclusivity is a step by step process, it is iterative and requires reflection from the designer. I don't believe a designer will ever be "done" with learning about inclusivity, because we all have unconscious biases and someone will always be excluded with our designs. Nevertheless, we can learn about our unconscious biases and understand our role designers in order to reduce the discrimination and exclusion created on platforms.

Additionally, Part 7 shows the need of general understanding for inclusivity, not a specific attribute of inclusivity like ethnic or racial inclusivity or even accessibility. This does not mean that it is currently being done wrongly, it only means that

students need to be provided with more resources in order to learn how to design with inclusivity in mind. Similarly to the approach of the analysis of the Delft Design Guide was carried out, there is a need to choose between: wanting to implement inclusive design practices from the moment that students start studying design (in other words, making it mandatory in their Bachelor's and Master's degree); and/or giving the students the opportunity to choose for themselves if they are interested in the topic (in other words, how it is offered now with elective courses). From my personal point of view, to see progress in the next couples of years, we need to act now. This means that students in their Bachelor's and Master's need to be taught about inclusivity. Realistically speaking, Bachelor and Master curricula take time to change, more than a couple of years even. Therefore, the material offered in school, for example, the Delft Design Guide, or elective courses, need to be adapted to encourage inclusivity practices and sensitize students to it. Inclusivity needs to be taught from the beginning and as a broader topic, and after the topic is understood and integrated into the design practice, the student can learn how to design inclusivity for its attributes like accessibility, ethnic inclusivity, racial inclusivity, etc. Teachers need to sensitize themselves and their courses to inclusivity.

Moreover, as seen in this collection of conclusions, there is a constant need for growing awareness for inclusive design practices and its importance. Additionally, there is a clear need for designers to have a 'to go to' resource that concentrates on providing guidelines, tips and external resources for inclusivity. In addition, there is an opportunity for more guidelines providing ethnic inclusive resources, which the previous point could benefit from. The faculty of IDE at TU Delft has the opportunity to provide more resources for inclusive design thanks to the new Diversity, Equity and Inclusion (DEI) office installed by the TU Delft.

Design Direction

Taking these opportunities together, the scope of the project narrows down to the following statement:

“Develop a platform for IDE students and staff that creates awareness for inclusive design and designer bias, provides guidelines and tips to integrate inclusivity, allows students and teachers to share their experiences with exclusion and marginalisation, and, lastly, creates a community for students and teachers to come together and discuss the topic of inclusivity in design.”



Context Exploration



Users

Insights from each area

4 conceptual models of digital platforms can be identified.

- Type 2, 3, & 4 of these models need to watch out for the human factor.
- Consequently to the human factor, designers need to grow awareness for how users may use and misuse their platforms.

Although maybe designers don't intend to make a product that excludes certain groups, designers must learn how their experiences and biases shape their designs and products.

Designing inclusivity for ethnic and race go hand in hand.

In the Netherlands there is a large ethnic and racial diversity.

There is a need for growing awareness and sensitising all communities about ethnic diversity and the role of the designer's unconscious biases.

The youngest generations of users that are being excluded from digital platforms, want to speak out about it and tell their stories.

Public acceptance of ethnic diverse imagery will take time but will persevere.

There is a need for ethnic inclusive imagery that resembles representation and genuine people and activities.

All ethnicities are equal, no matter the different attention that they get in media.

There is a need for a safe space for users to discuss their feelings and consequences of ethnic exclusion.



Designers

The first stage is designing for inclusivity requires awareness stage to understand biases of designer.

Designers need to know before starting a project the limitations the project has and can possibly run into.

Designers need to know what they can do throughout the design process in order to carry out any type of inclusivity. As well as reflect the impact of these guidelines.

It is essential for a designer to know how to communicate the importance of their inclusive design work in their working environment.

Currently, it is self initiative of the designers to implement inclusive perspectives.



Resources

Resources mainly focus on 'Accessibility' attribute of inclusivity. There is an opportunity for resources to focus on other attributes of inclusivity such as social attributes.

There is an opportunity for resources and guidelines to be collected in one single resource.

Resources that give guidelines to design, are text oriented and there is scarcity of examples of guidelines.

Resources need to include awareness and the importance of designing for inclusivity.

A digital resource will have a better outcome if the aim is to reach as many users possible and if the aim is to constantly update the platform.



Analyzing TU Delft Resources

There is an opportunity for a resource that collects: guidelines, connects students, shows names of teachers interested in the topic of inclusivity, opportunities to work with during a thesis or project, projects and thesis already done in the topic.

There is a need for teachers to start being actively involved in inclusivity practices.

Part 9: The Delft Inclusive Design Platform

This chapter focuses on the solution proposed to solving the following design direction: **“Develop a platform for IDE students and staff that creates awareness for inclusive design and designer bias, provides guidelines and tips to integrate inclusivity, allows students and teachers to share their experiences with exclusion and marginalisation, and, lastly, creates a community for students and teachers to come together and discuss the topic of inclusivity in design.”**. As solution, the Delft Inclusive Design platform was developed. This solution’s purpose is to collect and share resources for inclusive design perspectives and raise awareness for the need to design from an inclusive perspective. Within the resources provided in the platform, two leading examples of an activity to grow awareness for implicit biases and a guideline to inclusive imagery were designed.

9.1 Target group

This solution targets students and staff from the faculty of Industrial Design Engineering at TU Delft. Mainly targeting Master students, as Bachelor students will already start to be sensitized with the topic of inclusive design with the work done by Cindy Jantji which is to be integrated in the first-year bachelor course 'Understanding Humans' (Jantji, 2021).

Additionally, although there is already a collective among the staff that discusses diversity and inclusion (as mentioned in Part 7, it was initiated by Elif Ozcan Vieira), staff members could also benefit from the solution, as inclusion is a topic that involves the whole faculty.

Therefore, the platform designed should be open and accessible to anyone with the link. No matter the level of design experience or time in the field, the solution should be able to be used by anyone that has experienced (at least once) the design process.

As staff and students have time limitations in their day-to-day work, it is important that the solution and its contents are **valuable, time efficient, clear and understandable**, and can **be integrated into their day-to-day work**.

9.2 Requirements of the solution

As gathered from the conclusions and the scope of the project further defined in Part 8, the platform designed has the following requirements:

- The solution must provide awareness about the topic of inclusivity. This means that after seeing the solution, the user must know more about inclusivity in design, than they did before seeing the solution. Therefore, there has been a learning process.
- The solution must provide a list of resources, guidelines and tips specifically to inclusive design. This means that all the resources found throughout the course of this project, will be provided in the solution for people to access.
- The solution must provide a list of resources from the IDE faculty that relate to the topic of inclusive design practice. This means that graduation projects, graduation opportunities, groups, staff and researchers associated with inclusive design within the faculty of IDE at TU Delft should be provided in the solution.
- The solution must provide information about ongoing and upcoming events that are specific to inclusive design. This means that students and teachers will be able to know what events there are available to attend and take part of. These can be events organized by the faculty and the TU Delft institution, but can also be international events being held on the topic of inclusivity.
- The solution must provide a space dedicated to students and teachers to share experiences of exclusion and discrimination caused by products and through the use of products. This means that all users of the solution will be able to see and observe cases of exclusivity in the day to day life of colleagues and understand the cause and importance of this exclusivity.
- The target group has limited time. The solution has to be open source to be accessed by everyone and the users need to understand its benefit in order for them to integrate information in the solution. If they do not understand or aren't intrigued by the solutions, they will not use the solution. Therefore, the solution needs to be valuable to them, time efficient, clear and understandable.

9.3 Final aim of the solution

As mentioned in Part 1, the initial aim was the following:

“Design a **tool** that can **seamlessly** and **effectively** be used by **designers of digital platforms**, in Europe, to create **inclusivity** of marginalized users from **different ethnic groups**, in their day-to-day practice.”

Initially starting as personal aim to develop a tool for designers to use seamlessly in their design process, research provided insights that learning and designing with inclusivity in mind is an active and iterative process. Therefore, the solution to be developed must have an active approach and encourage users to learn about the topic of inclusivity.

Additionally, this project started with the aim and scope to focus on specifically ethnic inclusion yet throughout the process of the project I found out multiple things. First, designing for ethnic inclusivity is also designing for racial inclusivity, as seen in Part 3 and Part 7. Secondly, many of the guidelines found can actually be used for any attribute of inclusivity. Lastly, to carry out any type of inclusivity, that is ethnic and racial inclusivity or accessibility, it is essential for the designer to know the basics of inclusivity in general. For these reasons, the solution will shine light on the importance of inclusive design practices in general. Nevertheless, the resources and guidelines included in the solution are focused on ethnic and racial inclusivity as these were the findings from this project.

Lastly, a personal aim was to, additionally, develop a solution that would be used in the day to day work of designers at the faculty of IDE at TU Delft. Nevertheless, as the project has limited time, it was only possible to develop a prototype of the solution which would serve as speculative exercise for staff and students to understand the need and urgency for inclusive design perspectives in the faculty.

9.4 Delft Inclusive Design platform

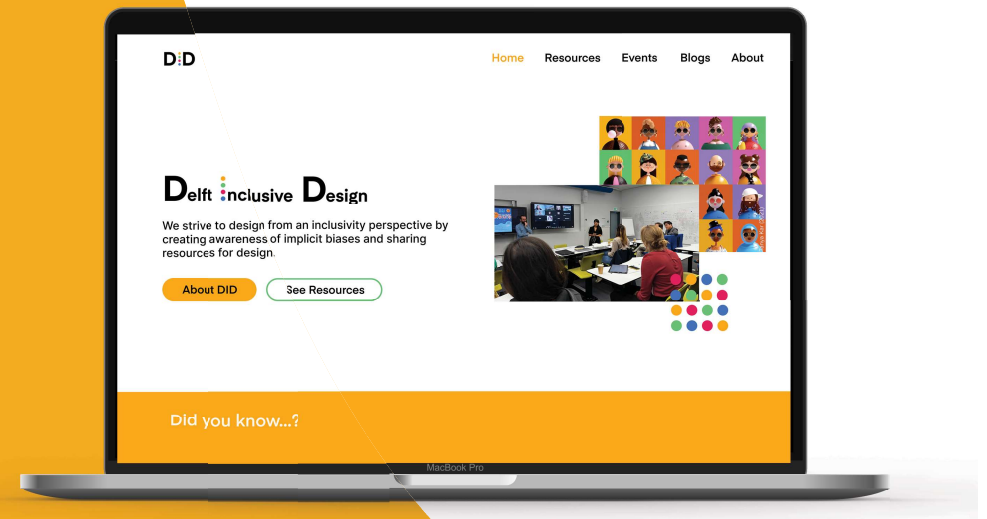


Figure 35. The Delft Inclusive Design platform prototype.

A platform for students and staff to have inclusivity resources and promote the importance to design for inclusivity.

A platform where students and staff from the IDE faculty can find inclusivity resources; projects being done on inclusivity; promote events in the faculty as well as universal events of inclusivity topics; a blog for students and staff to share inclusivity findings and discrimination stories. Everything in one place for students and staff to access.

It is essential for the IDE faculty's development towards diversity and inclusion to integrate a website like the Delft Inclusive Design (DID). DID is aimed to portray the importance of designing with an inclusive perspective, provides resources for students and staff to learn more on the topic, as well as creating a safe community for students to talk about inclusivity practices and share discrimination stories.

DID is a platform developed as an exercise to raise awareness in the IDE faculty regarding the importance of inclusive design and its practices. It is not meant to replace the Delft Inclusivity Lab, but centralise the resources available on inclusivity within the faculty. TU Delft is reflected throughout the DID platform as its content is greatly based on the existing inclusivity resources available at the IDE faculty.

Link to the prototype of DID: <https://www.figma.com/proto/MxICFWy9TAmLnhmQU1kFBX/Delft-Inclusive-Design-Platform?page-id=646%3A6245&node-id=646%3A6246&viewport=2702%2C1049%2C0.25&scaling=min-zoom&starting-point-node-id=646%3A6246>



Figure 36. The Delft Inclusive Design Platform and its content.

In order to achieve an inclusive perspective, students and staff first need to grow awareness.

Within the material available for students and staff on the DID platform, it is envisioned to have resources (created by the IDE faculty) to raise awareness for inclusive design perspectives and to understand how personal experiences shape designs. To set an example, an awareness activity was created to learn about implicit biases in design. It is a 4 step process that encourages users to dive within one's self and identify biases that have shaped their designs. The 1st step helps users gain interest in biases through the Harvard Implicit Test. The 2nd step encourages users to learn and identify biases they have. The 3rd step brings these biases to life by analysing an example. The 4th and last step consists of reflecting on the biases learned and which need attention when they reappear in practice.

The activity is easily accessible by staff and students and could also be integrated into the Master's curricula as a reflection to do prior to a project in order to encourage an inclusive perspective within students. The activity can be either done alone or in groups. In order to integrate staff members to grow awareness, it is encouraged for this activity to form part of the University Teacher Course, which is mandatory for every teacher in the IDE faculty.

The activity's nature is of reflective form for which it is encouraged to write answers to questions. For this reason, if the activity is printed out, the target group is encouraged to write on the print, and if the user is on the website, they can type in their reflections. Although the answers to the questions are to be written down, the student is the only one to know the answers. In other words, the answers are not recorded by any parties other than the user.

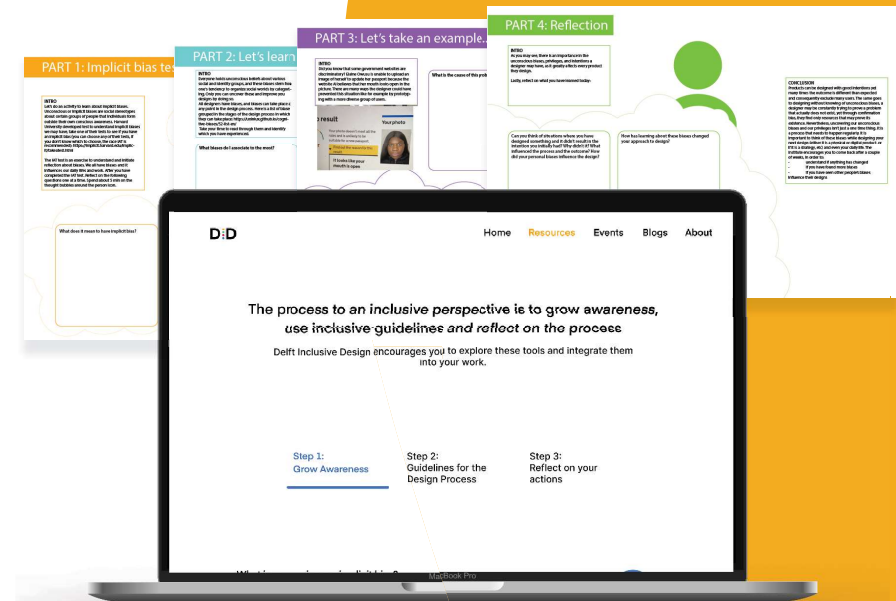


Figure 37. The looks of the awareness activity in a mockup computer and in pdf form.

PART 1: Implicit bias test

INTRO
Let's do an activity to learn about implicit biases. Unconscious or implicit biases are social stereotypes about certain groups of people that individuals form outside their own conscious awareness. Harvard University developed test to understand implicit biases we may have. Take one of their tests to see if you have an implicit bias (you can choose any of their tests, if you don't know which to choose, the race IAT is recommended): <https://implicit.harvard.edu/implicit/takeatest.html>

The IAT test is an exercise to understand and initiate reflection about biases. We all have biases and it influences our daily lives and work. After you have completed the IAT test, reflect on the following questions one at a time. Spend about 5 min on the thought bubbles around the person icon.

Do I have implicit biases of which I am aware of?

What does it mean to have implicit bias?

How can biases shape my designs?



PART 3: Let's take an example...

INTRO
Did you know that some government websites are discriminatory? Elaine Owens is unable to upload an image of herself to update her passport because the website AI believes that her mouth looks open in the picture. There are many ways the designer could have prevented this situation like for example by prototyping with a more diverse group of users.



What is the cause of this problem?

What was the intention of the designer? Do you think that they designed it like this on purpose?

Which of the previous biases can have been of influence in this situation?

What effect did these biases have on this scenario?



PART 2: Let's learn about biases in design!

INTRO
Everyone holds unconscious beliefs about various social and identity groups, and these biases stem from one's tendency to organize social worlds by categorizing. Only you can uncover these and improve you design by doing so.

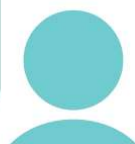
All designers have biases, and biases can take place at any point in the design process. Here is a list of biases grouped in the stages of the design process in which they can take place: <https://kottm.ac.github.io/Cognitive-Biases/52-48-en/>

Take your time to read through them and identify which you have experienced.

What biases do I associate to the most?

How have these specific biases shaped my designs?

When in the design process these appear?



PART 4: Reflection

INTRO
As you may see, there is an importance in the unconscious biases, privileges, and intentions a designer may have, as it greatly affects every product they design.

Lastly, reflect on what you have learned today:

Can you think of situations where you have designed something and it didn't result in the intention you initially had? Why didn't it? What influenced the process and the outcome? How did your personal biases influence the design?

How has learning about these biases changed your approach to design?

CONCLUSION
Products can be designed with good intentions yet many times the outcome is different than expected and consequently exclude many users. The same goes to designing without knowing of unconscious biases, a designer may be constantly trying to prove a problem that actually does not exist, yet through confirmation bias, they find only resources that may prove its existence. Nevertheless, uncovering our unconscious biases and our privileges isn't just a one time thing, it is a process that needs to happen regularly. It is important to think of these biases while designing your next design (either it is a physical or digital product, or IRL is a strategy, etc) and even your daily life. The Institute encourages you to come back after a couple of weeks, in order to:

- understand if anything has changed
- If you have found more biases
- If you have seen other peoples biases influence their designs



Figure 38. Top Left: Step 1 of the activity. Top Right: Step two of the activity. Bottom Left: Step 3 of the activity. Bottom Right: Step 4 of the activity.

Sources		Follow-up questions
Aim of the image and the target group		
What is your target group?		
Do you have a demographic research on the target group?		
Representation of the people and atmosphere in the aim of the picture		
Does the image represent a different reality of the situation trying to be portrayed?	(Low, S. M., Taplin, D., Scheid, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)	If yes: What is the desired message you want to convey in this reality?
Does the image look like it was staged?	(Low, S. M., Taplin, D., Scheid, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)	If yes: What could be the problem is it is staged?
Favoring a culture or people more than others		
Does the image favor a specific race, age, gender, ability, body type, economical status or other minority group?	(Trevweek, S., Banister, K., Bower, P. et al. 2021)	If yes: Is there a specific reason why? Is your target group fully represented in this image? Are you including other images to fully represent the diversity of your target group?
Are you excluding anyone in your target group?	(Trevweek, S., Banister, K., Bower, P. et al. 2021)	Does this align with your aim? From your target group, who is prone to be excluded? Who is excluded in this image?
Does this image perpetuate or promote stereotypes?	(Hugh Klein, Kenneth S. Schiffman, 2009) (Coleman, R. R., &	If yes: How does this affect the purpose of your image? What stereotypes? How does it affect the and those who are not

Once one is aware of their implicit biases, one can learn how to carry out design focused on inclusive perspectives with the help of guidelines.

In order to carry out design with an inclusive perspective it is important to consider what the designer can do with their awareness. As this thesis portrays, there are multiple ways of carrying out inclusivity, above all, it is important to take responsibility of our designs and actions. It is envisioned for the DID platform to include a collection of guidelines (developed by the IDE faculty) to support students and staff with material to integrate an inclusive design perspective. To start off, a guideline has been created to aid students and staff when choosing imagery from an inclusive perspective.

Many at our faculty use images in their day to day, either in a project or presentation. This guideline is aimed for the user to reflect on their choices of images, the image’s representation and the image’s meaning. The guideline contains closed and open ended questions which allow users to take responsibility of their actions in choosing imagery for their projects and presentations.

The inclusive imagery guideline would be available for staff and students to use, as any other resource on the DID website. Envisioned to act similarly as the Ethics Checklist developed by the IDE faculty, the Imagery Guidelines is aimed to be integrated into the day-to-day work of students by relying on coaches and teachers who can introduce this exercise with their students (or make it mandatory for projects).

The is no one way to design inclusively, for this reason, guidelines should be considered as an aid, not as a law to achieve inclusivity. Guidelines can be used differently as design briefs are diverse. Consequently, I believe guidelines should be aimed at aiding students and staff in design dilemmas. A future DID website would contain different guidelines for the diversity of design dilemmas.

