

# Appendices

## **Breaking down barriers to Inclusive Design:**

Creating a safe learning environment for  
Industrial Design Engineering students

Master thesis by Dana de Jong



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Appendix A: Project brief

This appendix contains the original project brief as submitted to the secretary. This was the starting point of this thesis. It includes the initial problem definition, assignment and planning of this project. All personal information is removed for privacy reasons.

DESIGN FOR our future

TU Delft

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according to the format "IDE Master Graduation Project Brief\_familyname\_firstname\_studentnumber\_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

family name

de Jong

initials

D.C.

given name

Dana

student number

4548213

street & no.

zipcode & city

country

phone

email

Your master programme (only select the options that apply to you):

IDE master(s):

IPD

★

Dfl

SPD

2nd non-IDE master:

individual programme:

- - (give date of approval)

honours programme:

Honours Programme Master

specialisation / annotation:

Medisign

Tech. in Sustainable Design

Entrepreneurship

\*\* chair

\*\* mentor

2nd mentor

comments (optional)

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..

Second mentor only applies in case the assignment is hosted by an external organisation.

Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

IDE TU Delft - E&SA Department /// Graduation project brief & study overview /// 2018-01 v30

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Procedural Checks - IDE Master Graduation

TU Delft

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair

date

signature

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 27 EC

Of which, taking the conditional requirements into account, can be part of the exam programme 27 EC

List of electives obtained before the third semester without approval of the BoE

X

YES

all 1st year master courses passed

NO

missing 1st year master courses are:

name

date

signature

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked \*\*. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?

Is the level of the project challenging enough for a MSc IDE graduating student?

Is the project expected to be doable within 100 working days/20 weeks ?

Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content:

V

APPROVED

NOT APPROVED

Procedure:

V

APPROVED

NOT APPROVED

comments

name

date

signature

IDE TU Delft - E&amp;SA Department /// Graduation project brief &amp; study overview /// 2018-01 v30

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Initials &amp; Name \_\_\_\_\_ Student number \_\_\_\_\_

Title of Project \_\_\_\_\_

Personal Project Brief - IDE Master Graduation

TU Delft

Communicate the value of inclusive design (activities) in education \_\_\_\_\_ project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date

13 - 10 - 2022

end date

16 - 03 - 2023

INTRODUCTION \*\*

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

In the last few years, more and more research has been done on inclusive design, meaning that products and the design process must be accessible to as many people as possible without needing adjustments - for example, people with, for instance, visual impairments, hearing disabilities or physical limitations. A lot of research has been conducted into this design field in recent years by, for example, the Inclusive Design Lab (Delft Design Labs, n.d.). In addition, inclusive design toolkits have been developed by the University of Cambridge (University of Cambridge, n.d.) and Microsoft (Microsoft, n.d.) to share their knowledge (see Figure 1). These toolkits support designers in making design decisions to include as many users as possible by helping them to understand user diversity. When using these toolkits, it is necessary to first recognise exclusion in order to be able to act on it. Moreover, it is essential to identify which types of users exist and which capabilities they have. To this extent, designing for people with disabilities can ultimately result in designs that benefit people universally.

However, this emerging movement has also been criticised. For instance, designer Liz Jackson, founder of the Disabled List, states that the term inclusive design is mainly used to avoid using the word disability. Her experience with inclusive design is that disabled people are excluded from the design process, and they are not credited for their contribution. Consequently, if these stakeholders are not adequately involved in the design process, the person with the disability may be defined as the problem instead of the problem being defined as the problem. This demonstrates the importance of involving these stakeholders at all times throughout the process (Betts, 2019). During my elective Inclusive Design, I experienced the value of involving the stakeholder throughout the entire process in this field of design. My design team and I involved the stakeholder by means of co-design sessions, and as a result, we gained a lot of new insights, which we had not obtained without involving them (figure 2). It was, therefore, essential to have equality within the design team; the stakeholders were also team members at that point.