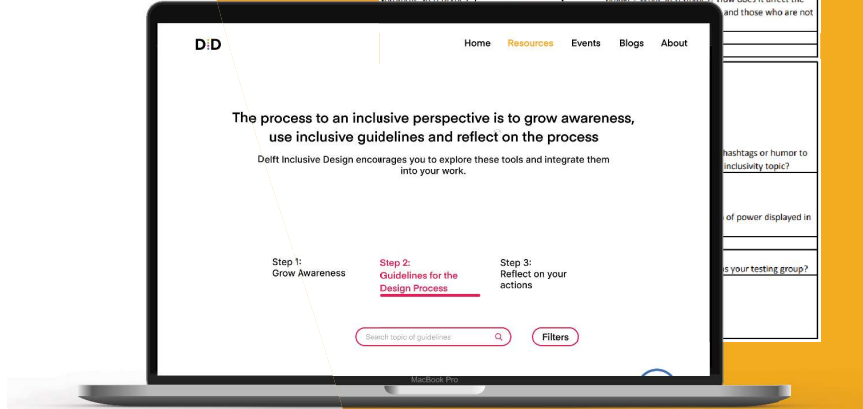


Figure 39. The DID platform contains guidelines and tips to achieve an inclusive design perspective.

9.5 The design components of the platform

The Requirements

The initially envisioned tool in Part 1, was later developed into a platform in Part 8 as platforms are more widely accessible by students and designers. The platform was then chosen to be a website, as these platforms are the most widely used, are open sourced to all users and can still be used even after students and staff leave the faculty.

As the requirements mentioned in Part 9.2, the website needs a section to:

- communicate the importance of designing for inclusivity.
- communicate the resources that the faculty of IDE at TU Delft offers. As we saw in Part 7, this entails the teachers involved in the topic of inclusivity, the graduation projects done on the topic, and the possible graduation opportunities on the topic. The networks and partners would also be included.
- provide awareness about inclusivity and guidelines to follow in order to carry out inclusivity in digital platforms.
- provide information about possible events on the topic of inclusivity, carried out by the faculty, as well as international conferences.
- give opportunities for the target group to share their points of view and stories about inclusion and exclusion.
- give an opportunity for the target group to contact the person in charge of the website to give information about guidelines, opportunities, stories of inclusion/exclusion, etc.

Communicating the importance of designing for inclusivity

To identify the way to communicate this aspect of the website, I used the HowTo's method: How to communicate with students and staff the importance of designing for inclusivity in order to catch the attention of the user. Figure 40, shows the result

of this exercise where showing facts and figures were chosen as they are most impactful in a first glance. Additionally, inviting students and staff to share their stories of exclusion would **encourage and enforce** the community feeling that is aimed to be created.

The landing page was designed to include these facts and figures with the **aim to be impactful and trigger** readers to continue exploring the website and topic. For this 3 facts and their figures were chosen from the resources found throughout the course of the project. These resources were chosen with the following criteria:

- each source discusses inclusivity and diversity from a different perspective.
- they show the people affected by the discrimination

The first fact is aimed to **trigger readers** about the diversity of teachers in TU Delft. The second fact is **aimed to inform** about the environment in which discrimination is carried out in The Netherlands. Lastly, the third fact **shows the diversity** of citizens of municipalities in The Netherlands.

Communicating the resources available at the faculty of IDE

As seen in Part 7, the faculty of IDE only provides the following resources to students:

- graduation projects/topics
- 1 elective course focusing on designing for visually impaired users
- teachers that are interested in the topic of inclusivity
- the Diversity, Equity and Inclusion (DEI) office of TU Delft provides network and partners of the TU Delft in this particular topic

The first step is to **grow awareness for resources and staff available at the faculty of IDE**. One of the target groups are students, it is of utmost importance to show the already existing projects and graduation opportunities. Afterwards, the staff interested and involved in the topic of inclusion will be listed as well as a link

to their contact information. The aim with which the staff is shown is to identify the staff that the target group can approach and talk to regarding the topic and who would be interested in projects associated to inclusivity. Lastly, the network and partners that the TU Delft has is important for the target group to get in touch with in the case of proposals for possible projects.

Provide awareness about inclusivity and guidelines to follow in order to carry out inclusivity in digital platforms

From Part 6, many resources and guidelines were found to create inclusivity in digital platforms. **Many of these guidelines can actually be applied to different attributes of inclusivity**, not only ethnic inclusion.

As seen in Part 8, inclusivity is an iterative process and it starts with awareness for inclusivity. Only once one grows awareness, will they be able to carry out inclusivity practices as they will understand the reasons behind their actions. Looking back at the inclusivity resources found in Part 6, it was noticeable that these resources mostly did not give any background on why inclusivity is important and grow awareness of discrimination origins in design. With inspiration from various sources like Baugh, Alexander, Kempe, Jantji and Morin, I decided to make it a task for

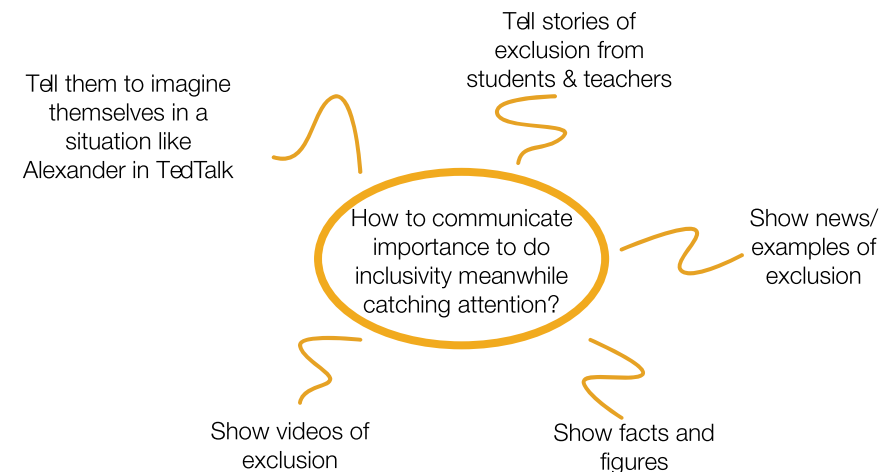


Figure 40. How to communicate importance to do inclusivity meanwhile catching attention of user?

myself to design an activity that would help the target group start from step 1. This activity would help grow awareness in implicit biases as this is the first step towards creating inclusivity, as seen in Part 8. Section 9.6 will explain the ideation process for this activity.

Additionally, it was necessary to provide the target group with research based guidelines to carry out design with an inclusive mindset. As inclusivity is quite broad, a designer dilemma was chosen to create a guideline to aid students and staff in their day to day work. Read more about this guideline in section 9.7.

Provide information about possible events on the topic of inclusivity, carried out by the faculty, as well as international conferences.

One of the aims of this project is to create a community between students and staff to talk about inclusivity, listen to discriminating stories and learn how to improve the situation. For this reason, the platform requires the communication of all events with the community. Additionally, events of the TU Delft that have relation to the topic of inclusivity, will also be included within these events. International inclusivity events hosted by external associations will also be available.

Give opportunities for students and teachers to share their points of view and stories about inclusion and exclusion.

As mentioned earlier, it is important to understand and grow awareness for what people are being discriminated. It is essential as seen in Part 3, **for discriminated students to let others know of their experiences and to understand the consequences of these experiences.** For this reason, a blog is part of the website in order for students and staff to share their experiences and thoughts.

Give an opportunity for students and teachers to contact the person in charge of the website to give information about guidelines, opportunities, and stories of inclusion/exclusion.

A contact form is part of the platform as readers may want to suggest more guidelines, thoughts, project opportunities, or even to send in a blog post for others to read.

Wireframes

The content and layout of the DID platform was inspired by the inclusivity website created by Floris Jansen, an alumni from the faculty of IDE, inclusivity resource websites created by other universities such as the University of Cambridge, and inspiration from the Delft Institution of Positive Design, wireframes were developed (figure 41).

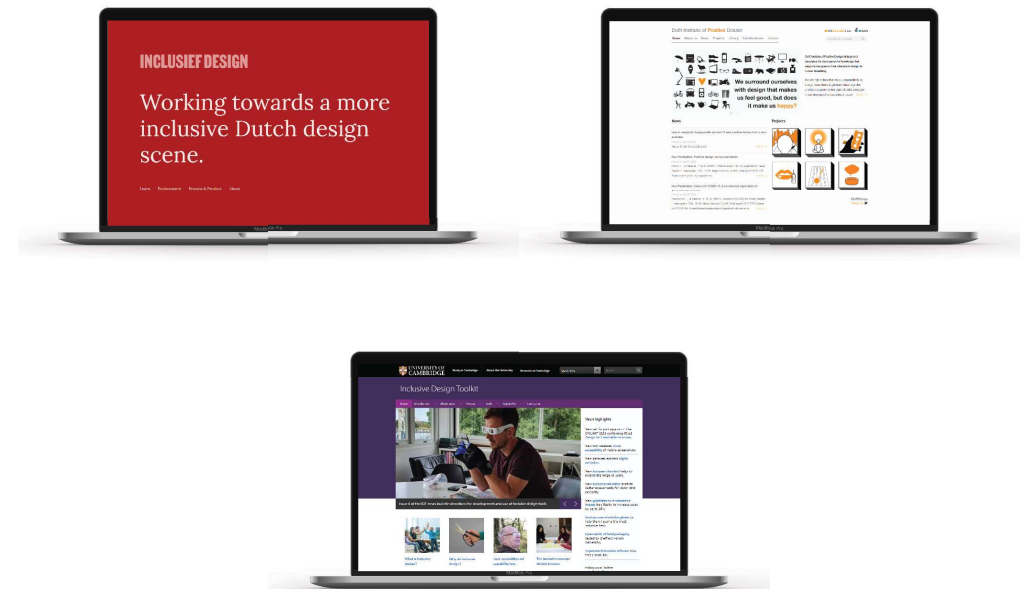


Figure 41. Top left: Floris' website. Top right: Delft Institute of Positive Design. Bottom: Inclusivity resource from University of Cambridge

In Appendix F, one can find the strengths and weaknesses I identified in these sources of inspiration, which lead me to ideate on the aspects the website to be developed needed to integrate. The initial wireframes followed the logic expressed in the top image of figure 42, meanwhile the bottom logic is from version 2. Towards the end of the project version 3 was created which mainly followed the same logic as in version 2 yet included a new design layout was included. These two versions can be found in Appendix F together with their design reasoning.

The final version includes the following pages:

Home

With the aim to trigger users to learn more about inclusivity, it portrays facts about diversity in The Netherlands and it explains the need for designing for inclusivity. Additionally, it portrays the upcoming events for users to gain interest in joining these events and it explains the aim of inclusivity as well as the actions a designer can carry out to achieve inclusivity.

Resources

Within resources, there are 4 pages: Project, Design Tools, External Resources and Glossary. There is a page about the projects done on the topic of inclusivity in the IDE faculty and opportunities for projects. It includes the Design Tools that users can use to gain awareness, find guidelines and reflect on design practices. External Resources was a page of its own to portray all the external resources that can be helpful to see and use (these are all the external resources found throughout this project). Lastly, a Glossary is also included to guide users through the different definitions that can intervene when talking about inclusivity.

Events

This page is focused on portraying the events about inclusivity that take place within the faculty but also outside of the faculty. The faculty events will help viewers understand what we can do within the faculty and our design practices. Meanwhile, external events can help gain diversity of thoughts and see how inclusivity can work in different environments.

Blogs

A blog is included for a community feeling as users can share their points of view and can discuss the topic of inclusivity, findings of research and even share experiences of discrimination and exclusivity.

About

The about page includes 4 pages: Inclusivity, Community, TU Delft X Inclusivity, and Contact. The page 'Inclusivity' grows awareness for the need for inclusivity and what we can do as designers to move towards inclusion. The 'Community' page focuses on portraying the existence of the collective for teachers and the community for students that talk about inclusivity. The 'TU Delft X Inclusivity' page portrays information about teachers and TU Delft networks that they can contact to discuss inclusivity. Lastly, the 'Contact' page allows for users to get in contact with the DID community in order to join a community, propose a blog post, external resource, inclusivity words for the glossary or ask questions.

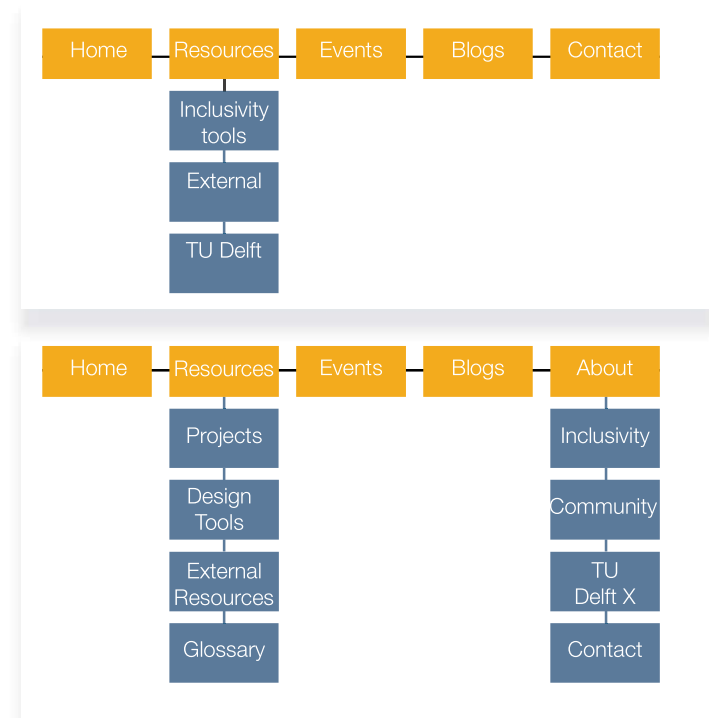


Figure 42. Top: Website logic of version 1 of the DIID website. Bottom: Website logic of version 2 of the DIID website.

Design and color inspiration

The early designs were purely based on the functionality of the platform, and the color accent was orange as it can be considered to be a gender neutral color. For the latest version, a different perspective was chosen. With inspiration from other international projects published on the platform Behance on the topic of inclusivity (figure 43), a new theme appeared. This new theme would enable the exploration of inclusivity as the playfulness it provides meanwhile keeping a balance of seriousness. For this reason, the shapes used throughout the website would also influence the theme of the design, using straight corners to portray moments of seriousness in the topic and more rounded and playful visuals to portray the happiness and beauty of inclusion.

- #E1215C
- #0E74FC
- #63C676
- #FAA701

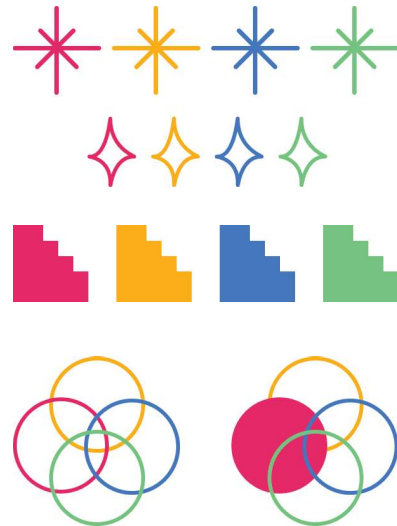
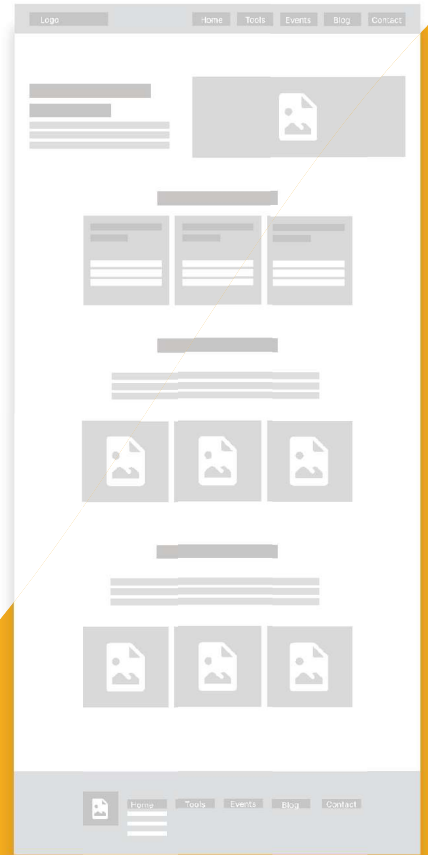
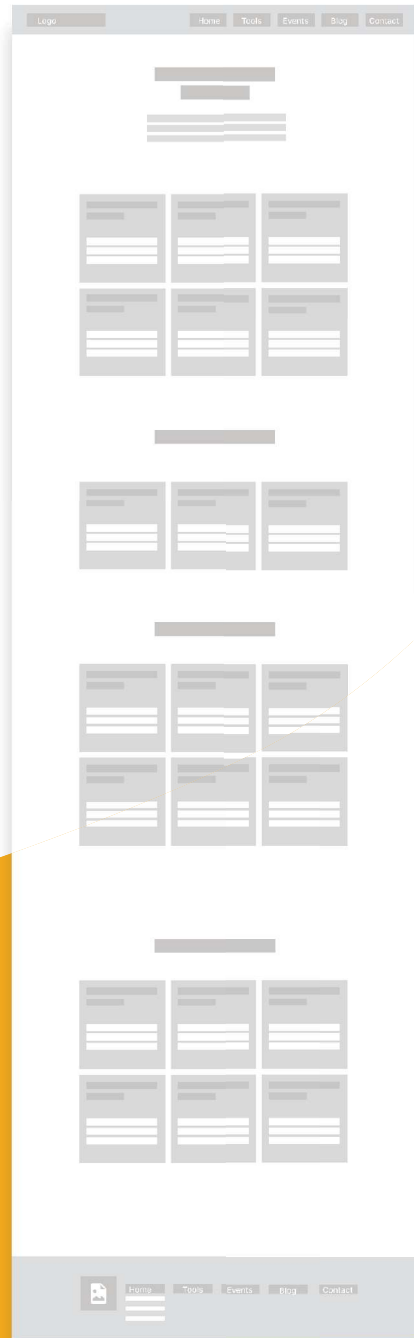
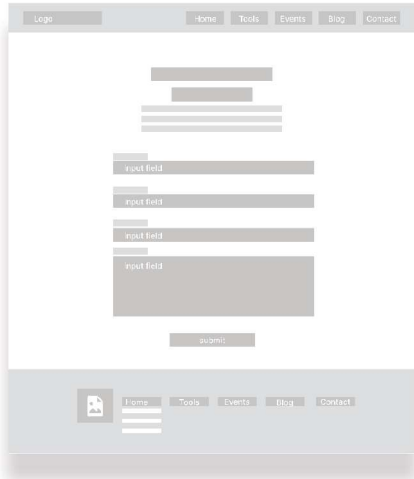


Figure 43. Inspiration gathered from international project on Behance (Kar, T., 2020)(Ooi, K. and Wei, J., 2022)(Patel, V. and Fiske, S., 2022)(Alan and Fernandes, F., 2021)(Trujillo, G., 2020).




Version 1 of the platform

DEFT Institute of Inclusive Design

Home Resources Events Blogs Contact

Creating more inclusive design practices and sharing designer's knowledge

DEFT Institute of Inclusive Design aims to create a community between teachers and students to improve and create more inclusivity within the design process.




Upcoming Events:

October 10 17h TU Delft Inclusive Design Week Learn More...	October 16 17h Let's talk about discrimination! Learn More...	November 16 17h Designers share their inclusive experiences Learn More...
--	--	--

Why is designing for inclusivity important?

Designing for inclusivity is not only a moral imperative, but also a business imperative. It allows us to reach a wider audience, increase our market share, and create a more resilient and sustainable business. Inclusive design is a design process that aims to create products and services that are usable by as many people as possible, regardless of their abilities, disabilities, or other characteristics. It is a design process that is centered on the needs of the most vulnerable users, and it is a design process that is iterative and collaborative. Inclusive design is a design process that is not just about accessibility, but also about usability, and it is a design process that is not just about the product, but also about the user experience. Inclusive design is a design process that is not just about the user, but also about the community, and it is a design process that is not just about the present, but also about the future.



How do we do inclusivity as designers?

An inclusive design process is a design process that is centered on the needs of the most vulnerable users, and it is a design process that is iterative and collaborative. Inclusive design is a design process that is not just about accessibility, but also about usability, and it is a design process that is not just about the product, but also about the user experience. Inclusive design is a design process that is not just about the user, but also about the community, and it is a design process that is not just about the present, but also about the future.