Sources:

- Betts, A. (2019). Advocating for disabled peoples in design and marketing. Retrieved on 8 September 2022, from <https://www.3percentmovement.com/article/advocating-disabled-peoples-design-and-marketing-adia-betts>
- Delft Design Labs (n.d.). Inclusive Design Lab. Retrieved on 5 September 2022, from <https://delftdesignlabs.org/inclusive-design-lab/>
- University of Cambridge (n.d.). Inclusive Design Toolkit. Retrieved on 5 September 2022, from <https://inclusivedesigntoolkit.com/>
- Microsoft (n.d.). Inclusive Design. Retrieved on 5 September 2022, from <https://www.microsoft.com/design/inclusive/>

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IDE TU Delft - E&SA Department /// Graduation project brief & study overview /// 2018-01 v30

Page 3 of 7

Initials & Name D.C. de Jong Student number 4548213

Title of Project Communicate the value of inclusive design (activities) in education

introduction (continued): space for images

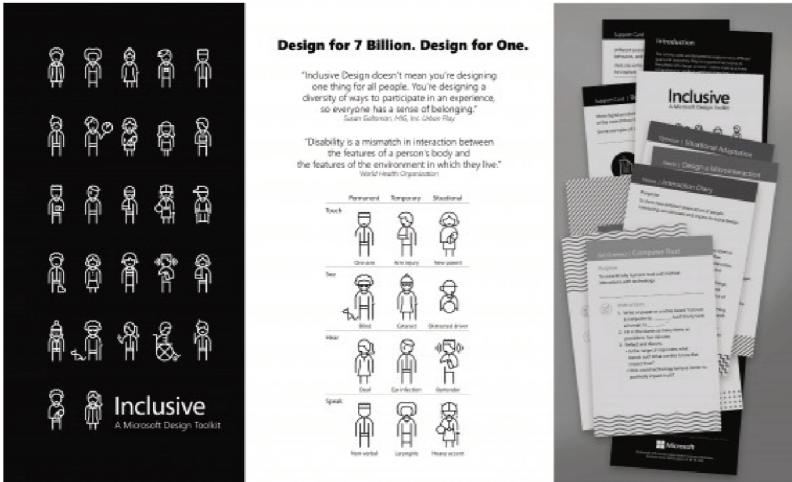


image / figure 1: Microsoft Inclusive Design Toolkit



image / figure 2: Co-design sessions with stakeholders for a previous project in collaboration with stakeholder Visio

## PROBLEM DEFINITION \*\*

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

Several studies on inclusive design have been conducted by, for example, the Inclusive Design Lab, Microsoft and Cambridge University. The resulting toolkits and insights are being used to make society more inclusive and create more awareness about this topic.

In education (the Faculty of Industrial Design at TU Delft), these studies and toolkits are occasionally applied to introduce students to this part of design, increase their awareness, and make the design (processes) more inclusive. However, it is still rarely implemented by the students, and they get limited theory in their careers. When they need to apply the knowledge in practice, they are given the toolkits but do not use them optimistically. So students apparently encounter barriers in applying the theory in practice. Therefore, it is questionable how much impact these tools have on the design process and the final design.

Besides, the subject only interests a small proportion of students, and, as a result, few students choose courses on inclusive design, which means that only a tiny percentage of students gain experience with it. As a result, only a few students take this knowledge to companies with them in their careers.

## ASSIGNMENT \*\*

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

The goal of this graduation project is to create a tool for the inclusive design lab on how to communicate the value of inclusive design (activities) for educational purposes. I will focus on students of the faculty of Industrial Design Engineering at TU Delft who have an affinity with inclusive design or who have (potential) interest in this topic.

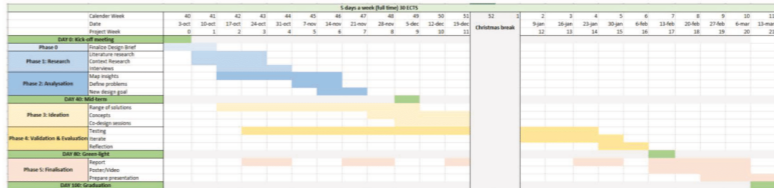
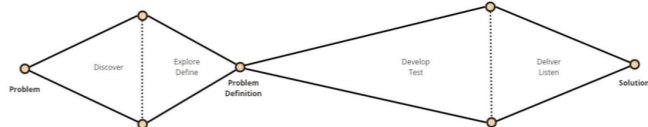
By researching how inclusive design is currently applied in design education and researching the possibilities of inclusive design in Industrial Design Engineering, the objective is to finally create a tool to communicate the value of inclusive design (activities) for educational purposes. This involves searching for an approach that guides teachers and aims at students who might initially find this topic of interest. This educational tool includes demonstrating to students the reasons why it is valuable to apply these inclusive design activities, how it can be applied, how it can encourage students to use them in the continuation of their careers and how inclusive design can make an impact on society. But it also explores the most appropriate methods of cooperating with stakeholders; how to approach this group respectfully, and get the most from the collaboration.

So through this project, I want to contribute to the impact of inclusive design on society by promoting inclusive design activities during the education of designers.

## PLANNING AND APPROACH \*\*

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 13 - 10 - 2022 end date 16 - 3 - 2023



The kick-off meeting will take place on Thursday 6 October 2022. After this, I will officially start on Thursday 13 October. I will be working on this project full time, so five days a week for 20 weeks. Including the Christmas break, this means that graduation will take place halfway March 2023.

In the first weeks of the project, the research phase will take place. I will elaborate on what inclusive design is and what definition we use. Also, the different toolkits used will be compared on a theoretical level. Next, student projects using these theories are studied and compared for which a framework needs to be created. More in-depth consideration is given here to the following questions: Does a different product emerge when a different toolkit is used? How can the inclusive design toolkit be proven to work and is it valuable? For this, the designers and students involved will also be interviewed about how they experienced it: Have they used this approach in the continuation of their careers and has this field of design made an impact on them as designers and on their projects? In addition, stakeholders will also be involved in the project; In what way can they be involved in the design process? During the research phase, I will already start with early prototypes and test them with the various stakeholders to gain insights from this throughout the project. This can then be further built on in the design phase. In this final phase of the project, I will explore how the inclusive design lab can communicate the value of applying inclusive design (activities) and, thereby, maximise the impact of inclusive design (activities).

## MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... Stick to no more than five ambitions.

During my elective Inclusive Design, I learned how important this design field is; Various groups are sometimes excluded from participating in society, and these groups can also participate in their daily activities by designing more inclusively. Therefore, I wanted to delve deeper into it. It would be great to contribute to making this area more widely known and accessible to apply. In addition, I have always been interested in exploring specific target groups, understanding what they encounter in their daily lives and eventually designing for them. Therefore, during the elective Inclusive Design, I found it very instructive to be able to further develop this skill through co-design sessions and interviews with people with visual impairments. This enabled me to empathise with them, understand them better, and finally be able to design for them. So during this project, a basis has already been established for how I should approach co-design sessions and how I can gain new insights from doing so. However, during my graduation project, I would like to explore this further to improve my communication with stakeholders; how to approach a specific target group best to gain many new insights? Besides, sometimes I find it scary to approach people. By working with stakeholders, I will have to get out of my comfort zone and take more initiative to make this project successful. Stepping out of my comfort zone is also reflected in other skills I want to improve in this period, such as pitching and presenting my idea to stakeholders and an audience. Finally, I wish to lead my meetings like a leader and, as mentioned above, take the initiative.

A competence I have and would like to prove during this project is my ability to work in a structured and methodical way. I like structure, which gives me certainty and overview. Because of this, my process is also suited for communicating with the stakeholders and supervisors. Moreover, I like to note all my steps structured so that it is easy to justify why certain choices have been made.

## FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

# Appendix B: Guidelines inclusive report

The thesis topic also made me eager to make my thesis report inclusive so people can understand it in their own preferred way. For this purpose, several factors were considered while making this report. This appendix shows what things have been considered when making this report to make it as accessible as possible.

The information was obtained from the following sources: Apple Style Guide (n.d.), British Dyslexia Association (n.d.) and Toledo, B. (2020). I also included my own experience as someone with dyslexia.