Step 1: Awareness

Step 2: Application to Design

Step 3: Reflection

[Learn More...](#)

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Upcoming Events

These events include TU Delft and other world-wide events:

Web Accessibility in Mind October 10 17h Learn More...	inclusive design? October 16 17h Learn More...	TU Delft Inclusive Design Week October 17 17h Learn More...
Let's talk about discrimination! October 16 17h Learn More...	Designers share their inclusive experiences November 16 17h Learn More...	UXILCONF November 16 17h Learn More...

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A collection of tools, tips and resources for designers to implement in the design process

It is important to first carry out an awareness stage to uncover the unconscious biases we all have. After we can implement the tools and tips provided.

Why is this important?

If we don't understand the biases that affect us and how they influence our design practice, we will continue creating unintentional exclusion of individuals. Those individuals can suffer from emotional and physical distress, as well as discrimination from people and the social and political system. By creating exclusion and bias, we can perpetuate stereotypes, which can lead to proprietary systems, marginalization and communication like systemic racism.

How do we uncover our unconscious biases?

According to Maheshwari (2017), a Harvard professor who studies biases, and her book "Blind Spot" the following 5 points will help uncover unconscious biases:

- 1. Acknowledge potential for bias.** It is important to understand that the brain has tendencies towards biases that we have collected throughout our lives and interactions with different environments. These tendencies are not always conscious, and in the way we design. Here are some examples of biases:

Affinity Bias	Attribution Bias	Recency Bias
Conformity Bias	Confirmation Bias	Halo Effect
- 2. Be wary of first impressions.** When we first meet someone, there are a couple of microseconds where we have to make a decision about how likable the person is based on visual cues like their look, dress, and style. This is based on our previous experience that we have had with people with similar characteristics, even if it has nothing to do with the person you are meeting.
- 3. Learn about stereotypes.** We have to look at how our stereotypes look. For example, if you imagine yourself going into a cafe, you can't imagine with their hair sitting at a table on your left. A business executive working on their computer on your right, and the barista in front of you. Stop and take a second to observe those people in the cafe, how did you categorize a couple of seconds ago? What were their cues? gender? What was the gender of the barista behind the counter? What was the race of the barista? Depending on your past experiences and your biases this answers may differ. Nevertheless, it is accurate like this, many people don't consider that the couple may be homosexual and if an individual is a business person may be a Black Woman, and the barista may be an Asian man. This is because we have stereotypes for everything and we need to unlearn these as the world is becoming more diverse and heterogeneous and changing value.
- 4. Breaken your focus.** When we design many times we get fixated on an idea and certain assumptions. These can bleed out from the actual reality as we tend to see what we expect and want to see.
- 5. Engage yourself in other experiences.** If you engage in activities that are new to you, we are familiar with, we can learn from these and change them into a better experience. This helps recognize the biases that we may have and break them down by seeing other realities.

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We need to uncover our own unconscious biases

What is unconscious or implicit bias?

According to the office of diversity and inclusion of the university of California system, unconscious biases are social stereotypes about certain groups of people that are formed from our own conscious awareness. Every year, folks experience biases when various social identity groups, and these biases stem from our's tendency to organize social words by categorizing.

Why is this important?

If we don't understand the biases that affect us and how they influence our design practice, we will continue creating unintentional exclusion of individuals. Those individuals can suffer from emotional and physical distress, as well as discrimination from people and the social and political system. By creating exclusion and bias, we can perpetuate stereotypes, which can lead to proprietary systems, marginalization and communication like systemic racism.

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- 3. Learn about stereotypes.** We have to look at how our stereotypes look. For example, if you imagine yourself going into a cafe, you can't imagine with their hair sitting at a table on your left. A business executive working on their computer on your right, and the barista in front of you. Stop and take a second to observe those people in the cafe, how did you categorize a couple of seconds ago? What were their cues? gender? What was the gender of the barista behind the counter? What was the race of the barista? Depending on your past experiences and your biases this answers may differ. Nevertheless, it is accurate like this, many people don't consider that the couple may be homosexual and if an individual is a business person may be a Black Woman, and the barista may be an Asian man. This is because we have stereotypes for everything and we need to unlearn these as the world is becoming more diverse and heterogeneous and changing value.
- 4. Breaken your focus.** When we design many times we get fixated on an idea and certain assumptions. These can bleed out from the actual reality as we tend to see what we expect and want to see.
- 5. Engage yourself in other experiences.** If you engage in activities that are new to you, we are familiar with, we can learn from these and change them into a better experience. This helps recognize the biases that we may have and break them down by seeing other realities.

How to integrate inclusivity in our designs

Before we begin integrating inclusive practices into the design process:

- Don't be afraid to make mistakes. Everyone makes mistakes and accepting for inclusivity is a learning process. Own up to your mistakes, take appropriate action, learn from them and move on (UX engineer).
- Don't be alone. You can't build an inclusive research practice on your own, and certainly not in one day. Starting with inclusion can be challenging. Find like-minded friends, colleagues that are also interested in the topic and discuss your thoughts, struggles, changes, etc. (UX engineer)
- Break down your efforts into smaller chunks. Take it one step at a time (e.g. start with creating an accessibility statement or writing an accessibility audit). Look for tips
- Ensure that marginalized communities are involved (in planning, facilitating and synthesizing research studies. (UX engineer)
- Encourage breadth of opinions and experiences, but ensure every design decision you make is based on that, and that you include it in the design. It's better said that you do. Do it by involving the diversity of groups for advocating for accessibility, inclusion and social justice online. (Tim Galati)

By entering those that have been mentioned in the research phase, we are providing broader experiences, and services that serve more people and do more harm.

...Jacquelyn Yarnham

Learning and researching

It is important to reflect on the users you are going to approach, how you are planning on doing that, the diversity of this user group and asking the relevant questions:

- Do you evaluate your recruitment practices. Make an effort to recruit users for mild cognitive and groups. (Nicola)

What can we do to be more inclusive during the research phase of a project?

It is important to reflect on the users you are going to approach, how you are planning on doing that, the diversity of this user group and asking the relevant questions:

- Do you evaluate your recruitment practices. Make an effort to recruit users for mild cognitive and groups. (Nicola)

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The faculty of Industrial Design Engineering (IDE) encourages projects with the aim to explore and implement inclusivity

Find new projects previously done by students that integrate inclusivity and may be used as source of inspiration to create inclusivity in the design process

Outlook 2020 Dive into the future Learn More...	COEVOLVE 2020 COEVOLVE: a design process towards... Learn More...	Outlook 2020 Designing a more inclusive... Learn More...	Outlook 2020 Baggage of aircraft... Learn More...
Outlook 2020 Beige by Default: The issue of skin tone... Learn More...	Outlook 2020 Designing Outdoor Inclusion Learn More...	Outlook 2020 I Love You, I Love You Not Learn More...	

Graduation opportunities with inclusivity topics:

Master's Thesis 2021 Outlook 2021 Alderson's perspective on... Learn More...
--

Teachers that are actively working on inclusivity at IDE:

Sjoerd van't Hof Delft	Arminiek van Rooijen Delft	David Aronson Delft	Ilana Choukroun Delft
Elfi Ocasio-Vieira Delft	Laura Baarends Delft	Maria Lucia Lupetti Delft	Melissa van der Bijl Delft
Nico de Groot Delft	Silke Boets Delft		

Network & Partners from TU Delft

AI Laboratory & Design+Communication	DEWAVE	CDT	ICE
Loran	Outback	Student Collaborator	Twee UJ

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External Resources to grow more awareness and learn about inclusivity

Here is a list of resources gathered that may help:

Blog and Vlogs	Video Talks	Podcasts	Courses	Online Resources
Stock Images	Design Communities	Books		

Fighting Talk Inclusive Communication: Edo Buijs-Abing Learn More...	Genma Helper Accessibility Learn More...	Hallo Justice Accessibility Learn More...	Inclusivity Apple Developer Learn More...
Inclusive Design 24 Kit24 Learn More...	Part of a Whole Kit24 Learn More...	People Needs Apple Developer Learn More...	Inclusive Design User Interface Apple Developer Learn More...
Diaphanie Walter UX Research and Design Blog Learn More...	WCAG Web Accessibility Initiative (WAI) Learn More...	Jan Meelissen Consulting Inclusivity Learn More...	

Blog

Use posts to share the perspective from designers, users, and educators in the field of inclusivity. Feel free to send in your own suggestions!

[Send a blog post](#)

UXILCONF
How to design for ethnic or racial inclusivity
[Learn More...](#)

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You would like to get in contact with us to recommend us material, resources, a blog or other useful feedback. Fill in the following:

Name:

Position:

What address:

Message:

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Version 2 of the platform

This screenshot shows the top section of the platform's main page. It features a navigation bar with 'Home', 'Resources', 'Events', 'Blog', and 'About'. The main heading is 'A collection of tools, tips and resources for designer's to implement in the design process'. Below this, there is a sub-heading 'It is important to test carry out an awareness stage to uncover the unconscious biases we all have. After we can implement the tools and tips provided'. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'How do we do inclusivity as designers?' page. It includes a navigation bar and a main heading. The content is organized into three steps: Step 1: Awareness, Step 2: Application to Design, and Step 3: Reflection. A 'Learn More' link is provided. The page also features a 'Share this event!' button and a 'TU Delft' logo.

This screenshot shows the 'Get your Awareness for unconscious biases with the following activity' page. It features a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'How to integrate inclusivity in our designs' page. It includes a navigation bar and a main heading. The content is organized into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot shows the 'External Resources to grow more awareness and learn about inclusivity' page. It features a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'Blog and Video' page. It includes a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot shows the 'Here are some definitions that can help in discussions about inclusivity' page. It features a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'The faculty of Industrial Design Engineering (IDE) encourages projects with the aim to explore and implement inclusivity' page. It includes a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot shows the 'Blogs' page. It features a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'What can you do to create inclusivity?' page. It includes a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot shows the 'Get involved with our community!' page. It features a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

This screenshot displays the 'Teachers that are actively working on inclusivity at IDE' page. It includes a navigation bar and a main heading. The page is divided into three steps: Step 1: Create Awareness, Step 2: Consider how the Design Process, and Step 3: Reflect on your actions. A 'Why is this important?' section follows, explaining the benefits of inclusive design. The page concludes with 'Upcoming Events' and a 'Share this event!' button.

9.6 The design process of the awareness activity

As mentioned in the previous section, I developed an activity that aims to create awareness of unconscious biases that may shape the designer and, consequently, their designs. Learning about one's personal unconscious biases is the first step to learning about inclusivity, as it teaches the designer what they are prone to do and the groups of users they are prone to exclude (Designer Interviews, 2021). As many sources imply, the first step for either experienced or non experienced inclusivity designers is to learn about oneself (Designer Interviews, 2021) (Pervall, 2022) (DavidsonMorris, 2021). Additionally, no open source found throughout the project gives the opportunity for users to reflect about their biases. The only material found on the matter are tests to "test your own biases" such as those created by the Harvard Implicit Project (ProjectImplicit, n.d.). Nevertheless, inspiration has been drawn from company workshops such as internal workshops done by Lizza Kempe at KOOS service design (Designer Interviews, 2022), a workshop done by DEI facilitator Rebecca Baugh (these workshops cannot be disclosed due to non-disclosure agreements done with the parties involved) (Baugh, 2022) and a TEDTalk done by Valerie Alexander (TEDxPasadena, 2018).

How do we raise awareness?

According to Cindy Jantji, the Johari window model is used in the new IDE Bachelor elective course called "Design Didactics" (Jantji, 2021). This model was designed in 1955 by psychologists Joseph Luft and Harrington Ingham to understand and enhance the knowledge between members in a group. Today it is still used by many in companies. This model is based on two ideas: trust can be acquired by revealing information about you to others; and learning about yourselves from their feedbacks (Luft, J. & Ingham, H., 1961). Figure 44 shows the Johari model through four quadrants, each quadrant portrays how personal information is known or unknown to oneself and whether it is known to others. Quadrant 1 is known as open/self-area or arena which is where all the information about a person is known by the person itself and others. Quadrant 2 is the blind self or blind spot which is the information about oneself that others are aware of but one is still unaware of. Quadrant 3 is called hidden area or facade which portrays the information that is known to oneself but is kept unknown from

the rest. Quadrant 4 is called the unknown which is the information that one is unaware of as well as the rest. These quadrants are dynamic therefore the more the open area or arena gets, the less blind spot, hidden facade and unknown. One can increase their open area by asking feedback to others and by learning more about oneself.

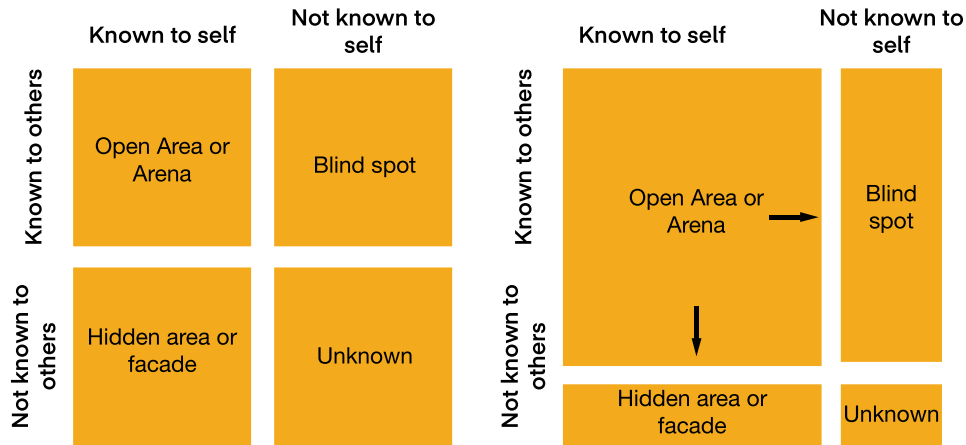


Figure 44. On the left, the Johari window model. On the right, the Johari window model once increasing the open area or arena.

The ultimate aim for the awareness activity is the same as the Johari window, gain more open area or arena and reduce the blind spots, the hidden areas and the unknown. The process to do so can be compared to the model developed by Alain Morin, who studied and compared nine neurocognitive models to highlight points of convergence and divergence (Morin, 2006). As seen in figure 45, Morin distinguishes 4 levels: The unconsciousness which is where one is being non-responsive to self and environment in level 1. Level 2 is the consciousness which focuses attention on the environment and processing incoming external stimuli. Level 3 is self-awareness which focuses attention on one-self and processing private & public self-information. Lastly, level 4 is meta-self-awareness which is being aware that one is self-aware.

These 4 levels would be the ultimate guide to awareness in inclusivity: first, we are all in an unconscious state until we are pointed out that inclusivity is important. This will guide us to level 2, being conscious and aware of the environment we are in. Afterwards, something needs to trigger us to focus the attention on ourselves to start reflecting on oneself. Lastly, the users that are completely self-aware, reach level 4, meta-self-awareness (which will come from repetition and experience).

Levels	Definition	Related concepts
Meta-self-awareness	Being aware that one is self-aware	<ul style="list-style-type: none"> Consciousness5 Extended self
Self-awareness	Focusing attention on self; processing private & public self-information	<ul style="list-style-type: none"> Consciousness4 Extended & private self Symbolic level Meta-representational self-consciousness Conceptual self-consciousness Self-concept Reflective, recursive, self and meta-consciousness
Consciousness	Focusing attention on the environment; processing incoming external stimuli	<ul style="list-style-type: none"> Non-conscious mind Ecological & interpersonal self Neocortical level Consciousness3-6 Sensorimotor awareness Core, peripheral, primary & minimal consciousness
Unconsciousness	Being non-responsive to self and environment	<ul style="list-style-type: none"> Consciousness6 Non-consciousness Arousal Limbic stage Sensorimotor cognition

Figure 45. Morin consciousness model (Morin, 2006).

Ideation process

Taking the previous mentioned resources as guidance, it was clear to me the need to have several steps in the process of awareness. These steps would represent the different levels mentioned by Morin, which the user needs to take to dive deeper into oneself.

Both Kempe and Baugh used examples to open up the discussion and conversation of inclusivity (Baugh, 2022) (Designer Interviews, 2022). Additionally, Alexander used an imaginary situation to start the TEDTalk and to end the talk. This imaginary situation would change as the listeners gathered more information throughout the TED talk (TEDxPasadena, 2018). As Viki Pavlic advises when trying to pitch an idea and gain interest from the target group, the first step is to “hook” the readers (Pavlic, n.d.). This hook needs to be insightful yet triggering to encourage the user to continue reading and carrying out the exercise. As an observation from Kempe, Baugh and Alexander, is that it adds value for users to analyze themselves before starting the activity, as at the end they will be able to compare what they thought of in the beginning of the activity and how it changed by the end of the activity. Therefore, with step 1, and with reference to the Morin model, the user will transition to the conscious level and they will need to reflect on own practices.

Sources such as CohenMiller, Kempe, and the Racial Equity tools, among others, suggest a moment of learning the concepts that are involved in the topic at hand (CohenMiller et al., 2017)(Designer Interviews, 2022)(RacialEquityTool, 2020). Furthermore, once the concepts at hand are learned (in this case the types of subconscious biases in design) the user must reflect upon them to identify which biases shown are correspondent to them. Therefore, step 2 of the process is to give them a tool or list of the possible biases that can help the user identify their biases and reflect upon them. This relates to the transition between the conscious level to self-awareness.

As only one step of reflection will not be enough for the user to acknowledge what biases are and how they come into play, especially if the activity is done alone, it is essential to give a case to study where biases are involved. An assumption was made here: by analyzing someone else's actions, one can further deepen their knowledge in the topic. This assumption rises from the concept of "The Negativity Instinct" which describes the tendency to notice something bad more than the good (Sridharan, M., 2022). This comes into play most often when we interact with someone else. Therefore, an example was taken that reflected ethnic and racial discrimination (one of the examples analysed in Part 3). Questions regarding the biases involved and the intent of the designer are asked. The intent of the designer also comes into play (as seen in Part 7) since the next step to learning about one's biases would be the reality of the designer's intention versus the outcome. Therefore, by introducing the topic, the user is already starting to be sensitized to the next topic that needs to be learned: inclusivity.

At this point, I assumed that the users would have already gained self-awareness as not only does it follow the model proposed by Morin and it compares to the Johari window model, but also users will have learned how some of their biases play a role in their design practice. For this reason, together with the time limit, the activity should take shouldn't exceed the hour (as the attention span of the user can be limited, the last step to take is a reflection). Awareness studies include a reflection and iteration as last step in order identify the knowledge gained and to progress in the topic of awareness (A.S. CohenMiller et al., 2017). Additionally, it is the iterative self-reflection and self-awareness that the user will reach the final level of awareness: meta-self-awareness.

Therefore, the main steps that were identified and its research questions can be found in figure 47. These steps are comparable to the racial equity tools developed in joint effort by MP Associates, Center for Assesment and Policy Development and World Trust Educational Services (RacialEquityTool, 2020), all working towards Racial Equity (figure 46). As designing for inclusion is an iterative process it is essential to do these steps several times, as the users may find new biases and learn new aspects of themselves.



Racial Equity Tools supports everyone working to achieve racial equity.

Figure 46. The process the Racial Equity Tools platform suggests for users (RacialEquityTool, 2020).



Figure 47. Step process integrated in the awareness activity with its corresponding questions.

The activity

The activity was designed to be part of the website but also be a printable activity for the workshops or to be done with friends/colleagues. The activity is divided into 4 parts as mentioned previously, and has an introduction section (figure 48) to express the purpose of the activity, the importance of the activity and how it should be carried out.

The design of the parts all include an introduction section to ensure the user guidance to actions that need to be carried out. This reduces the chance of questions that arise from the users, that would prevent the activity to be done correctly. Additionally, each section has a different color to create a separation between the parts. The questions created for users to reflect upon are of two types: one type of questions are to be answered in an objective matter, and another type of questions are to be used as introspection and therefore are subjective. Questions to be objective, are designed to be in a plain rounded box (roundness is encouraged as the topic of awareness and self reflection are delicate topics therefore, the roundness provides a safer space, rather than angular corners). Questions to be subjective are in thought bubbles, and an icon of a person would be included to alude to the user to see themselves represented.

Creating awareness about implicit biases

As the title suggests, this activity is in order to create awareness about our personal implicit biases.

What are implicit biases?
Unconscious or implicit biases are social stereotypes about certain groups of people that individuals form outside their own conscious awareness.

What should you do in this activity?
There are 4 parts to the activity. First there is a test to understand what possible biases you may have. Then you learn about the possible biases that there can be and reflect on your own practices. Thirdly, an example will be analyzed with regards to the biases you have previously read. Fourth and finally, a reflection on the session is done in order to conclude the learnings of the session. The activity takes around an hour, therefore, please take your time to do it.