## Text

- Minimize the written language
- Write in simple, clear language using everyday words (dyslexia, autistic)
- Use short sentences and short paragraphs. Write short, simple sentences: 60 to 70 characters is optimal (dyslexia)
- Use meaningful text headers
- Use a readable font size. The font size should be 12-14 points. Some people with dyslexia or a visual

impairment may request a larger font (low vision, dyslexia)

- Avoid using all capital letters and uppercase letters for continuous text. Lowercase letters are easier to read (dyslexia).
- Use inclusive language

## Colours

- Use simple colours (autistic spectrum, dyslexia)
- Use sufficient contrast levels (dyslexia, low vision)
- Use dark-coloured text on a light background (dyslexia)
- Use single-colour backgrounds. Avoid background patterns or pictures and distracting surroundings (dyslexia, autistic spectrum, low vision)

## Lay-out

- Align the text to the left and keep a consistent lay-out (dyslexia)
- Use a linear, consistent, logical lay-out (low vision, deaf, dyslexia, autistic spectrum)
- Keep the content short, clear, and simple and use bullet points (dyslexia, autistic spectrum)

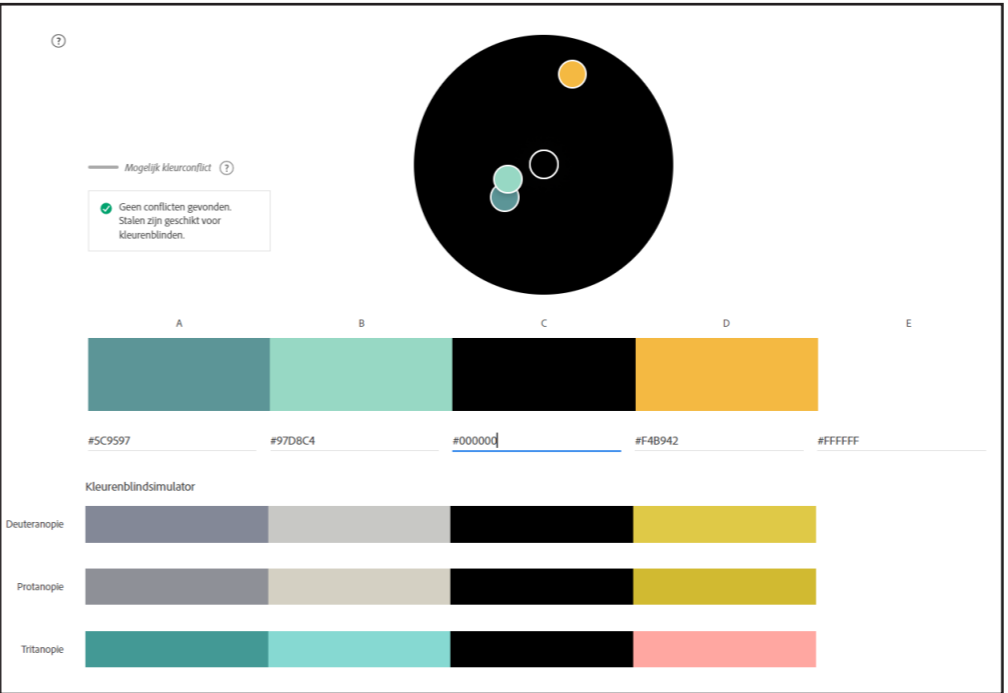
## Visuals

- Use visuals to support text (dyslexia)
- Use alt-text (low vision)