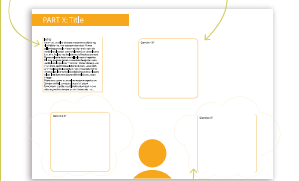
Why should I do this activity?
Everyday people are excluded from product we designers create. Many of us do this as an unconscious act, as we design products based on our knowledge and experience. Nevertheless, our knowledge and experiences don't portray all the knowledge that is out in the world. For this reason we need to understand how our experiences affect our designs. The first step every designer can do to understand why we are excluding people unconsciously is to dive within our personal biases. This activity will help you identify these so that next time you are designing, you can understand and change how they will shape your design.

Should I do this activity alone or with others?
This activity has been designed to be done primarily to be done alone, yet could be done in groups. If you do it alone I encourage you to take your time to reflect on yourself and carry out each step with consistency. If you do it with others, try to do it in a group no larger than 3-4 people, as it will require more time to speak out about own experiences and opinions.

How to work with the templates?

There is an introduction to each part that explains and gives the information for the corresponding part. Links to external resources are also included in this, therefore, if you print these templates, please make sure you will need a computer or phone to access the link.

Questions in a rounded box are questions to be answered objectively. These questions don't require you to go into your own experiences.



Questions in a thought bubble which will be around a person simulating you are questions that you will need to think about yourself and dive within your own thoughts and experiences. Take your time to think about them and go into your memories.



Figure 48. The introduction to the awareness activity for users to read.

Step 1: Implicit bias test

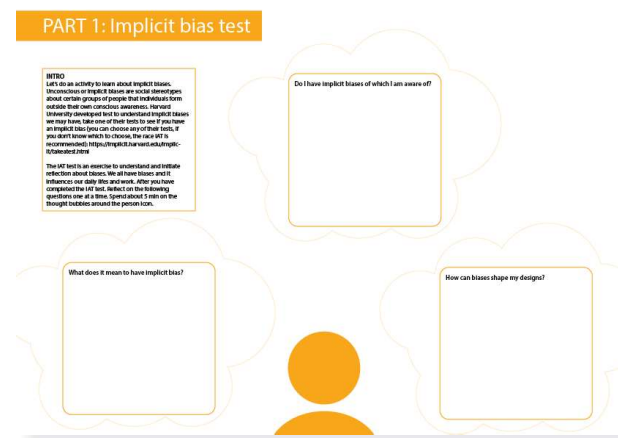


Figure 49. Step 1 of the awareness activity.

As mentioned previously, the first step is to gain consciousness of biases (figure 49). This action needs to 'hook' the user, it needs to gain their interest in the topic. I choose to include a implicit bias test done by the Harvard Implicit Project. There are several tests provided by this project, yet they all seem to have controversy as to its validity as seen in Part 8. I found it interesting to include in the project as I assumed it would either trigger people because one can question its validity or it would just encourage people to think about biases they may have. Therefore, I found it as the ideal example to open the activity as it:

- Introduces the topic of biases
- Triggers or encourages users to continue finding information about biases

Additionally, 3 reflective questions are added to test the initial knowledge of the user. Mainly inspired from the TEDTalk from Alexander, and the assumption that by identifying the user's initial state of awareness in implicit biases, at the end they will be able to compare their progress from before the activity to the last part of the activity and identify their awareness and learning progress.

Step 2: Let's learn about biases in design!

PART 2: Let's learn about biases in design!

INTRO
Everyone holds unconscious beliefs about various social and identity groups, and these beliefs stem from our tendency to organize social worlds by categorizing. Only you can uncover these and improve you design the design.

All designers have biases, and biases can take place at any point in the design process. Here is a list of biases grouped to the stages of the design process in which they can take place. Please read through them to gain the insights that will help you.

Take your time to read through them and identify which you have experienced.

What biases do I associate to the most?

How have these specific biases shaped my design?

When in the design process these appear?

Figure 50. Step 2 of the awareness activity.

In step 2, seen in figure 50, the aim is to gain depth of knowledge into personal biases and analyse when they appear in order for a future design scenario to avoid or prevent the same biases to act similarly. Therefore, the user in step 2 is provided a list of biases with which they could identify with. Due to time and lack of knowledge depth in biases, I opted to find a source which included a list of implicit biases that were already grouped in different categories. These categories needed to be related to design. For this reason, I chose to use the list created by Stéphanie Walter, Laurence Vagner, Geoffrey Crofte (Walter, S. et al, n.d.). This list divides the unconscious biases in the following categories:

- Decision-making & behavior
- Thinking & problem solving
- Memories & recalling
- Interview & user testing
- Team work, social & meetings

These categories are relatable to the Basic Design Cycle as decision making & behavior can be found in the synthesise phase of design; thinking & problem

solving in the simulating phase of design; memories & recalling in the analysing phase of design; interview & user testing in the evaluating phase of design; and team work, social & meetings is the only one that relates to group work and does not relate to the Basic Design Cycle. Although this last category is not relatable to the Basic Design Cycle, many of the projects done at university and the majority of design projects, as a professional designers, entail working in teams, therefore, this category continued to deem useful.

Lastly, the following assumption guided me to formulate the introspective questions: By learning personal biases, learning how they have shaped personal designs and identifying when in the design process they take place; the user will be able to identify them next time they appear in the design process and they will be able to drive away from them or prevent them.

Step 3: Let's take an example...

PART 3: Let's take an example...

INTRO
Did you know that some government websites are discriminatory? Same Owusu is unable to upload an image of herself to update her passport because the website AI believes that her mouth looks open in the picture. There are many ways the designer could have prevented this situation like for example by prototyping with a more diverse group of users.

result
Your photo
Your photo doesn't meet all the rules and is unlikely to be suitable for a new passport.
Find out the reason for this result
It looks like your mouth is open

What is the cause of this problem?

What was the intention of the designer? Do you think that they designed it like this on purpose?

Which of the previous biases can have been of influence in this situation?

What effect did these biases have on this scenario?

Figure 51. Step 3 of the awareness activity.

Step 3 is aimed to further deepen and understand how biases affect design. For this reason, an example was used to show the user a tangible case of how biases came back in design (figure 51). This example was chosen as it is one of the use cases analyzed in this report. The difficulty of this example couldn't be too high as it needed to be understood, at least, by university Master students. Therefore, I chose the example that didn't involve the human factor (as I defined in Part 3 of this project, only type 1 from the conceptual models of digital platforms do not include the human factor). Therefore, it would be best to start with a simple example like this one. If there were more versions of this activity, I would encourage the use of the other use cases that include the human factor as example in order to dive deeper into the reflection, which will require higher difficulty levels.

As students may perceive the cause of the problem in the example to be different, it is important for the reflection to know which problem is being analysed. Consequently, this problem is analysed by possible biases that could have taken place. Additionally, how biases may have shaped the design and therefore, the problem is also identified. This reflection allows the user to understand how biases can result in tangible problems and not just a reflective exercise. Additionally, as mentioned in Part 7, the next step to awareness would entail learning about the difference between intention of the designer and the outcome of the design. Therefore, a question was included in this exercise in order for the user to start being sensitized to the topic.

This step was mainly based on the following assumption: by analysing a tangible example, users will be able to gain deeper understanding of how biases can play a role in the outcome of a design.

Step 4: Reflection

PART 4: Reflection

INTRO
As you may see, there is an importance in the unconscious biases, privileges, and intentions a designer may have, as it greatly affects every product they design.
Lastly, reflect on what you have learned today:

Can you think of situations where you have designed something and it didn't result in the intention you initially had? Why didn't it? What influenced the process and the outcome? How did your personal biases influence the design?

How has learning about these biases changed your approach to design?

CONCLUSION
Products can be designed with good intentions yet many times the outcome is different than expected and consequently exclude many users. The same goes to designing without knowing of unconscious biases, a designer may be constantly trying to prove a problem that actually does not exist, yet through confirmation bias, they find only resources that may prove its existence. Nevertheless, uncovering our unconscious biases and our privileges isn't just a one-time thing, it's a process that needs to happen regularly. It is important to think of these biases while designing your next design (either it is a physical or digital product, or if it is a strategy, etc) and even your daily life. The Institute encourages you to come back after a couple of weeks, in order to:
- understand if anything has changed
- if you have found more biases
- if you have seen other peoples biases influence their designs.

Figure 52. Step 4 of the awareness activity.

At the start of Step 4, the user has already reached level 3 on the Morin model: self-awareness, but in order to understand and fully integrate what some of their biases are, they need to reflect on it. By reflecting on how biases appeared in a previous project carried out, users would be able to pin-point a specific moment in time where their bias took place. By pin-pointing this moment, the next time the moment, or a similar one, occurs, they will be able to be triggered to think differently as they know a bias is taking place and they have seen how it affects their design. Additionally, to consciously identify how these biases play a role in design, they are asked to reflect on how the learnings of this activity will change the way they design.

This reflection seen in figure 52, is based on the assumption that users will learn about biases, meaning that they will grow awareness with this activity.

9.7 The design process of the guideline

As consequence of growing awareness for personal biases, students and staff need an aid to know how they can carry out design with an inclusive perspective. As mentioned in the previous section, I developed a guideline for inclusive imagery. Nevertheless, this guideline does not only give guidance to its users but also it is set as an example to follow for more guidelines to be done to encourage inclusivity perspectives.

Building inclusivity guidelines is a challenge, as there is no one way to achieve inclusivity and inclusivity is different in every project and context. Nevertheless, it is important for designers to take responsibility for their actions in design. Antionette Carrol, a Social Entrepreneur, Equity Designer, International Speaker and Educator, and Diversity, Equity, and Inclusion Specialist mentions the following in the podcast Tech Wrap Queen: “We need to hold ourselves accountable for the impact of what we are creating and producing and not just saying I had the best intent” (Reid, R., 2021). Carrol emphasizes the need to take responsibility for our own actions as designers. How can we do this? I have assumed that one of the first steps for designers to take responsibility for their actions is to admit who is included and who is excluded in their work. By admitting this, we can be a step closer towards carrying out inclusivity.

A designer dilemma which I came across throughout this thesis is the aspects that make an image inclusive or not. The interviews from Part 3 discussed the dilemma with racially and ethnically diverse people, which together with more desktop research gave enough insights to create a first version of a guideline that could help other students and staff in the situation where they are unaware if their image is inclusive or not.

To create the guidelines, I carried out desktop research on the topic of representation and inclusivity. I was able to reach 10 research papers which provided overlapping conclusions on important aspects to take into consideration in representation of people in images. Consequently, I translated these conclusions into guidelines. For example, Low, S.M. et al conclude with their research the following: “We conclude that cultural representation in urban parks is fundamental to their use and maintenance by local groups.” (Low, S. M., Taplin, D., Scheld, S., & Fisher, T., 2002). I have translated this conclusion into the following guideline: Does the image represent a different reality of the situation trying to be portrayed? If so, what is the desired message you want to convey in this reality? These two questions will allow students and staff to reflect on the importance of the representation in the reality that the image is trying to portray and be responsible for portraying that reality. Another example is the conclusion gathered from

Klein, H. and Schiffman, K.S. who analysed the representation of diversity of age, gender, sexual orientation and race in animated cartoons. They concluded the following: "The data revealed that animated cartoons have a long history of underrepresenting and symbolically annihilating socially devalued "out groups" and that little has changed over the course of the past 65+ years." (Klein, H & Schiffman, K.S, 2009). I proceeded to convert this conclusion into the following guideline: 'Does this image perpetuate or promote stereotypes of people and/or culture? If so, how does this affect the purpose of your image? Which stereotypes? How does it affect the people affiliated to this image and those who are not affiliated to this image?'. This allows students and staff to reflect on stereotypes and how they are perpetuated through our projects. Find the conclusions of these papers and their transformation into guidelines in Appendix F.

The guidelines were initially inspired by the Ethics Checklist developed by the IDE faculty. Nevertheless, the guidelines would be shorter and more concise as there is the limitation of time and attention span from the target group. Yet the guidelines also need to spark reflection the minds of the target group. For this reason, each guideline is grouped in different sections due to their relation, therefore, there are 4 main categories:

- Representation of the people and atmosphere in the image
- Favoring a culture or people more than others
- The layout of the image
- Testing the image

These sections are ordered in a way for the target group to focus on the different parts of the picture (figure 53). First, they focus on the portrayal of the reality that the image is conveying. Secondly, they focus on the people inside the image. Thirdly, the focus is on the layout in which people and objects are placed in an image. Lastly, their attention is set on the value of testing an image to see different ways the image can be interpreted.

In addition, an initial step is added for the target group to identify what they are aiming to achieve with the image and what they want to portray in the image.

Each question is an closed ended question, for time purposes. Yet they are formulated in way that they are easier to understand and they have follow up questions which are open ended depending on their answer. These open questions will allow for the target group to reflect deeper into their selection of image and the representation within the image.

Sources		Follow-up questions	
Aim of the image and the target group			
What is your target group?			
Do you have a demographic research on the target group?			
Representation of the people and atmosphere in the aim of the picture			
Does the image represent a different reality of the situation trying to be portrayed?	(Low, S. M., Taplin, D., Scheld, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)		If yes: What is the desired message you want to convey in this reality?
Does the image look like it was staged?	(Low, S. M., Taplin, D., Scheld, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)		If yes: What could be the problem is it is staged?
Favoring a culture or people more than others			
Does the image favor a specific race, age, gender, ability, body type, economical status or other minority group?	(Treweek, S., Banister, K., Bower, P. et al, 2021)		If yes: Is there a specific reason why? Is your target group fully represented in this image? Are you including other images to fully represent the diversity of your target group?
Are you excluding anyone in your target group?	(Treweek, S., Banister, K., Bower, P. et al, 2021)		Does this align with your aim? From your target group, who is prone to be excluded? Who is excluded in this image?
Does this image perpetuate or promote stereotypes of people and/or culture?	(Hugh Klein, Kenneth S. Schiffman, 2009) (Coleman, R. R., & Yochim, E. A. C., 2008)		If yes: How does this affect the purpose of your image? What stereotypes? How does it affect the ones affiliated to this image and those who are not affiliated to this image?
The layout of the image			
Does this image ridicule the reality you are trying to portray?	Gutsche, R. E., Cong, X., Pan, F., Sun, Y., & DeLoach, L. (2022).		Does the image make use of hashtags or humor to reduce the seriousness of an inclusivity topic?
Does this image portray a particular person or culture has more power than the rest?	(Craig, R.L., 1991)		If yes: How is the distribution of power displayed in this image?
Testing			
Were you able to test this image?	(Dickson, T.J. 2015)		With whom? How diverse was your testing group?
As result of the testing, does this image portray a different aim than you intended?	(Dickson, T.J. 2015)		

Figure 53. The list of guidelines set as questions for target group to reflect with sources (Low, S. M., Taplin, D., Scheld, S., & Fisher, T., 2002) (De Waard, I., & Zolfo, M., 2009) (Andalibi, N., 2021)(Treweek, S., Banister, K., Bower, P. et al, 2021) (Klein,H., and Schiffman,K.S., 2009) (Coleman, R. R., & Yochim, E. A. C., 2008) Gutsche, R. E., Cong, X., Pan, F., Sun, Y., & DeLoach, L. (2022) (Craig, R.L., 1991) (Dickson, T.J. et al, 2016).

Part 10: Evaluation

This chapter portrays the evaluation aim, procedure and outcomes of the Delft Inclusive Design platform, the awareness activity for unconscious biases and the guidelines to choosing inclusive imagery. These three components were evaluated with the help of 6 staff members and 19 students from the IDE faculty from TU Delft. The evaluation of the Delft Inclusive Design platform entails a questionnaire among 13 IDE students, and an interview of 2 staff members. The awareness activity was evaluated with a three-session interviews among 6 IDE students. Additionally, these same 6 students were used to evaluate the guidelines through interviews. The evaluation of the guidelines also entailed 4 interviews with staff members of the IDE faculty. The insights of this evaluation as well a discussion of the results are included in this chapter. Furthermore, a section including recommendations for further improvements have been added. Lastly, the chapter ends with my personal reflection on the thesis.

10.1 Concept evaluation of the website

Setup

The interviewees for this activity are mainly students and staff as they are the target group for the platform. The DID platform was evaluated with a questionnaire and a prototype of the platform developed in the software Figma. This prototype provides the appearance and feel of the platform, more specific to the version 2 of the designed platform. The prototype was piloted by two students who tested the readability and navigation of the website. The pilot exercise allowed for several questions to be adjusted and several likert scales to be adapted.

Throughout the questionnaire, I noticed the lack of answers from the IDE staff therefore, I choose to test the website with two staff members from the faculty through means of interviews.

The questionnaire was shared through various WhatsApp groups of Master students. The questionnaire was open for 3 weeks, which led to the response rate of 2.15 (28 students started the questionnaire but only 13 finished it). The interview with staff was done among 2 staff members. These two staff members are involved in the DXI inclusivity staff collective in the IDE faculty.

Aspects of evaluation

Both in the questionnaire for students and in the interview for teachers, the different parts of the website were tested in terms of desirability. Testing the desirability of the functionalities of the website entailed the aim of the website, its guidelines, its stories about inclusivity, and its community. Also the attitude towards this platform was tested by identifying the emotions that are associated to them as well as the personal opinion of the users. Thus, both included in the following questions:

- Interest - Does the website influence users to feel more interested towards inclusivity?
- Attitude - How do users feel about the website? Are they triggered to read more about the website?
- Relevance - Do users find it necessary to have a website as such? Is the community a need for the users?

- Curiosity - Do users want to know about more stories of exclusion in the faculty? In what way (talking or reading about it)?
- Willingness to contribute - Are users open to discuss personal stories about exclusion with rest of the faculty?
- Perceived usefulness - Are the guidelines for inclusivity deemed useful for the users?
- Effectiveness - Does this website raise awareness for inclusivity?

Insights

For the layout of the questionnaire, refer to Appendix G. Additionally, in Chapter 10.3 the results will be discussed.

Results of the questionnaire

Number of participants: 13

Age group: 23-26 y.o.

Professions: Students of design engineering

Gender: 1 Male, 12 Female, 1 N/A

Nationalities: 1 from America, 3 from Asian countries, and 9 from European countries (of which 5 are Dutch nationality).

It appears that almost all 13 students who answered the questionnaire were either slightly interested (5) or very interested (7) in the topic of inclusivity, except for 1 who wasn't interested at all (mean=3.39; from a 4 point likert scale). Overall, the reasoning participants gave for their answers were that they have been triggered by the inclusivity elective course at IDE, they have friends that belong to minority groups, or they see the importance of inclusivity in society.

When asked about their effort they put into inclusivity, 1 mentions they put no effort at all, 2 of them define that they put a little effort, 7 mention that they put a moderate amount, 2 mention a lot of effort, and 1 mentions a great deal (mean= 3; from a 5 point likertscale).

Once they are given access to the prototype and time to explore the platform, they evaluated their first impression as the following: 6 positive attributes, 4 negative attributes and 1 neutral attribute (out of 15 attributes: 7 positive, 7 negative and 1 neutral). Additionally, these attributes do not change with the course of the exploration.

After viewing the site, they are evaluated on their interest after seeing the platform: 1 continues to be uninterested, 1 mentions they are slightly uninterested, 6 mention they are slightly interested, and 5 mention they are very interested (mean=3; from a 4 point likertscale).

Lastly, 7 statements are evaluated on a likertscale for agreement/disagreement. Figure 54 portrays the results. The evaluation of these statements was carried out in a 5 point likertscale. The statement 'This website is necessary in order to promote more inclusive design practices within our faculty' has a mean of 3,54. The statement 'I want to discuss my experiences of discrimination and exclusion with my fellow members of the faculty (students and/or teachers)' has a mean of 3,54. The statement 'I want to hear out stories of discrimination and exclusion that other faculty members experience (students and/or teachers)' has a mean of 4,31. The statement 'I would like to read about discrimination and exclusion that faculty members experience (students and/or teachers).' has a mean of 4,45. The statement 'The resource and guidelines for inclusivity are useful to our faculty.' has a mean of 4,15. The statement 'Seeing this website has made me more aware of the importance of inclusive design practices.' has a mean of 3,38. Lastly, the statement 'I want to join the community for inclusivity.'" received a mean of 3,62.

#	Field	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	Total
1	This website is necessary in order to promote more inclusive design practices within our faculty.	0.00% 0	23.08% 3	23.08% 3	30.77% 4	23.08% 3	13
2	I want to discuss my experiences of discrimination and exclusion with my fellow members of the faculty (students and/or teachers).	7.69% 1	7.69% 1	30.77% 4	30.77% 4	23.08% 3	13
3	I want to hear out stories of discrimination and exclusion that other faculty members experience (students and/or teachers).	0.00% 0	7.69% 1	7.69% 1	30.77% 4	53.85% 7	13
4	I would like to read about discrimination and exclusion that faculty members experience (students and/or teachers).	0.00% 0	7.69% 1	7.69% 1	46.15% 6	38.46% 5	13
5	The resource and guidelines for inclusivity are useful to our faculty.	0.00% 0	15.38% 2	0.00% 0	38.46% 5	46.15% 6	13
6	Seeing this website has made me more aware of the importance of inclusive design practices.	15.38% 2	7.69% 1	15.38% 2	46.15% 6	15.38% 2	13
7	I want to join the community for inclusivity.	7.69% 1	7.69% 1	30.77% 4	23.08% 3	30.77% 4	13

Showing rows 1 - 7 of 7

Figure 54. Answers to statements from the questionnaire.

Results of the staff interviews

Two staff members were interviewed, and both are part of the staff inclusivity collective. Both staff members were asked to explore the prototype of the platform (Version 2 which did not include the imagery guideline). They both found the ideas behind the aim of the platform to provide value to the faculty. One staff member mentioned the importance of the 'actionable' aspects of the website and asked "What are the pathways that we are able to carry out?".

"I'm impressed, I really like it."
- Staff member 1

"I think we [the faculty] could very much benefit from this."
- Staff member 1

"I would see this as an awareness website not only for students but also educators and staff."
- Staff member 1

"I think its nice that there is an overlay between staff and students."
- Staff member 2

"It's good to be able to talk to people who also have this [an inclusive] mindset."
- Staff member 2

"This platform can also be for education."
- Staff member 2

"I like the examples shown. I think we are missing these examples"
- Staff member 1

10.2 Concept evaluation of the awareness activity

Setup

Awareness is defined in this project as a moment of learning, in other words, the state of bringing something from the unconscious to the conscious level, regarding the Morin model explained in Part 9.6. Therefore, as this awareness activity was aimed to create awareness therefore it was evaluated on whether it created new knowledge for the participants or not.

Studies on awareness in different topics suggest that short-term awareness results in significant improvements in knowledge (Magnusson, D. et al, 2017) (Landsman-Dijkstra, J., et al, 2004). Nevertheless, I wanted to know what the long lasting effect was. When discussing this evaluation with Baugh, given her experience as DEI facilitator, she suggested to test awareness of inclusivity in 3 phases: short-term, medium-term and long-term (Baugh, 2022). This proposes that interviewees will show improvement in knowledge at short-term. Yet at medium-term, this knowledge may have been forgotten or interviewees will not actively use the knowledge learned. If they are 'reminded' at this stage of the learnings they had previously, in a long-term they will actively use these learnings (figure 55). After all, **as seen throughout this project, inclusivity is a process.**

Therefore, the research was carried out in 3 sessions in order to test short-term awareness, medium-term awareness and long-term awareness. Each part of the research was separated by 2 weeks in order to give students the time to reflect and identify the influence of biases in their working environments.

Number of participants: 6

Age group: 23-26 y.o.

Professions: Students of design engineering

Gender: 2 Male, 2 Female, 2 LGBTQ+

Nationalities: 2 Dutch (of which one is 2nd Generation migrating Indonesian family), 1 from Dutch Colonies (Curacao) and 3 Internationals (American of 1st Generation and Vietnamese origin, Lithuanian national and Romanian national).

Session 1	
Provides: Information and Reflection	Raises awareness for implicit biases by providing information and creating reflection
	Focus on short term awareness
Session 2	
Provides: Evaluation and information	Creates reflection and evaluation of oneself and implicit biases
	Focus on medium term awareness which is assumed to be essential to long term awareness
Session 3	
Provides: Evaluation and information	Creates reflection and evaluation of oneself and implicit biases
	Focus on long term awareness which is assumed to be potentiated by session 2

Figure 55. Aims of each Session.

Aspects of evaluation

The overall aim of this evaluation is to test whether the activity provides new learnings about unconscious or implicit biases to participants. Additionally, the short-term, medium-term and long-term awareness is also tested. Thus, each part has a separate research aim.

For Session 1 the research questions are the following:

- Does the activity raise awareness in the short-term? In other words, does the user identify learning something new about their unconscious or implicit biases after the activity?
- Can they recognize how to improve in the coming design activities?

For Session 2 the research questions are the following:

- Do participants remember the unconscious biases that appeared during the activity?
- Have users implemented any of their learnings in the past 2 weeks?
- Can they recognize how to improve in the coming activities?

For Session 3 the research questions are the following (it is highly similar to Session 2):

- Do participants remember the unconscious biases that appeared during the activity?
- Have users implemented any of their learnings in the past 4 weeks?
- Can they recognize how to improve in the coming activities?

Procedure

The research was carried out in 3 sessions in order to test short-term awareness, medium-term awareness and long-term awareness. Each session of the research was separated by 2 weeks in order to give students the time to reflect and identify the influence of biases in their working environments. Figure 55 shows the aims and the actions provided in each Session.

Session 1

To mimic the nature of this activity to be done individually, zoom calls were set up with participants. These zoom allowed them to remain in their home environment, a space where they feel comfortable and where they are likely to carry out this exercise. The zoom call was programmed to last around 1.5 hours to 2 hours. The interviewee did not have prior knowledge on the activity or the topic at hand, and was not given any preparation for this task. This would allow the measurement of awareness to start from the moment the activity is initiated. The interview started with a small introduction into the activity and the 4 parts of the activity. This would diminish the chance that the interviewee may have questions that would be detrimental to the research. After the short introduction, the interviewees were left alone to do the activity. Once the interviewee was done with the activity, they would let me know they are done by text message and we would carry on with the online interview. The interviewee shared the answers they wrote down on the activity with me via email. Then the interviewee was asked to go through each part of the activity and answer the following questions:

- How do you feel the activity went?
- What do you think went well?
- What didn't go so well?

After each part was discussed, and the general activity was being discussed the following questions were asked:

- Did you learn anything new? If so, what?
- If you were to do this activity by yourself in your own time, would you carry it out?

These questions were asked with the means to understand if there is knowledge acquired through the activity, comparing the initial knowledge and the end knowledge. Additionally, the last question was asked to get a sincere response if the activity would be of appropriate time and was interesting and triggering enough initially to be carried out by oneself without the influence of others (for example, a teacher making the task a homework or a friend suggesting to do this activity). A **hypothesis is that part 1 of the activity will trigger participants to gain interest in the topic of inclusion.**

Session 2

Depending on the availability of the student, this research was either in an online or offline environment. This may pose as an influence to the results but it was considered to be of minimal influence. The participant was either invited to a Zoom call or to a faculty room and the interview was recorded. This interview was semi-structured leaving space for them to discuss their experiences over the past weeks. The nature of this interview was envisioned to last around 30 min,

depending on the respondents' input. The following questions were posed as guidance to the conversation:

- Are you able to recall some of the biases that appeared in the previous session? If so which?
- Have you been able to reflect in the past two weeks on the activity we did last time?
- Have you caught yourself thinking about your biases since? Maybe during a project or in your daily life?
- In what ways can you act upon these biases when you encounter them?

These questions were asked with the goal to understand if the awareness activity invited users to think more on inclusivity and spot their own biases throughout the two weeks. As mentioned earlier, this session would test the medium-term awareness and would act as a trigger to remember biases from the previous session. Therefore, it is a **hypothesis that participants will not be able to recall their implicit biases identified from the session 1.** Nevertheless, this session will help remember these implicit biases found in Session 1, and participants will be able to identify them in Session 3.

Session 3

Session 3 is very similar to Session 2 as they have the same research aims, and the factor being tested is how time affects awareness. Depending on the availability of the student, this research was either online or offline environment. This may constitute an influencing factor to the results but it was considered to be of minimal influence. The participant was either invited to a Zoom call or to a faculty room and the interview was recorded. This interview is semi structured leaving space for them to discuss their experiences over the past weeks. The nature of this interview was envisioned to last around 30 min, depending on the respondents' input. Similarly to Session 2, the following questions were posed as guidance to the conversation:

- Have you been able to reflect in the past two weeks on the activity we did last time?
- Do you remember what biases you identified in the previous session?
- Have you caught yourself thinking about your biases since last session? Maybe during a project or in your daily life?
- In what ways can you work around these biases when you encounter them?

It is a **hypothesis that these same questions from Session 3 will have a higher response rate than in Session 2** as the user has turned from a moment of unconsciousness to consciousness, according to the Morin model mentioned in Part 9.6.

Insights

The script of interviews can be found in Appendix G.

Session 1

From the 6 participants, 1 had already learned about biases. Yet, all 6 participants were able to recognize new biases that they were not aware of. 5 out of 6 participants, identified a past project where the recognized biases played a role.

The first part of the session triggered all users to think of their biases. 5 of the 6 participants doubted the validity of the Harvard Implicit Test as I had foreseen and described in Part 9.

During the second part of the session, all 6 participants were able to recognize new biases that they were not aware of. Even if one participant had already learned about biases, they also found new biases that influenced them.

In the third part of the session, all participants were able to recognize new biases and biases that also affected them personally. All 6 participants identified that the action of the designer in the example was unintentional, within the reasoning that it probably was caused by unconscious biases.

The fourth part of the session proved all 6 users had learned new knowledge on their implicit biases. 5 users were able to identify the importance of learning about personal biases.

When participants were asked about how the activity was experienced by them, they responded the following:

*"Like the part three and four. I didn't really have a hard time. Mm-hmm. , Um, it was just like the general questions on like, um, how biases can shape design and then like just, I think it's just mainly part one and two."
- Interviewee 1*

*"I didn't like that stupid test that the Harvard put together.(...) I felt like it was training me to think in a certain way." "I like that I feel like now I have a bit more structure and I like the exercise and also that I had to think like where in the design process certain biases take effect"
- Interviewee 2*

"I actually really liked the list That was my favorite. Um, I don't like reading, so it was a lot of reading. Um, but I mean, it's, there's not really another way to do it." -Interviewee 3

*"the fact that I can just have a list and go through them, I think that's really good. I think that's, uh, that really helps to also to read things that maybe. I recognize it, other people, but not in myself. So I can be like, Oh, I, you know, from my last group project, I can totally tell that someone had this, this bias."
- Interviewee 5*

*"[referring to the Harvard test] I find it hard to believe that the, the order in which you do this, Does not influence the time you take for, because I really start needed to get a hang of, and after a while I started to really speed up." "Part three, I think it's a very interesting one. It's very good that you have placed an example in there because it really makes, it makes the discussion kind of tangible or discussion"
- Interviewee 4*

*"So you take it as this game that I need to score better on this side. So in a way I was happy with the result. Even though I am, as I mentioned before, I'm quite skeptical about the test because it's, it's really also about physical automation in this case"
- Interviewee 6*

When interviewees were asked if they learned anything new, they answered the following:

*"I guess I would say it's very self explorative. I don't know if that makes sense. I guess you learn more about yourself for sure. So I don't know if this really portrays the topic but for me, this is kind of like you said, a whole reflection of who you are as a designer and as a person."
- Interviewee 1*

"I'm probably more biased than I realized. I feel like, my designs will be less affected by this so that we have, like I discovered this one, I wasn't aware of it before, the blind spot bias, but now that I'm aware of it, I will see how I can work towards not being blind spot it." - Interviewee 2

"What I learned from this whole exercise is knowing myself better as a designer and by knowing I can actually do something about it. Which is like, when I'm in the situation, I can stop myself from hindering the process basically" - Interviewee 3

*"Bias awareness or bias reflection should be one of the core capabilities of these designer." [But] "I find it a bit weird that the more I become aware of it, the more careful you become of it and the more you also unconsciously start to categorize it, which is kind of the thing you want to avoid, right?"
- Interviewee 4*

*"How is learning about biases change or approach to design" [continues saying] "What did I overlook and how can I document that and how can I reasonably excludes people or should I completely change something to, to make sure they are included. I guess that's, that's an important thing. And I mean, I would go back to that list and like more often and, and just try to see if I can recognize it in specific situations or also in specific groups or with other teammates"
- Interviewee 5*

"I don't think I learned something new because I knew these things. It's just that I could refresh my memory or my position on certain things" - Interviewee 6

When interviewees were asked if they would carry out the activity in by themselves in their own time, they answered the following:

"in big projects where we have this whole reflection thing, and all we do is just sit there and think about what we've done, and of course we're always very critical about ourselves, but it's, it's like the same nice feeling."

- Interviewee 1

"Well, honestly, yes. Well, what I would do is basically what I think it's important is for people to be aware of it and then make it part of the process. Because if you don't make it part of the process, like everybody spend 15 minutes, think about what biases your designs have or don't have, nobody will actually do it."

- Interviewee 2

"I'm thinking if I would do it just out of the blue, I think I would need to do, recommend like someone has to, like, recommend me to do it or at work or at school or something. Not that I would just go and Google and, ooh, let's, let's think about this, you know?"

- Interviewee 3

"Yes. Complete honesty here. I do have a question when. When? Like, do I do this once my lifetime? Do I do this once I time I start a project? Because that really depends, right? Yeah. I I'm more thinking like I would do it if I make it a, a standard pro procedure in my project, but I would not, I would definitely forget to do it or don't wanna do it if I like you" "sure if, if you implement it in the Delft Design Guide, for example, people will read it in with the perspective or intention of, hey, this can be. rather than this is something mandatory and we have to do it to get our ects, because otherwise, if you do that, then people will focus on getting ects not on getting anything out of it."

- Interviewee 4

"I wouldn't on my, on my Wednesday, on my free Wednesday afternoon, go and go fill this in. " "bringing awareness periodically is, is important" "I think going back to maybe trying to implement a standard, like when you start a new group project, like you always do this awkward introduction of like, Oh my name is ..., and I, I like detail design and I'm good with solidwork. You know, that kind of thing. Yeah. Maybe there in, in like week one or two you can, you can just in your group implement some moment where you can talk about your biases without them being feeling dred about it"

- Interviewee 5

" The first time I'm doing this for me, it's interesting and every question is, is, is interesting. But if I would do it repeated times, I would get bored for certain questions or just typing out all the answers like this. So, uh, yeah, having maybe active links where, yeah, running the test or running certain short tests would be an interesting way to prompt"

- Interviewee 6

Session 2

During this session only 1 participant out of the 6 participants was able to explain fully the biases that they had found out throughout session 1. This participant was also the one participant that had prior experience with biases and had done other activities on them. The other 5 participants, vaguely remembered any of their biases.

Additionally, 3 of the participants did find themselves in a situation in the time between session 1 and session 2 where they actively thought of a bias intervening. From the other 3 participants, 2 didn't have any active thoughts of biases and 1 only reflected on the topic and influence of biases right after session 1.

The following quotes show the intervening moments of biases in the 3 participants:

"Yeah, I talked the product managers, two of them from my company. And basically I told them, You guys have this information biased because sometimes we do spend too much time on trying to gather more information from wherever we can. And instead of actually taking some decisions and moving forward, and they agreed." "It was triggered by, uh, what we did together[referring to session 1]"
- Interviewee 2

"I was like, I was at work and there's this one colleague that I'm not a super big fan of, let's say. And you know, we were just having conversation with Ry and as soon as she just said something, I was actually having a conversation with another colleague that was next to her, working with her, and as soon as she, the one that I don't really like said something like immediately, I. Like, I didn't even finish hearing what she said. I immediately just discarded the whole thing. And it sounds a little mean, but I didn't show it. I just like, in my head, I just blocked it." "Yeah, I, I knew what I was doing."
- Interviewee 3

"I used to have, A woman as a doctor, and now I, a replacement with was of men. And I immediately notice a different way of approaching kind of the, the involvement or the, um, looking for English, like the sense of the, if they really care about you, like, I feel like the, the, the, the, the male doctor was way more technical and way more structured like, okay, this, this, this, this. Whereas, Didn't ask any questions, like, Okay, how are you doing? Did it change stuff like that? No, it was like, I read, I read, I saw this check. Okay, we have to do blood stuff, check that kinda stuff. So maybe that's, uh, gender bias."
- Interviewee 4

Session 3

In this session similar questions were carried out as in Session 2. During this session only 5 participants out of the 6 participants were able to explain the biases that were found in session 1 and that were reminded of in session 2.

Additionally, the same 5 participants found moments in between session 2 and session 3 to reflect by themselves or others about biases. Knowing about biases has also influenced the design approach of 4 participants from the 6 participants.

"Funny enough, I have not only thought about it [biases] but also had a conversation with a friend who studies civil engineering. So that was very interesting." "I immediately noticed that from an IDE standpoint and what we learn from our study and stuff like that... He is much more factual based and stuff like that and less about effective things that exist so like emotions and how you tell stuff."
- Interviewee 4

"Actually, I have been thinking of making a workshop with my product manager and product owner at work in order to create awareness for implicit biases. I think it can be very valuable as we are all working on a product that will be used internationally." "It was inspired by this awareness activity we have been doing. Just that my colleagues are on holiday or sick so I wasn't able to propose it to them yet. But I do plan to carry it out"
- Interviewee 2

"For me it's usually at the end of the meeting. Um, like if I go on campus for the meeting, I sit there in my meeting, take notes cuz there's a lot of information to process. And then on the bike ride, I'm just thinking about it and I'm just like, um, like what actually, what on what I can take from this? What is like relevant feedback? That I can use for my personal, uh, things. Do I want to do this because they said so or because I want to?"
- Interviewee 1

10.3 Concept evaluation of guidelines for inclusive imagery

Setup

The guidelines for inclusive imagery was aimed to create awareness and create reflection on students and staff. Similarly as in the awareness activity, awareness is defined in this project as a moment of learning, in other words, the state of bringing something from the unconscious to the conscious level, regarding the Morin model explained in Part 9.6.

The guidelines were created as a checklist for images that contain people. These images would be selected by students and staff with the means of integrating the image in a project report or presentation.

Pilot participants:

Number of participants: 3 (2 students and 1 staff)

Gender: 1 Male, 1 Female, 1 LGBTQ+

Nationalities: 1 Dutch, 1 from Dutch Colonies (Curacao), 1 American (of 1st Generation and Vietnamese origin).

The Evaluation participants:

Number of participants: 8 (4 students and 4 staff)

Gender: 4 Male, 2 Female, 2 LGBTQ+

Nationalities: 5 Dutch (of which one is 2nd Generation migrating Indonesian family and one is 1st Generation migrating Surinamese family), and 3 Internationals (Lithuanian, Romanian, Australian).

Aspects of evaluation

Throughout this evaluation it was important to evaluate the understanding and interpretation of the questions in the guidelines, the guidelines effectiveness, relevance and reflection quality. Thus, the following research questions:

- Effectiveness - Do participants understand the questions asked? Can they relate their image to them?
- Relevance - How likely is it for them to use the guidelines as a checklist?
- Reflection Quality - Do the guidelines encourage participants to reflect deeper on the image selected?

Procedure

In order to identify the format in which the guidelines are most feasible for students and staff to use, a pilot was carried out.

Pilot

For the pilot, 2 students were selected as well as a staff member. The two students were presented with different guidelines:

- Scenario A: guidelines were given prior to the selection of the image
- Scenario B: guidelines were provided after the selection of the image.

By giving these two different scenarios I wanted to evaluate the feasibility of reading through guidelines before selecting an image rather than only viewing the guidelines after selecting an image. **This comes from the finding that inclusivity should be something integrated into the process of design rather than being something you add on.** In this case, giving guidelines prior to selecting an image would allude to inclusivity being integrated in the process. Meanwhile, giving the guidelines after selecting an image would allude to inclusivity being an add-on.

For scenario A, the guidelines were transformed into an information list rather than questions. These were categorised and placed into steps to give information in moderation. The steps were the following:

- Step 1: Grow awareness for inclusivity
- Step 2: Define the purpose of the image to be chosen
- Step 3: Important aspects to consider when choosing an image
- Step 4: Find the image with help of the Stock Images Folder
- Step 5: How to choose your Image
- Step 6: Test images with Target group
- Step 7: Fill out the guideline checklist

Figure 56 shows how these steps were included into the DID platform to test them. The participant were first asked the following: “Think of an project where you need to present or do a report on. This can be an ongoing project, or a project you have done recently. The aim is for you to choose an image that will represent people. This can be your target group, or a feeling you want to convey. It is up to you”. By allowing them to choose a scenario they could associate to, the evaluation becomes closer to a real scenario they may experience, therefore, making this evaluation more valuable. Afterwards, they are asked to go through each step. As last step, the guideline checklist is provided as a excel file.

For scenario B, the guidelines were carried out in an excel file for the participant to read and answer yes/no and an open question if necessary. To start off,

the participant was asked the following: “Think of an project where you need to present or do a report on. This can be an ongoing project, or a project you have done recently. The aim is for you to choose an image that will represent people. This can be your target group, or a feeling you want to convey. It is up to you”. Consequently, they were asked about the picture’s aim and intention as well as the content that they want to present in the picture. Before looking for an image, they are also asked what their target group is. After having a clear idea of what image is being looked for and what it is supposed to represent, they are asked to carry out the process they would normally do when looking for images. In this moment, they are also provided a list of inclusive stock images in case they want to use them. They are asked to select the one image they would choose for this project or scenario. Once an image is chosen, they are given the guidelines to evaluate their image.