## Extra

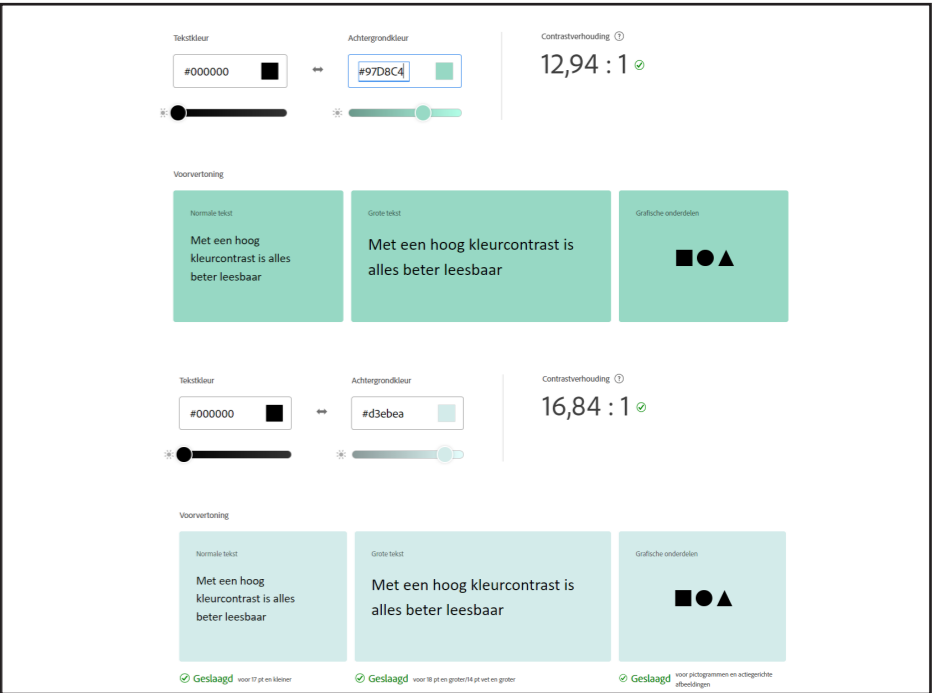
- Make report available in audio (dyslexia, low vision)
- When printing, use matt paper rather than gloss. The paper should be thick enough to prevent the other side from showing through.

## Color palette



<https://color.adobe.com/nl/create/color-wheel>

## Color contrast



<https://color.adobe.com/nl/create/color-contrast-analyzer>

## Appendix C: Observing co-design sessions

I attended and helped run three co-design sessions. Experiencing, observing and reflecting on these sessions has given me many insights.

### Co-creation session NOS

First, I attended a co-creation day of NOS, in which media makers and twenty people with a visual impairment participated. The NOS wants to become more accessible as part of its innovation. Because I had already met at the train station with the group of people with a visual impairment, I noticed that the session started there. They already encountered several problems at the train station; for example, they could not find the check-out. It also took a very long time to reach the building. Walking with a group of people with a visual impairment takes much longer than expected. Everything took way longer than expected that day. The media makers met the people with a visual impairment a bit later that day. They didn't have that interaction and meeting with them. During the session, some activities still did not work for people with a visual impairment so it is important to be able to adapt to this.

The experts were surprised that the media makers knew so little about visual impairment, even though they said they had looked into it beforehand.

### Co-design session student design team

For the course Prototyping for Interaction and Participation, a student team conducted a co-design session with someone with a visual impairment. This project was followed extensively. I participated in and observed one co-design session of this design team. More about it can be found in *Appendix J*.

### Co-design session PhD

I helped and observed one co-design session of a PhD student. She said she had no prior knowledge or experience with Inclusive Design or co-designing. She started first by co-designing with people without a disability. Then she did these sessions for people with a visual impairment. She did no new pilot test for this new target group, even though she needed to change some things because the experts could not execute some tasks. However, she still had the same protocol and the same questions "I used the same protocol and the same questions that I used when doing this with normal people. I thought this part did not need a pilot test." Looking back, she would have wanted to do a pilot

test to be better prepared. She had insecurities because she didn't know the abilities of the experts. "I don't know what the participants can do. I cannot imagine.". Besides that, she was afraid to ask some "side questions", because she was afraid to "hurt them/impact". Therefore she does not have deeper knowledge. She would have wanted better preparation so she would be more secure during the session and dare to ask more and, therefore, would get more insights when doing such sessions. A risk assessment could have helped her to feel less insecure, so she would know beforehand if she could ask, etc.

Afterwards I did a co-design session with this PhD student, which can be found in *Appendix K*,



Co-creation session design team



Co-creation session NOS



Co-creation session NOS

# Appendix D: Interview experts

I interviewed two experts at the beginning of my project who are involved in students' Inclusive Design projects. Both these interviews were about an hour long and took place online.

By going deeper into their experiences and discussing a timeline, I tried to go deeper into the experts' experiences to find out how they envisioned the future.

## The questions I had prepared in advance:

- You have participated in multiple projects on Inclusive Design in recent years. I am very curious about your experiences. Since when have you been working with TU Delft? And are you also working on/helping with design projects for other institutions?
- Have you yourself experienced a change in Inclusive Design in recent years?
- You participated as a co-designer during the courses inclusive design and PIP. Did you notice any difference between the sessions of those two courses?
- Can you describe a typical co-design session?

Or describe the best/worst. Is this different for companies?

- What would you like to see different during a co-design/co-creation session?
- During a co-design session, energizers were often used to get familiar with each other's qualities. Has this been useful in your opinion?
- The sessions that were held, were they often literally about the case itself? Or had students chosen a different case and applied their insights to their design?
- Do you feel that the students sometimes took your input too literally?
- Were you informed in advance what the students were working towards? And were you informed during the process what the developments were?
- I was at the Dutch Design Week yesterday. There was a stand that had designed kitchen utensils for the visually impaired. He had designed this by testing it himself with a blindfold on. What do you think of this?
- Have students ever expressed that they do not know how to address you? Which do you prefer, person-first or identity-first? Or are they afraid of saying the wrong thing?

- I am also interviewing students; some problems come up there too. But do you also experience problems, or do you see students experiencing problems with these sessions?
- Do you agree with the designs the students come up with?
- What advice would you give future students?

I have processed the insights I gained from this into statement cards. These statement cards can be found on the following pages.

Later in my project, these experts were also involved in my project. About once every two/three weeks, online meetings and discussions were held with them, so they would be involved in my project.

??	Start on same level	Involve many experts	Needing experts
The designers already have knowledge/assumptions but are not always aware or honest about that.	The whole design team (including experts/stakeholders) should collaborate during the WHOLE project	Everyone will have a different experience and will experience their disability differently. Therefore, involve many people.	A design team will never really experience the feeling some groups have.
<i>"The designers want us to go in a certain direction, because they already have an idea. That's not a bad thing, but be honest about that too."</i>	<i>"They approach me late in the process, then the design team already has a vision..." "Actually everyone should start at the same level (of knowledge of the case)."</i>	<i>"If you ask one expert, you only have one vision, which may not be for everyone."</i>	<i>"You can blindfold someone, but when you know it's temporary, you experience this very differently. Also, you will master some things over time."</i>
Interview Expert 1	Interview Expert 1	Interview Expert 1	Interview Expert 1

Understanding the problem	??	Getting to know each other	Copying ideas
The client/design team is looking for a design but they need to dig deeper to understand it.	Are the co-design sessions there to generate a mindset/insights or ideas?	At the start of the project it is important to get to know each other before you start working together	It sometimes feels like the design team is using the expert to generate ideas. Not to design together.
<i>"People often ask for a solution, they want a plaster. But they haven't looked at how they got that wound for which the plaster is needed."</i>	<i>"It is also very difficult to get involved in a process and keep your ideas to yourself. That is perhaps something we can learn from. Do you just want to give an idea or convey a mindset/process. I think that in my"</i>	<i>"The first two to three sessions are scanning, seeing what everyone can do and how they process information"</i>	<i>"I could relate to all the designs, because in all of them they had (in)directly literally copied my things. Some literally used my ideas, and some used some insights." "Some things did get picked up literally from"</i>
Interview Expert 1	Interview Expert 1	Interview Expert 1	Interview Expert 1

Taking time	Involve expert
It needs time to design inclusively and take into account a diverse group of people.	The expert is still not completely involved in the process
<i>"During a project, you have such a short time, it is difficult to empathise and take into account many groups."</i>	<i>"The session is more about presenting ideas, validating that and checking the assumptions."</i>
Interview Expert 1	Interview Expert 1

Getting to know each other	Improving skills	Make agreements	Taking initiative
Make it more personal by meeting in person, especially the first time.	If you do this more often, have more experience, it will come more naturally.	Set goals and agreements with the WHOLE design team.	When it is not mandatory, experts are not often involved in the process.
<i>"I think that anyway, the first session should just be really physical."</i>	<i>"Hilde also did PiP course and you noticed that he did benefit from this basis for inclusive design course. It is a way of thinking that was more natural for him."</i>	<i>"It would have been nice for me if the final presentation is sent in advance, so that I can zoom in beforehand and know what is happening on the screen."</i>	<i>"There is now a group of students, where it is optional to contact us. So in the end, only 2 out of 14 students approached me."</i>
Interview Expert 2	Interview Expert 2	Interview Expert 2	Interview Expert 2