Meanwhile, with the staff member, the aim of the pilot was to test the depth of reflection created by the questions asked. The staff member, was chosen for their knowledge in the topic of culture and inclusivity. Therefore, the input during this pilot would create more value due to their expertise and experience in the topic of inclusivity. The pilot procedure consisted of explaining the procedure of the evaluation of the guidelines and going through the list of guidelines. The staff member was encouraged to reflect on the questions in the guidelines as well as reflect on further questions for the guidelines that would deepen the target group’s knowledge and reflection.

Evaluation

After carrying out the pilot, it was clear that scenario B would be more feasible for students and staff for several reasons:

- The guidelines in Scenario B were clear enough for the participant to understand what each guideline was alluding to
 - The steps in Scenario A, were barely read over by the participant. Meaning that there was too much information even for the participant to read and not be fatigued.
- In conclusion, in Scenario A, the information provided prior to the guidelines did not seem to provide any added value to the guidelines.

Additionally, the insights from the pilot with the staff member concluded on the questions from the guidelines to edited and changed.

During the evaluation, the same procedure as in the Pilot of Scenario B was carried out.

Insights

Reflecting on the first research question, 6 out of 8 participants were able to answer all of the questions from the guidelines and understood the topics related to in the questions.

Additionally, referring to the second research question, 5 participants considered that it was very likely for them to use the guidelines as checklist. Meanwhile, 2 were doubtful whether they would use them or not as they fear the context or their time limitation would be an influencing factor. 1 participant considered it would be useful for other staff members to have this available but not for themselves as they are quite knowledgeable on the topic of inclusivity in imagery.

Except for the staff member who is greatly integrated into the topic of inclusivity in imagery, the rest of the participants seemed to think further about each question and were reflecting deeply on the questions and their selected image (referring to the third research question).

Additionally, it was found that 1 student participant does evaluate the images with their target group. Meanwhile, 2 students evaluate the images with their colleagues. 4 participants haven't thought or have no time to evaluate images with colleagues or the target group. 1 staff participant does not evaluate their images with other colleagues as they rely on their personal judgement because of their expertise in the topic of inclusivity.

Moreover, 6 out of 8 participants actively avoid making use of people in their images unless necessary. This is caused by different topics such as privacy concerns and avoidance of judgements in race representation. Or even, some participants' expertise remains in objects or animals, therefore, people are not normal to encounter in their topic.

Guidelines to choosing an inclusive image

Step 1: Assess your own biases

Have you learned what you own implicit biases are?

Step 2: Define the purpose of this image.

What do you aim to achieve with this image? What do you want this image to portray? What are your intentions behind an image that portrays this?

Step 3: Important aspects to consider when choosing an image.

How can inclusivity appear in an image? And why is it important?

Step 4: Find stock photos that are inclusive.

Resources for Inclusive Stock Images

Step 5: How to choose your stock image.

Consider these points when choosing an image.

Step 6: That your images with the target group.

Checklist for Inclusive Imagery.

Here is a checklist to download and identify if your imagery is inclusive or not:

Download PDF of guidelines.

Figure 56. Initial guidelines created for the DID platform with the possibility to download the pdf file of the questions seen in Part 9.7.

10.4 Discussion

The discussion entails the interpretations of the findings and their implications for the Delft Inclusive Design platform's improvements, the awareness activity and the guidelines for inclusive imagery.

The Delft Inclusive Design Platform

It is important to mention that the version that was used for this evaluation was Version 2 as Version 3 was still not available. Nevertheless, these two versions are not that different from each other in terms of the content integrated. Therefore, the results of this section continue to deem useful for the development and evaluation of the platform.

Questionnaire

The results prove that the resources and guidelines provided within the website would deem useful (mean = 4.15, min = 1, max = 5). On the other hand, students do not think the website is necessary to promote inclusive design practices in our faculty (mean = 3.54, min = 1, max = 5). Additionally, 8 students either agreed or strongly agreed with the fact that the website made them more aware of the importance of inclusive design practice, meanwhile 3 disagreed or strongly disagreed, and 2 remained neutral (mean = 3.38, min = 1, max = 5). The disagreement with this statement could be directly related with the fact that 12 out of the 13 students who filled out the questionnaire mentioned they are either slightly interested or very interested in the topic of inclusivity, meaning that they already knew the importance behind inclusive design practices. Students agree with wanting to hear out or read about stories of discrimination and exclusion that faculty members experience (hearing out stories: mean = 4.31, min = 1, max = 5; read stories: mean = 4.15, min = 1, max = 5). When it comes to discussing personal experiences of discrimination with fellow members of the faculty, participants agreed less on it than reading or hearing out these experiences (mean = 3.54, min = 1, max = 5). This can be caused by the fact that they believe they haven't discriminated anyone or they do not have an experience were they felt discriminated. For these reason, it will be very important to create a safe space with the community to encourage students to discuss these experiences and/or if students or staff would like to discuss these experiences through the blogs on the website, there should be an option provided to appear anonymous. Another important factor to consider is the desirability of the student collective (mean = 3.62, min = 1, max = 5), which was somewhat varied as 7 people either agreed or strongly agreed; 4 people remained neutral; and 2 people either disagreed or strongly disagreed. Again the focus would be on creating a safe space for students to discuss inclusivity. It is important to note that these results may be influenced by a factor of 'social correctness' meaning that respondents were influenced social

to respond differently than what they would personally respond. In other words it would be 'What answer is the correct answer socially?' versus 'What answer would I actually give?'.

Staff interviews

The staff considered that every aspect of the website (the examples of exclusion, the resources, the events, the blogs and the student community) would deem useful. Nevertheless, the depth of the content portrayed was not evaluated with this interview. As it was mentioned by one staff member, it will deem essential for the resources provided in the website to be valuable and actionable. **This matter highlights the importance of the evaluation of the awareness activity and the guidelines presented in Part 9.**

Awarenes activity

Session 1

Session 1 focused on the introduction of new knowledge and reflection created for students to identify which implicit biases affect them and how they affect their designs. The results reflect that each part of the activity carried out its intended goal.

The results of the activity and the interviews show that step 1 did trigger users. Nevertheless, it is important to mention that 3 of 6 students were not able to create a connection between step 1 and the rest of the parts of the activity. As suggested by these students, it could be caused by the fact that the Harvard Tests are more focused on social biases, meanwhile the list of 52 biases of step 2, are focused on design. On the other hand, this test was captivating by the majority of students and 'hooked' them to carrying on the activity. A recommendation for improvement for step 1, could entail a test of biases that are related solely to design. Another improvement would be to make emphasis on the fact that the Harvard test is only used as an 'ice-braker' to the discussion of the topic and should not be taken into account as the truth about someone's bias.

From the interviews with the students, step 2 required hard thinking and reflection to affiliate themselves to certain biases. Nevertheless, this step was completed correctly by all participants, even the participant who already knew about implicit

biases and had reflected previously on biases. All participants were able to identify atleast 3 biases from the list that they associated themselves to. The question of association to the design process, could be improved as 3 out of 6 participants related their implicit biases to the design process in general. Meanwhile, it was expected from them to individually link an implicit bias to the especific part of the design process. Generally, step 2 was liked as it was the step which was directly informing students of implicit biases. 3 out of 6 participants did mention that they would look back at this list in the future.

The goal of step 3 was to deepen the knowledge and have a tangible example of how implicit biases can affect the design prattice. 4 out of the 6 students considered that this part went well for them. All students recognize the difference between the intention of the designer and the outcome of the design. Additionally, Participant 5 even mentioned "I wonder how many more examples like this are like out there", relating to the possibility of providing other examples to understand how implicit biases can appear in design. Participant 3 also mentioned the aspect of having several examples that showed different complexity of how implicit biases affect design. For this reason, an improvement for step 3 would entail having several examples to analyse. The participant could choose the example and identify which they have done before and, therefore, choose for a new one. Or, if the activity is done in groups, have each member of the group analyse a different example.

Step 4 was seen by 3 out of the 6 participants to be one of the easiest steps. 4 out of 6 participants identified the importance of carrying out the reflection to integrate the learnings of the activity. Nevertheless, when observing the results of the activity and the interview transcripts, as one of the participants was able to identify: "about analyzing and being aware of biases, but what, I'm very curious, what's the next step? Maybe because I'm myself also wondering what is the next step?". There needs to be a question or information point added in order to give the participant action points to what they can do when their biases appear. This **gives value to having guidelines and tips after awareness of inclusivity** has been created.

Overall, after analysing their answers and comparing them to the transcriptions, it does appear that sometimes students are confused about the term 'bias'. For example a participant mentioned "I do feel like, but this is also, of course my perspective, my bias. It's kinda funny that you look it from the, if you can say the

user perspective and the designer perspective...". In the context, this participant was confusing the term bias with the term perspective. An improvement for this activity would then be to clearly state the definition of biases. Additionally, there should be a clear distinction that biases can appear in daily life too. Therefore, would be beneficial that biases could be listed in their involvement in design but also in personal biases.

Session 2

Session 2 focused on identifying the knowledge learned in Session 1, more precisely, the biases they found for themselves. Additionally, this session also meant to research if the awareness created in Session 1 triggered their consciousness to reflect in the action of a bias taking place in their day-to-day life. Lastly, the session was closed off by together, the participant and the interviewer (myself), finding ways to change the behavior once a bias takes place.

The results of this session suggests my hypothesis was correct, students were not able to identify their biases, the only participant who was able to identify them was a student who had already experienced lectures and workshops on biases.

When it comes to identifying moments in which biases could have taken place, half of the participants had been triggered in the moment of time the bias was taking place. The other half of the participants claim that in the moment they did not realize it was a bias. They had only realised it could have been a bias, later when discussing the biases in the session. This could have happened because of various occurring factors. One factor is the fact that at the moment the session was taking place only 1 out of the 6 participants was actually practicing design. Meanwhile, the other 5 participants were in the process of starting a new design project. Therefore, the only occasions were they could reflect on biases discussed in the session would be in their daily life. Nevertheless, the biases treated in Session 1 are meant to be purely for design practices. A second factor that could take place is the fixation to the word 'bias' and to the definition of the term. The 5 participants that were not able to recall biases struggled to answer the question because they could have been trying to recall the exact name of the bias, rather than what it is meant to do. This could mean that they did not fully understand the type of bias they have, consequently, making it difficult for them to identify a bias that they don't understand.

Improvements would mean that in Session 1 they should have chosen at most 3 biases to focus on and remember. The action of choosing just 3 biases can help the participants fully understand and, in the future, recall what the biases are. Additionally, the pure definition of bias should be fully explained in both Session 1 and Session 2, as participants were still doubting whether what they experienced was a biased, a dilemma or a perspective. For example, Interviewee 4 mentions "Is it still a bias then? Uh, it, it's more like the bias of people saying, Yeah, I'm fine. Whereas, you know, they're not fine.". Another example of this is Interviewee 1 doubting "I wouldn't say, I don't know if there's like, stereotyping is a bias, you would say? I've always separated the two, I think."

Session 3

Session 3 focused on identifying the knowledge learned in Session 1 and Session 2, more precisely, the biases they found for themselves. Additionally, this session also meant to research if the awareness created in Session 1 and Session 2 triggered their consciousness to reflect in the action of a bias taking place in their day-to-day life. Lastly, to identify the effectiveness of these sessions, participants were evaluated on the impact of these biases in their design practice.

In comparison to Session 2, there was definitely an improvement in the participants ability to recall the biases they discussed in Session 1. In this session, 5 out of 6 participants were able to recall the majority of their biases mentioned in Session 1 and Session 2. Meanwhile in Session 2, only 1 participant remember the majority of their biases, and this could have been caused by their prior knowledge on biases.

Additionally, these same 5 participants had talked to friends or had reflected on their own biases in a point of time in between Session 2 and Session 3. These reflections triggered 4 participants to integrate their knowledge of biases into their design practice. Meanwhile the remaining 2 participants did not integrate them into a design project as they are currently taking some time off from design practice.

Nevertheless, there continues to be an uncertainty for what is a bias exactly and what is not. 3 of the 6 participants did mention when talking about an experience where they thought a bias may have taken place. They seem to not be sure if it is a bias, as it is not a bias they have read about but it is something they found in their

daily life experience. This shows that these participants think further on biases and how biases may affect different parts of their day-to-day life.

This session proves my hypothesis and the theory that Baugh suggests where a process with 3 interfering moments is necessary to trigger people to think and reflect about inclusivity.

An improvement of this session could have been to provide more knowledge on their actions towards integration of biases in design. For this reason, the evaluation of the testing guidelines was also carried out with the same participants, following the completion of Session 3 of the awareness activity.

Guidelines

The results of these guidelines were interpreted in the following factors:

- **Choosing images that are inclusive is all about trade-offs.**

Participants are dependent of the images available on the web. From their perspective, this limits their search and they have to “make do” with what there is. Additionally, each participant has a first filter that is dependent on them. A frequent trade-off was that the participants would choose between the genuinity of the image or portraying a feeling or component that needed to be in the image (which could be diversity). This trade-off can be seen in figure 57.

As a solution to needing to do a trade-off and wanting to integrate inclusivity, 5 out of 8 participants mentioned that they would probably add more images in order to solve this.

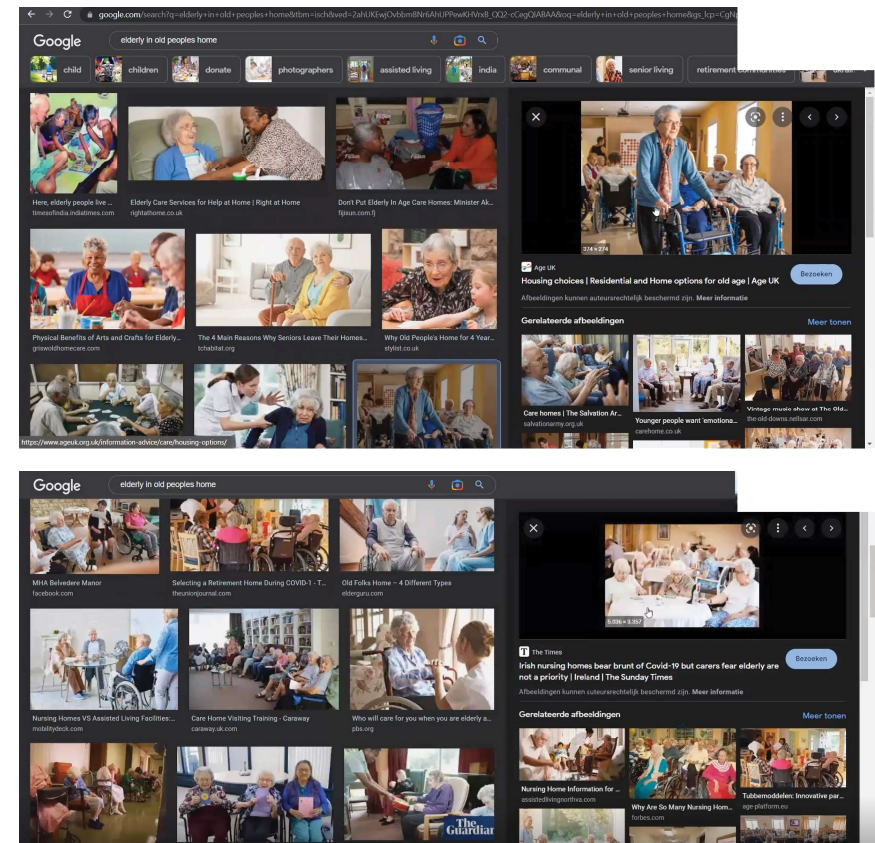


Figure 57. Trade-offs visibly in Participant 2, where in the top picture they seem to have selected a very genuine image where elderly appear a bit unhappy in an elderly home. Meanwhile the participant choose for the bottom picture as it portrayed a reality that elderly would like to be in: happiness and enjoyable.

- **The guidelines are not meant to help you choose or change your image but to create reflection.**

These guidelines don't help choose an image or evaluate but make you reflect and become aware of the impacts of your choices. This was mentioned already in the pilot by the staff member who is an expert in cultural design. These guidelines are to be positioned from the perspective that they don't tell users what is right and wrong but they create reflection in order for users to take responsibility for their action when they choose an image.

- **Stock images resources are diverse but not diverse enough.**

The list of resources of stock images I have collected throughout this thesis, found in figure 58, add value to the end goal as there is more diversity in the images available for the IDE faculty. Nevertheless, this collection of stock images platforms are specific to a specific minority group, for example the Stock Images platform xFrame which contains images of Asian people (figure 59). Therefore, an ideal platform with Stock Images would contain images with much more diversity in its image collection, for example it could look have diversity in mobility, ability and race, like in figure 60. In other words, unless one is only aiming to have people of one specific minority group, these images will not help because each image doesn't portray the variety of minority groups.

- **There is a difference between the target group of the picture and the target group of the presentation.**

When talking and asking questions about the target group I realized that there was a difference between the target group that (maybe) is represented in the image and the target group of the material in which you are including this imagery (figure 61). This is also tightly related to the reality trying to be conveyed. Sometimes in images we aim to portray a different reality than the one we live in, for example, the future reality. It is important that these guidelines also adapt to the different realities and target groups possible.

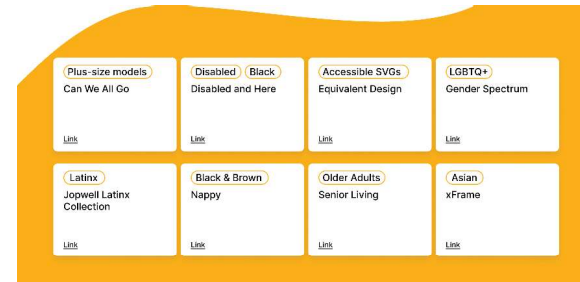


Figure 58. The list of Stock Images gathered throughout the thesis.

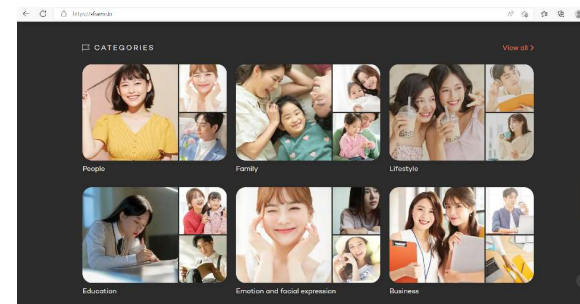


Figure 59. Example of xFrame, one of the Stock Images platform found during this thesis.

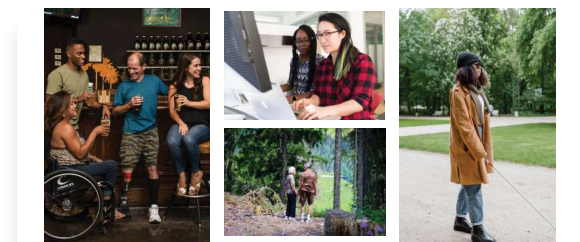


Figure 60. The ideal Stock Images platform which would add more value.

- **These guidelines could be applied to illustrations too.**

One of the evaluation participants also tested the guidelines on an illustration. The questions seemed to be equally applicable and relevant. For this reason, a future improvement could also implement illustrations and their relevant evaluation (figure 62).

- **They are likely to only focus on a couple of guidelines rather than all.**

Participants were sometimes shocked or impressed by some questions in the guidelines. One staff participant even said “I’m going to put this on a post-it on my laptop”, referring to the question addressing stereotypes that was in the guidelines. Together with observations of the awareness activity, students and staff are only able to recall and focus on several aspects like 2 or 3 rather than 10 aspects. Having only a couple of focus points makes it easier for them to remember.

- **Examples are essential to understand the guidelines.**

Even if in the pilot I decided to focus only on using the guidelines after an image has been selected, an improvement of the guidelines would be to include examples of the questions in the guidelines. 5 out of 8 participants asked about examples of what a guideline was alluding to. Additionally, this was sustained by the two staff members that are involved in inclusivity and cultural studies.

- **For participants it could be seen as a delicate topic and something they are tired about.**

Although only one staff member mentioned this, it is important to take into account that staff members may be tired of talking about inclusivity and reject the guidelines for the simple reason of them being called ‘inclusivity’ guidelines. This participant mentioned that it comes from the fact that the institution and departments have demanded a lot from teachers to consider inclusivity and carry out actions regarding it. Nevertheless, this participant continues saying “It should be easy, not overcomplicated” alluding to making inclusivity easier and tiny steps when it comes to dealing with inclusivity among staff members that are tired of hearing inclusivity and are not interested in the topic. The participant continued by saying “This [referring to the guidelines] is nice, it is a small hurdle”, making it appear that staff that is not per se interested in inclusivity, could potentially use these guidelines for their images.



Figure 61. The target group of the project or image are included in the image, this could be for example users with dogs. Meanwhile, the target group of the presentation is the audience seen in the bottom right of the image, which for example could be investors.

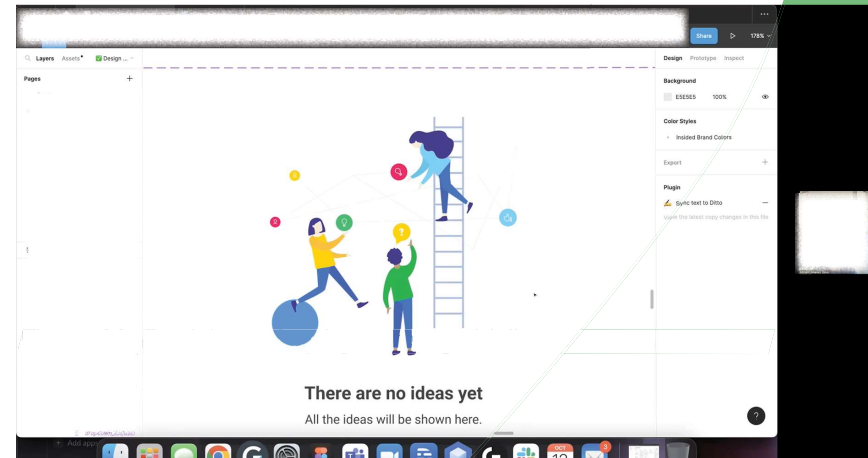


Figure 62. Participant 2 trying to test guidelines with an illustration.

10.5 Conclusion

Throughout this report it is reoccurring that to be able to do any type of inclusivity and design for any attribute of inclusivity, it is necessary to first be aware. Being aware of what inclusivity is, the forms it takes and how we, as designers, play a role in design, is essential to achieve an inclusive perspective. Once we have grown awareness (in other words, knowledge) of these topics, we can then try to achieve an inclusive perspective in our design practices. This can be done with the help of guidelines and tips but also personal initiatives.

As seen throughout the thesis, designing with an inclusive perspective is about acknowledging who is included and who is excluded in one's work. From my perspective, one will always be excluding someone but one has to recognize this. There is no simple or right way to carry out inclusivity as it is all about tradeoffs and the context in which one is designing. Nevertheless, hopefully this thesis will encourage more students and staff to dive deeper into the topic and continue developing inclusivity initiatives within the faculty. Some ideas for further research topics are researching designer dilemmas and identifying the tradeoffs involved in each dilemma in order to create more guidelines.

Delft Inclusive Design Platform

This platform was evaluated on its value created regarding the platform's awareness for inclusivity, the resources, and the different ways to discuss discrimination experiences. Although the questionnaire should consider that students may have answered the question with a factor of 'social correctness', I do think that they answered the questionnaire truthfully because they were not forced to complete the questionnaire and the variety of the answers show the variety of opinions in the topic of inclusivity. The results of the interview with staff and the questionnaire by students show that there is a clear value to having a platform that create awareness for inclusivity and collects the information that the IDE faculty provides on inclusivity as well as additional resources on the topic. Additionally, although some students' attitude may not be as open to share personal stories of discrimination, from my perspective, there is nothing to loose to create a collective among students. If it fails, atleast we tried and we can learn from it for a future version. If it works, it can be greatly benefiting as we saw in the results of this questionnaire and the rest of evaluated material.

Overall, taking into consideration these findings I would consider that the Delft Inclusive Design platform is valuable and effective to students and staff, yet the platform still has a lot to improve on and develop. The design direction was the following: **“Develop a platform for IDE students and staff that creates awareness for inclusive design and designer bias, provides guidelines and tips to integrate inclusivity, allows students and teachers to share their experiences with exclusion and marginalisation, and, lastly, creates a community for students and teachers to come together and discuss the topic of inclusivity in design.”** In its essence, the evaluation proves that the guidelines and tips provided would be deemed valuable, the platform is a valuable asset to the IDE faculty although its content could improve its awareness creation for inclusivity. The community would be useful and relevant for students to share experiences of discrimination and come together to discuss inclusivity because inclusivity continues to develop itself as well as our awareness for it.

In other words, the platform is perceived useful and relevant, meanwhile students and staff are curious about inclusivity and are willing to contribute to its cause. Nevertheless, the platform has much to improve. Firstly, I believe we need to create more guidelines that are specific to different attributes of inclusivity and specific to a context. Secondly, make the design of the website more attractive and eye-catching to emphasize its importance. Thirdly, allow more contributions to the website from both staff and students by integrating their projects related to inclusivity. Inclusivity cannot be done alone, as its nature involves a variety of people from different backgrounds to work together.

The Awareness Activity

Throughout my research I found that the first step to carrying out any type or attribute of inclusivity is to grow awareness of what is inclusivity but also how as designers we influence our own designs and its use. Additionally, developing a platform was not enough to create awareness and make a valuable asset. Thus, I created an awareness activity for, primarily, students to carry out throughout reflection processes during university projects. As a result of the evaluation, the 4 steps to the activity created awareness as every step taught respondents something they didn't already know. Yet, each part has minor improvements like

formulation of questions, diversity of images and actionable questions.

It is essential to note that the evaluation also portrayed that for awareness to have a long-term effect, there needs to be at least 3 sessions, knowing that the 1st session will determine the depth of the awareness, the 2nd session will remind the students of their learnings from session 1, and the 3rd session will solidify and strengthen the learnings from session 1 and session 2. Nevertheless, this activity requires further improvements as it needs to be tested in groups and as part of a reflective session in a course.

The Guidelines

As a result of the awareness activity, users will want to know what they can do practically and the actions they can take in order to integrate an inclusive design perspective. Nevertheless, due to the complexity and depth of inclusivity as well as the lack of time for this integration within the thesis, the guideline was created to focus on a specific design dilemma which had already appeared throughout the research phase of this thesis. This dilemma focused around the topic of which image to choose when you want to achieve inclusivity. As the guidelines were based on conclusions of research papers on imagery and inclusivity, I considered their validity to be proven, yet they still needed to be tested for their effectiveness, relevance and reflection quality. The effectiveness was tested by the comprehension of each guideline. Thus, the evaluation results of the guidelines portray they are somewhat possible to understand according to 6 out of 8 participants, yet to improve their effectiveness there were recommendations to add examples to specify what to look for in an image. When it comes to relevance, 5 participants considered that it was very likely for them to use the guidelines as a checklist; 2 were doubtful whether they would use them or not as they fear the context or their time limitation would be an influencing factor; 1 participant considered it would be useful for other staff members to have this available but not for themselves as they are quite knowledgeable on the topic of inclusivity in imagery. Lastly, regarding their reflection quality, it seemed that all except for one participant were thinking further than what each question proposed. As a result, this proves to me that the guidelines are relevant, understandable and create reflection, yet still need improvements to make them fully effective. Within these improvements, the guidelines need to be tested in context, therefore they need to be distributed to students and staff to develop them as part of the day-to-day work of a student and staff member.

10.6 Recommendations for further research and development

As mentioned in the Discussion and Conclusions, all three validated components need to be further improved and developed. This is a gentle reminder that inclusivity is not a one time thing but a constant development. Therefore, it is important to take into consideration that the perspective and the approach developed for the Delft Design Guide will also need evaluation. The more the faculty learns and discovers inclusivity, the more visibility there will be on what designing from an inclusive perspective is and the more approaches there will be to achieve it.

Delft Inclusive Design Platform

As part of the improvements of the Delft Inclusive Design platform, there are different topics that need attention:

- **Visual improvements**

The website needs to continue portraying the seriousness yet the playfulness that inclusivity has to offer. For this reason, version 3 of the platform was designed, yet it need to be further tested with the target group.

- **Qualitative evaluation**

I realize that at the moment of final evaluations, it is more important to have qualitative rather than quantitative feedback. This will be essential for future versions of the platform.

- **Integration into the faculty resources**

The current problem with existing IDE resources is that they are not widely known, therefore communication of the website will be critical to create impact. For this reason, I have involved as many staff members possible that are interested in inclusivity for them to integrate the findings of this report in their current practices. Ways in which the Delft Inclusive Design platform can be further shared could be the following:

- Staff shares with closer staff circles as well as their students as a link to explore or even as an assignment to carry out.
- Staff can share insights from the thesis in their lectures
- The Studio Lab and the ID student association can refer to the platform for further information on awareness for inclusivity as well as the inclusive design perspectives
 - The Delft Inclusive Design platform can be used as the main source of information for the IDE faculty to share events, TU Delft projects and research papers on the topic of inclusivity. This could include the events for Inclusivity from the faculty such as the TU Delft Inclusivity week and the IDE staff and student collective events.

• **Implementation**

Currently, the platform is actually a functional prototype, therefore its implementation would be essential. For this, I will be applying to a grant provided by the TU Delft in order to hire a professional to code the website. For this implementation to happen there also needs to be further development on the different screens or scenarios that this website would encounter, like for example, the interactivity with filters, how users would be able to upload blogs and even error scenarios.

• **Relevance of the resources**

As we saw in the evaluation, the list of stock images is useful as awareness source but also if the people one wants to represent in an image is purely of one minority group. Not only would it be necessary to continue finding relevant resources that could contribute to this list but also it would be essential to continue evaluating if these resources can be used and carried out in the work of students and staff.

• **Further development of guidelines and awareness activities**

Currently, there is only one activity available to create awareness on implicit biases and one guideline available for the design practice. Ideally, this would turn out to be a list of awareness activities and guidelines to gain an inclusive perspective in design. Therefore there are various options for this to be carried out:

- Provide thesis opportunities that focus on creating specific guidelines or more awareness activities.
- Continue researching these guidelines and awareness activities with other researchers as well as inclusivity experts in the design field.

• **Usability of the blog**

Currently the blog functionality within the website has not directly been tested. If the implementation of Delft Inclusive Design platform results positive, this functionality will be available for users to use. Once it is functional, it would be possible to test throughout time, if the intention of the blog to share stories of discrimination and exclusion would have the same outcome (or if it is not the same outcome) it will be important to identify if the outcome is positive or negative to the platform's purpose.

• **Create the student collective**

Due to the time limit and priorities in other aspects of the project, the student collective was not able to be formed. Nevertheless, it is encouraged to be initiated and shared with students in order to address issues occurring within students

when it comes to inclusivity. Inclusive design perspectives need to be discussed as there are many designer dilemmas and students are not provided with enough information to carry out inclusivity by themselves. The collective would raise awareness for inclusivity; provide a safe space to listen to stories of discrimination and exclusion in order to understand where the real problem lays; and provide the environment to exchange opinions regarding design dilemmas.

It could entail gatherings, workshops and guest speakers. Meeting once a month, the collective could have 10 sessions a year. Within the 10 sessions, there could be 5 'awareness' sessions, 4 'practical' sessions, and 1 session dedicated to alignment between students and teachers. Awareness sessions would entail learning about aspects of inclusivity. 'Practical' sessions would entail discussions and workshops about designer dilemmas. The teacher and student alignment session would entail discussions on important aspects of inclusivity and how education could align with it.

The Awareness Activity

As concluded from the previous sections this activity has to improve in the following aspects:

• **Implementation in context**

Currently, this activity was evaluated with students individually, nevertheless as result of its evaluation it is important to take into consideration how this activity would be carried out in groups of students. It is also important to test the activity in the context in order to identify where and when it is favorable to use this activity within the student curricula and staff work.

• **Testing with staff members**

This activity is currently tested only with students, yet the aim to raise awareness about implicit biases is also important for staff members. Nevertheless, as staff members have more limitations in terms of time and resistance to the topic, this activity may need to have a different procedure yet a similar outcome. Additionally, their intervention period is different than for students, therefore a different procedure can be carried out.

- **Introduce or change questions in order to provide more clarity.**

Lastly, several questions need to change within the activity. These are the following:

- Step 1. The question that says “Do I have implicit biases of which I am aware of?” was sometimes confusing as implicit biases are unknown as they are implicit, therefore the awareness of these implicit biases would not make them implicit. Therefore, this question could be formulated to be more understandable by, for example, changing it to: “Do I have social stereotypes about certain groups of people that I may not know?”

- Step 2. Following the logic of the design, questions that require one to dive within own thoughts require a thought bubble around them therefore, the question “How have these specific biases shaped my designs?” needs to be in a thought bubble. Additionally, they should be asked to focus on 3 biases, as if participants focus on more, they may not be able to remember all. Lastly, the list of biases provided should be part of the Delft Inclusive Design platform, for students and staff to easily access it but also to continue developing the list with biases that can even be oriented towards different aspects of design or even daily life.

- Step 3. Several evaluation participants mentioned the richness that more examples could bring to the activity, especially if they were to do this activity several times. Therefore, other discrimination examples used in Part 3 could be used to add difficulty to this step of the activity.

- Step 4. The first question needs to be written from the perspective of the user, therefore, instead of referring to ‘you’ it should refer to ‘I’. This is to provide not only consistency within the exercise but also to situate the user as this activity is for themselves rather than something that someone else is demanding from them. Additionally, I would add a question that entails a reflection of ‘actions’ they can take for example: “What do can I do to acknowledge the influence of my biases in my work?”

The Guidelines

From the previous conclusion and discussion we can identify that there are several aspects in which the guidelines need to improve:

- **Testing in context**

It is important to take into account that the guidelines were currently evaluated purely on the scenario that is closest to the reality but yet is not the reality. In other words, these guidelines need to be presented to students at the beginning of their education in order for them to take it into account throughout their projects. Similarly goes with staff members, these guidelines need to be provided in their education and their renewal of educational practices such as the University Teacher Course that every teacher is demanded to obtain.

- **Testing with various pictures**

As some evaluation participants mentioned, these guidelines may be able to help better if instead of taking into consideration one image, we take into consideration a collection of images or the images in a presentation deck. Nevertheless, questions may change as it would be oriented to multiple images rather than just one. Yet, it is an aspect to consider and do further research on.

- **Further development of guidelines**

These guidelines should be in constant development, the more students and staff use them, the better picture we will have of how inclusivity works in reality. Inclusivity is a constant development and requires diverse inputs to gain a better picture of the situation and know how to deal with design dilemmas. These guidelines can be further improved by giving examples that are relevant to each question. The idea continues to be for the student and staff to reflect on their images and how they could improve rather than blame them and tell them to change the image. These questions need to trigger an act of responsibility and have to encourage critical thinking for staff and students.

10.7 Reflection on this project

Project topic

Inclusivity has been a topic that I have been wanting to integrate throughout my whole studies as a designer. Nevertheless, I never really carried out a project with an inclusive perspective because I wasn't aware of my own personal biases and experiences shaped my own designs. Apart from that, in the past I didn't know the actions I could carry out to be more inclusive apart from talking to different stakeholders. This thesis has made me even more aware of how inclusivity become tangible in design and has started shaping me into the designer I want to become. Today, as I finish this thesis, I know that it won't be the end to this topic and its involvement in the IDE faculty. I want to continue working and developing tools for designers to have tangible ways to create inclusivity as well as create awareness in our community for inclusive design perspective and its impact.

Project Setup

An old teacher of mine would say "I am more lost than an octopus in a garage", that is precisely how I felt at the beginning of the project yet with hope and enthusiasm. I was lost because of several reasons. First, nobody had told me how a thesis works at IDE, my friends hadn't started their thesis and all I had to rely on was the somewhat outdated Graduation Manual online. Secondly, I had made sure for 4 months that I would have a chair and mentor for the project. Yet when it was time to send the project brief, both my chair and mentor decided to stop the project. I was devastated but thankfully I found a job as a UX designer that kept me going and mindful throughout this tough situation. Thankfully, I also found a create new committee that allowed me to truly pursue a brief that I was eager to carry out. The brief was broad yet the committee saw something that made them trust me in what I was starting to envision. Thirdly, a couple of months after starting, I quit my job as UX designer which was the best decision as since that moment I grew exponentially with information and excited for my project. I spent countless hours listening to podcasts, reading research papers, blogs, opinion letters on inclusivity. This would later come to bite me as I was so excited I forgot to write down the sources to where I had gotten certain pieces of information.

As seen in this thesis, inclusivity is quite a broad topic, sadly it is still something new within our faculty therefore my knowledge on the topic was null. It has taken me 5 months to be able to understand the different parts of designing with an inclusive perspective. I hope that this thesis helps the oncoming thesis students and staff to have a better picture for inclusivity, its different attributes, and the importance of awareness when it comes to designing with an inclusive perspective. If I were to start again, I would try to structure my information more clearly as it was hard to grasp where I was going with the project. Nevertheless, if I hadn't had a broad research of inclusivity, I wouldn't have been able to understand fully the context in which I was working and the context in which I will dedicate my near future.

Researching

Taking into consideration that I have done my whole design education at TU Delft, it was still hard to grasp the level of research and methodology depth that I was expected to deliver. I think this thesis has really shown me the level of research that the TU Delft is known for, even if we are design students. This research quality has led me to design two resources that the faculty can already start trying out in their day-to-day work. Hopefully, this work also inspires other students and even staff to continue looking into inclusivity and ways in which our faculty can carry these out.

Personal awareness

Throughout the process, I have also been trying to test myself in awareness and the material I create. Looking back at the project, I do see how personal biases have shaped my designs and how they may exclude users. For example, as I mentioned before, I read and listened to a lot of information regarding inclusion but sometimes when writing the report I would forget which source I hear it from. I had to be cautious of my confirmation bias, as I saw myself sometimes searching for resources that would confirm my own ideology. I continue to have this problem, yet now I am aware of these actions and avoid them by searching words that are not biased or insinuating a perspective. Another frequent bias I have is authority

bias, and apparently, it seems to be frequent among university students as we consider that our coaches' and evaluators' perspectives are the correct ones. I think unconsciously I always trusted my own experience more. This became really apparent for me when I was in my green light presentation. I was suggested to take a couple of weeks more to carry out guidelines for inclusivity. Yet these guidelines would be so difficult to carry out in just a couple of weeks because it would mean that I had to become an expert on a specific topic that required much more research and interviews than I had in a very small timeframe. For this reason, I took my own approach, I decided to consider a designer dilemma I had already tested with people, inclusivity in imagery. Within the small timeframe I was able to dive deeper into the topic I was already familiar with. I saw the value that these guidelines would create and its necessity, nevertheless, this guidelines is nowhere near to be completed as the topic of inclusivity develops over time.

Overall

I am very enthusiastic and proud of the results of my thesis. The learning curve has been steep at times yet it has created value for the IDE faculty and will continue creating this value as I will continue to be involved with the IDE faculty in the coming future. There are a couple of grants I would like to apply to in order to carry on developing the platform, developing awareness activities and design guidelines, and create the student collective for inclusive design. I am eager to continue working with the faculty and the diversity and inclusion collective as well as continuing my development as a designer in inclusive design practices.

Bibliography

9gag. (2018, November 16). "the Dutch football team played recently very bad, because the KNVB (Dutch Football Federation) wanted to increase the Dutch woman football popularity" , confessed the president of the KNVB, Michael Van Praag, today. - football. Retrieved August 22, 2022, from <https://9gag.com/gag/aNYWeKK>

Alan and Fernandes, F. (2021). Liga Nescau. [Photograph]. Behance. https://www.behance.net/gallery/111505925/Liga-Nescau?tracking_source=search_projects%7Cinclusivity+diversity

Ambekar, A. et al. (2009, June 28). Name-ethnicity classification from open sources. In Proceedings of the 15th ACM SIGKDD international conference on Knowledge discovery and data mining (KDD '09). Association for Computing Machinery, New York, NY, USA, 49–58. <https://doi.org/10.1145/1557019.1557032>

Andalibi, N. (2021). Symbolic annihilation through design: Pregnancy loss in pregnancy-related mobile apps. *New Media & Society*, 23(3), 613–631. <https://doi.org/10.1177/1461444820984473>

Bai, X., Ramos, M. R., & Fiske, S. T. (2020). As diversity increases, people paradoxically perceive social groups as more similar (Publication No. 117 (23) 12741-12749). *PNAS*.

Baugh, B. (2022, September). Personal communication [Personal interview].

van Boeijen, A.G.C., Daalhuizen, J.J., & Zijstra, J.J.M. (Eds.) (2020 2nd edition). *Delft Design Guide: Perspectives, Models, Approaches, and Methods*. Amsterdam: BIS Publishers.

Boess, S. (2022, September). Personal communication [Personal interview].

Brander, P., De Witte, L., Ghanea, N., Gomes, R., Keen, E., Nikitina, A., & Punkeviciute, J. (2020). (rep.). *Compass: Manual for human rights education with young people*. Council of Europe. Retrieved July 25, 2022, from <https://rm.coe.int/compass-eng-rev-2020-web/1680a08e40>.

British Standards Institute. (2005). *BS 7000-6:2005: Design management systems - Managing inclusive design*. Guide. BSI

Bryce, E., & Pappas, S. (2022, August 17). What's the difference between race and ethnicity? *LiveScience*. Retrieved September 22, 2022, from <https://www.livescience.com/difference-between-race-ethnicity.html>

Caccavale, J. (2020, November 24). Attribution bias: What is attribution bias? Retrieved August 22, 2022, from <https://www.beapplied.com/post/attribution-bias-what-is-attribution-bias>

Caccavale, J. (2021, May 6). What is affinity bias and how does it affect the workplace? Retrieved August 22, 2022, from <https://www.beapplied.com/post/what-is-affinity-bias>

Callister, L. (2022, February 21). 10 tips to reduce unconscious bias at work. Retrieved August 22, 2022, from <https://www.skillcast.com/blog/reduce-workplace-unconscious-bias>

Cambridge Dictionary - Discrimination. (n.d.). Retrieved

August 22, 2022, from <https://dictionary.cambridge.org/dictionary/english/discrimination>

Cambridge Dictionary - Ethnicity. (n.d.). Retrieved August 22, 2022, from <https://dictionary.cambridge.org/dictionary/english/ethnicity>

Cambridge Dictionary - Marginalization. (n.d.). Retrieved August 22, 2022, from <https://dictionary.cambridge.org/dictionary/english/marginalization?q=marginalisation>

Cambridge Dictionary - Race. (n.d.). Retrieved August 22, 2022, from <https://dictionary.cambridge.org/dictionary/english/race>

Cambridge Dictionary - Systemic racism. (n.d.). Retrieved August 22, 2022, from <https://dictionary.cambridge.org/dictionary/english/systemic-racism>

Cherry, K. (2020, July 19). How the halo effect influences the way we perceive attractive people. Retrieved August 22, 2022, from <https://www.verywellmind.com/what-is-the-halo-effect-2795906>

CHI2021. (2021). CHI '21: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. Retrieved August 23, 2022, from <https://chi2021.acm.org/proceedings>

Coleman, R. R., & Yochim, E. A. C. (2008). The symbolic annihilation of race: A review of the "blackness" literature.

Conor, L. (2017, October 10). Dove, real beauty and the racist history of skin whitening. Retrieved August 22, 2022, from

<https://theconversation.com/dove-real-beauty-and-the-racist-history-of-skin-whitening-85446>

Copes, C. (2021, April 15). Advertisers love ethnic ambiguity. Retrieved August 22, 2022, from <https://momentum.medium.com/advertisers-love-ethnic-ambiguity-18cfa53b5219>

Craig, R. L. (1991). Designing ethnicity: The ideology of images. *Design Issues*, 7(2), 34-42.

Criado Perez, C. (2019, July 11). The dangers of gender bias in design. Retrieved August 22, 2022, from https://www.evoke.org/articles/july-2019/data-driven/deep_dives/the-dangers-of-gender-bias-in-design

DavidsonMorris. (2021, July 26). Test your team's unconscious bias. Retrieved August 22, 2022, from <https://www.davidsonmorris.com/unconscious-bias-test-uk/>

Desjardins, J. (2021, August 26). Every single cognitive bias in one infographic. Retrieved August 22, 2022, from <https://www.visualcapitalist.com/every-single-cognitive-bias/>

De Font-Reaulx, P. (2017). What Makes Discrimination Wrong? Practical Ethics: A Journal of Philosophy, Applied to the Real World, 1–15. <https://doi.org/10.1017/cbo9780511975950.002>

de Waard, I., and Zolfo, M. (2009). Integrating gender and ethnicity in mobile courses ante-design: a TELearning instrument. <http://dx.doi.org/10.3991/ijim.v3i1.674>

Dickson, T.D., Darcy, S., Johns, R., Gadd, C. (2016). Inclusive by design: transformative services and sport-event¹⁴³

accessibility. *The Service Industries Journal*. 36. 532-555. 10.1080/02642069.2016.1255728.

Dietz, G., Le, J.K., Tamer, N., Han, J., Gweon, H., Murnane, E.L., and Landay, J.A. (2021). StoryCoder: Teaching Computational Thinking Concepts Through Storytelling in a Voice-Guided App for Children. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, Article 54, 1–15. <https://doi.org/10.1145/3411764.3445039>

European Commission. (2021, May 2). Institutional racism in the Netherlands. Retrieved August 23, 2022, from https://ec.europa.eu/migrant-integration/library-document/institutional-racism-netherlands_en

Eveleth, R. (2019, May 09). Medical textbooks overwhelmingly use pictures of young white men. Retrieved August 23, 2022, from <https://www.vice.com/en/article/3k3kkn/medical-textbooks-overwhelmingly-use-pictures-of-young-white-men>

Facebook. (n.d.). Log in or sign up to view. Retrieved August 22, 2022, from <https://www.facebook.com/IDETUDelft/photos/a.339159496166253/2882088618539982/>

Geenen, R. (2020, July 17). Indo people after World War 2 and their repatriation between countries. *Indo World*. Retrieved June 25, 2022, from <https://myindoworld.com/indo-people-after-world-war-2-and-their-repatriation-between-countries/>

Gutsche Jr, R. E., Cong, X., Pan, F., Sun, Y., & DeLoach, L. (2022). # DiminishingDiscrimination: The symbolic annihilation

of race and racism in news hashtags of 'calling 911 on Black people'. *Journalism*, 23(1), 259-277.

Habib, H., Zou, Y., Yao, Y., Acquisti, A., Cranor, L., Reidenberg, J., Sadeh, N., and Schaub, F. (2021). Toggles, Dollar Signs, and Triangles: How to (In)Effectively Convey Privacy Choices with Icons and Link Texts. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, Article 63, 1–25. <https://doi.org/10.1145/3411764.3445387>

Hankerson et al.(2016, May 7). Does Technology Have Race? In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '16)*. Association for Computing Machinery, New York, NY, USA, 473–486. <https://doi.org/10.1145/2851581.2892578>

Headlee, C. (2019, February 14). Racism vs. discrimination: Why the distinction matters. Retrieved August 22, 2022, from <https://celestehadlee.com/racism-vs-discrimination-why-the-distinction-matters/>

HealthyFramework. (2022, March 01). Tinder reviews. Retrieved August 22, 2022, from <https://healthyframework.com/dating/review/tinder/>

Heazlewood, J. (2017, April 12). Combatting unconscious bias in design. Retrieved August 22, 2022, from <https://uxdesign.cc/combating-unconscious-bias-in-design-bff4dfb013c3>

History of immigration in the Netherlands. (n.d.). Retrieved June 25, 2022, from <https://www.ucl.ac.uk/dutchstudies/a144>

SP_LINKS_UCL_POPUP/SPs_english/multicultureel_gev_ENG/pages/geschiedenis_imm.html

Holmes, K. (2020). *Mismatch: How inclusion shapes design*. The MIT Press.

Home. Racial Equity Tools. (2020). Retrieved September 24, 2022, from <https://www.racialequitytools.org/>

Hughson, C. (2019, September 23). Unconscious bias: What it is and how to avoid it in the workplace. Retrieved August 22, 2022, from <https://www.ivey.uwo.ca/academy/blog/2019/09/unconscious-bias-what-it-is-and-how-to-avoid-it-in-the-workplace/#:~:text=Unconscious%20bias%20%E2%80%93%20also%20known%20as,and%20need%20to%20meet%20deadlines.>

Iyama, J. (2021, September 30). 6 design failures that could have been avoided with inclusive UX research. Retrieved August 22, 2022, from <https://www.userinterviews.com/blog/design-failure-examples-caused-by-bias-noninclusive-ux-research>

Jantji, C. (2021, October) *Beige by Default: The issue of skin tone inclusivity in product design and a proposal for resolving it in design education and professional practices*. Master thesis, faculty of Industrial Design Engineering, Delft.

Jennissen, R., Engbersen, G., Bokhorst, M., & Bovens, M. (2018). *The new diversity: Increased ethnic heterogeneity in the Netherlands*.

Joyce, A. (2022, January 30). *Inclusive Design*. Retrieved August 15, 2022, from <https://www.nngroup.com/articles/>

[inclusive-design/](#)

Kar, T. (2021). *Win-Win: Diverse Playing Cards* [Photograph]. Behance. https://www.behance.net/gallery/113940695/Win-Win-Diverse-Playing-Cards?tracking_source=search_projects%7Cinclusivity+diversity

Kibugi, T. (2022, April 12). Why black online daters feel invisible on dating apps. Retrieved August 22, 2022, from <https://the-ard.com/2022/04/12/discrimination-on-dating-apps-singles-out-black-daters/>

Klassman, T., & Anderson, T. (n.d.). How (and when) should we ask about ethnicity? use these principles... Retrieved August 22, 2022, from <https://dscout.com/people-nerds/inclusive-demographic-gathering>

Klein, H & Shiffman, K.S. (2009). Underrepresentation and Symbolic Annihilation of Socially Disenfranchised Groups (“Out Groups”) in Animated Cartoons, *Howard Journal of Communications*, 20:1, 55-72, DOI: 10.1080/10646170802665208

Koks, E. (2020, September 21). *Our story*. The Indo Project. Retrieved June 25, 2022, from <https://theindoproject.org/about/history/>

Landsman-Dijkstra, J., et al (2004, February 25). The short-term effects of a body awareness program: better self-management of health problems for individuals with chronic a-specific psychosomatic symptoms. *Patient education and counseling*, 55(2), 155–167. <https://doi.org/10.1016/j.pec.2004.02.014>

Lieu, J. (2016, December 6). Passport system rejects this dude's photo for a pretty racist reason. Retrieved August 22, 2022, from <https://mashable.com/article/passport-system-photo-racism#mREYDk68gmqS>

Liu, L. (2018, August 29). Accessibility in design. Retrieved August 15, 2022, from <https://uxdesign.cc/accessibility-in-design-15619f10400b>

LNVH. (2021). Women professors monitor 2021. LNVH. Retrieved September 25, 2022, from <https://www.lnvh.nl/monitor2021/EN.html>

Low, S. M., Taplin, D., Scheld, S., & Fisher, T. (2002). Recapturing erased histories: Ethnicity, design, and cultural representation—A case study of Independence National Historical Park. *Journal of Architectural and Planning Research*, 282-299.

Luft, J., & Ingham, H. (1961). The johari window. *Human relations training news*, 5(1), 6-7.

Magnusson, D. et al. (2017, April). Influence of a Short-Term Disability Awareness Program on Knowledge and Attitudes of School-Aged Children in Southern Belize: Results of a Community-University Partnership, *Physical Therapy*, Volume 97, Issue 4, Pages 408–416, <https://doi.org/10.2522/ptj.20160139>

McCombs School of Business. (2022, February 21). Conformity bias. Retrieved August 22, 2022, from <https://ethicsunwrapped.utexas.edu/glossary/conformity-bias>

Miller, J. (2017, July 15). Airbnb host fined, ordered to take

college course after turning away Asian guest. Retrieved August 22, 2022, from <https://nypost.com/2017/07/13/airbnb-host-fined-ordered-to-take-college-course-for-turning-away-asian-guest/>

Monteiro, M. (2019). Ruined by design: How designers destroyed the world, and what we can do to fix it. *Mule Design*.

Musgrave, L. (2022, February 11). More than a buzzword: Let's be honest about diversity and inclusion. *N2Growth*. Retrieved September 22, 2022, from <https://www.n2growth.com/diversity-and-inclusion-is-more-than-a-buzzword/>

Najibi, A. (2020, October 24). Racial discrimination in face recognition technology. Retrieved August 22, 2022, from <https://sitn.hms.harvard.edu/flash/2020/racial-discrimination-in-face-recognition-technology/>

Noor, I. (2020, June 10). How confirmation bias works. Retrieved August 22, 2022, from <https://www.simplypsychology.org/confirmation-bias.html>

Oberai, H. and Anand, I.M. (2018). Unconscious bias: thinking without thinking. *Human Resource Management International Digest*. 26. 10.1108/HRMID-05-2018-0102.

Ogle, J. (2011) *The Continuously Changing Self: The Story of Surinamese Creole Migration to the Netherlands*. Independent Study Project (ISP) Collection. 1152. https://digitalcollections.sit.edu/isp_collection/1152

Ooi, K. and Weir, J. (2022). *The Mix - Campaign Identity*. [Photograph]. Behance. <https://www.behance.net/>

gallery/140919753/The-Mix-Campaign-Identity

OpenLearnCreate. (2020, March 26). 2.3 The effects of discriminatory practice. Retrieved August 22, 2022, from <https://www.open.edu/openlearncreate/mod/page/view.php?id=153145>

Park YO and Park SH (2015) Observing Social Exclusion Leads to Dehumanizing the Victim. *Front. Psychol.* 6:1815. doi: 10.3389/fpsyg.2015.01815

Parker, D., & Wright, G. (2018, May 11). "white is purity". Retrieved August 22, 2022, from <https://blogs.reed.edu/anth344-spring2018-group03/2018/04/16/white-is-purity/>

Patel, V. and Fiske, S. (2022). Chess Packaging for Dyslexic. [Photograph]. Behance. https://www.behance.net/gallery/145032391/Chess-Packaging-for-Dyslexic?tracking_source=search_projects%7Cinclusivity+diversity

Pavlic, V. (n.d.). Pitch training: Pitch Blocks. Pitch Blocks | Viki. Retrieved September 24, 2022, from <https://www.pitchblocks.com/>

Pernice, K., Gibbons, S., Moran, K., & Whitenton, K. (2021, June 13). The 6 levels of UX Maturity. Nielsen Norman Group. Retrieved September 22, 2022, from <https://www.nngroup.com/articles/ux-maturity-model/>

Pervall, T. M. (2022, June 20). A beginner's guide to inclusive UX design. Medium. Retrieved September 24, 2022, from <https://uxdesign.cc/a-beginners-guide-to-inclusive-ux-design-b8dcc94f5068>

Plenke, M. (2015, September 09). The reason this "racist soap dispenser" doesn't work on Black skin. Retrieved August 22, 2022, from <https://www.mic.com/articles/124899/the-reason-this-racist-soap-dispenser-doesn-t-work-on-black-skin#.XeuPqZmzH>

Price, K. (2015, March 09). 11 tips for writing a killer proposal • V&A blog. Retrieved August 24, 2022, from <https://www.vam.ac.uk/blog/digital/11-tips-for-writing-a-killer-proposal-2>

Project Implicit. (n.d.). Projectimplicit. Project Implicit. Retrieved September 25, 2022, from <https://implicit.harvard.edu/implicit/>

Raphael, K. (2020, February 5). Racial bias in medicine. Retrieved August 23, 2022, from <https://globalhealth.harvard.edu/racial-bias-in-medicine/>

Reid, R. (Host)(2021, March 3). Tech Wrap Queen. Antionette Carrol | Equity by Design (Session 13). [Audio Podcast episode]. Spotify. <https://anchor.fm/techwrapqueen/episodes/Antionette-Carrol--Equity-by-Design-eqmq2c>

Reinhardt, D., Borchard, J., and Hurtienne, J. (2021). Visual Interactive Privacy Policy: The Better Choice? In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21). Association for Computing Machinery, New York, NY, USA, Article 66, 1–12. <https://doi.org/10.1145/3411764.3445465>

Rijksoverheid. (2022, March 1). Asylum procedure. Asylum policy | Government.nl. Retrieved June 25, 2022, from <https://www.government.nl/topics/asylum-policy/asylum-procedure>

Rojas, M. (2009). *Women of color and feminism*. Berkeley, CA: Seal Press.

Saravanan, M. (2017, July 17). Determining Ethnicity of Immigrants using Twitter Data. In *Proceedings of the 4th Multidisciplinary International Social Networks Conference (MISNC '17)*. Association for Computing Machinery, New York, NY, USA, Article 7, 1–10. <https://doi.org/10.1145/3092090.3092100>

Schlesinger, A. et al. (2018, April 21). Let's Talk About Race: Identity, Chatbots, and AI. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. Association for Computing Machinery, New York, NY, USA, Paper 315, 1–14. <https://doi.org/10.1145/3173574.3173889>

Segran, E. (2021, December 09). Doctors have dehumanized black people for centuries. this illustrator believes art could help. Retrieved August 23, 2022, from <https://www.fastcompany.com/90704704/doctors-have-dehumanized-black-people-for-centuries-this-illustrator-believes-art-could-help>

Silva, S. & Kenney, M. (2019, October 24). Algorithms, platforms, and ethnic bias. *Commun. ACM* 62, 11 (November 2019), 37–39. <https://doi.org/10.1145/3318157>

Skuhra, T., Duester, T., & Grillo, A. (2021, November 30). Designing meaningful products. Retrieved August 22, 2022, from <https://star.global/posts/how-to-design-meaningful-products/>

Sridharan, M. (2022, September 11). Negativity instinct

- how should consultants overcome this? Think Insights. Retrieved September 25, 2022, from <https://thinkinsights.net/consulting/negativity-instinct-consultants/#:~:text=This%20instinct%20describes%20our%20tendency,bad%20more%20than%20the%20good.>

Teachers. (2020, October 22). Making a safe place for conversations about racism in classrooms. Retrieved August 22, 2022, from <https://creditsforteachers.com/creating-a-safe-space-to-talk-about-race-racism-in-the-classroom/>

TEDxPasadena. (2018, October 22). How to outsmart your own unconscious bias | Valerie Alexander | TEDxPasadena. YouTube. Retrieved September 12, 2022, from https://www.youtube.com/watch?v=GP-cqFLS8Q4&ab_channel=TEDxTalks

The Hindu. (2017, April 06). Is India a racist country? Retrieved August 22, 2022, from <https://www.thehindu.com/opinion/op-ed/is-india-a-racist-country/article17854153.ece>

Treweek, S., Banister, K., Bower, P., Cotton, S., Devane, D., Gardner, H. R., ... & Witham, M. D. (2021). Developing the INCLUDE Ethnicity Framework—a tool to help trialists design trials that better reflect the communities they serve. *Trials*, 22(1), 1-12.

Trujillo, G. (2020). BOLD – Conference . [Photograph]. Behance. https://www.behance.net/gallery/100297083/BOLD-Conference?tracking_source=search_projects%7Cinclusivity+diversity

TU Delft. (n.d.). Bindend studieadvies. TU Delft. Retrieved

September 25, 2022, from <https://www.tudelft.nl/studenten/rechtspositie/bindend-studieadvies>

United Nations. (2018, February 7). Prejudice and discrimination: Barriers to social inclusion | DISD. United Nations. Retrieved September 25, 2022, from <https://www.un.org/development/desa/dspd/2018/02/prejudice-and-discrimination/>

Walter, S. et al (n.d.). List of selected 52 cognitive biases . List of selected 52 cognitive biases. Retrieved September 24, 2022, from <https://uxinlux.github.io/cognitive-biases/52-list-en/>

Washington University in St.Louis - Session three race and ethnicity in everyday life. (n.d.). Retrieved August 22, 2022, from <https://voices.wustl.edu/past-events/day-discovery-dialogue-2015/race-ethnicity-everyday-life/>

Wikimedia Foundation. (2022, May 12). Multiculturalism in the Netherlands. Wikipedia. Retrieved June 25, 2022, from https://en.wikipedia.org/wiki/Multiculturalism_in_the_Netherlands

Wikimedia Foundation. (n.d.). Ficheiro:Diagram Human Cell Nucleus pt.svg. Wikipedia. Retrieved September 25, 2022, from https://pt.wikipedia.org/wiki/Ficheiro:Diagram_human_cell_nucleus_pt.svg

Winner, L. (1980). Do Artifacts Have Politics? *Daedalus*, 109(1), 121–136. <http://www.jstor.org/stable/20024652>

Wong, J. (2022, April 14). Anti-Asian racism deserves much

more attention. Retrieved August 22, 2022, from <https://www.universiteitleiden.nl/en/news/2022/04/anti-asian-racism-deserves-much-more-attention>

World Population Review - Most Racially Diverse Countries 2022. (2022). Retrieved August 22, 2022, from <https://worldpopulationreview.com/country-rankings/most-racially-diverse-countries>

Zippia. (2022). User experience designer demographics and statistics [2022]: Number of user experience designers in the US. Retrieved September 25, 2022, from <https://www.zippia.com/user-experience-designer-jobs/demographics/>