Involving experts	Having a personal session	Starting on the same level	Having equality
The expert is part of the design team	Everyone should have a chance during such a session to speak up and doesn't need to be afraid to do so.	It is ideal to involve the experts from an early stage, now the contact is only when the students need me.	The expert wants to be equal with the rest of the design team
<i>"I am one of your team members, it is much easier and looser to have a conversation (really work together)"</i>	<i>"Actually, the group should not be too big, so everyone gets a chance to speak. Otherwise, you always have a few who are there who don't ask anything."</i>	<i>"It is ideal if the starting point is the same (there is already improvement in this). Especially with all of us in real life starting right away. So that things can be coordinated in advance. Now contact is often made at the"</i>	<i>"The online session was also entirely without a camera on, so that there was equivalence."</i>
Interview Expert 2	Interview Expert 2	Interview Expert 2	Interview Expert 2

Involving experts	Getting out of your comfort zone	Overcome the threshold
The design team involves the experts to validate their own ideas. They do not involve the experts in the right way.	Students don't dare to approach different people. The ideas/insights will get richer when you approach new/different people.	Approach the experts as it is one of you. That way you will work better together.
<i>"You don't need to do testing in a co-design session, as it is often done. You test your design with another group and design with people involved."</i>	<i>"You should not stay in your safe environment (it's the same kind of people). You have to draw it wider equally and not stay in your own bubble."</i>	<i>"Now there is still a lot of discomfort during such a session. When you no longer have that threshold (the VIP is one of you), it is much easier and looser to have a conversation (really work together). You will then come to"</i>
Interview Expert 2	Interview Expert 2	Interview Expert 2

# Appendix E: Report analysis


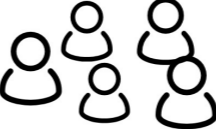












For this project, I analysed many reports to extract insights from them. From the Master elective Inclusive Design, I had access to reports from the years 2013, 2014, 2019, 2020, 2021 and 2022.

For the Master elective Prototyping for Interaction and Participation, cases from 2021 and 2022 also focused on the Inclusive Design approach. These reports were therefore also analysed. In 2023, there is also a case focused on Inclusive Design during this course; this case is based on my research. This project is described in more detail in *Appendix J*.

The page on the right shows the statement cards obtained from the 2021 and 2022 reports. I did not create statement cards from the reports of the years before 2021 because there seemed to be less emphasis on co-design those years, there had been mostly interviews and observations.

<div>Having time barriers</div> <div>During a short period of time this project takes place, it is hard to plan sessions.</div> <div>"These [participatory] sessions were planned, but were unfortunately postponed at the last moment. Due to this cancellation we reached out to new contacts provided by Visio, but these people unfortunately "</div> <div>Report 2021</div>	<div>Guiding the process</div> <div>The students are glad there was a meeting arranged already, that would have been a threshold for the students.</div> <div>"We appreciated the arrangement of a first meeting with the stakeholders, which made it easier for us to stay in touch with them during the process."</div> <div>Report 2022</div>	<div>Learning by doing</div> <div>The students learned how to do the sessions.</div> <div>"We could find our way into this by facilitating the sessions, which improved over time."</div> <div>Report 2022</div>	<div>Wanting guidance</div> <div>Because lack of knowledge, the students wanted more help.</div> <div>"We had little experience with co-design sessions and inclusive design. We had hoped to get more guidance on this during the lessons and coach meetings."</div> <div>Report 2022</div>
<div>Working rushed</div> <div>The project feels rushed, because there is not enough time.</div> <div>"If we had more time, we would have spent more time to actually explore, prototype and profit from the course itself. Now it felt a bit rushed into finding a solution as fast as possible "</div> <div>Report 2022</div>	<div>Being one team</div> <div>An expert is not seen as a full member of the design team.</div> <div>"In the current situation VIPs are not fully included in the design team. They are often seen as advisors rather than team members. To become an equal participant of the design team it is crucial that there is a shared</div> <div>PIP Report 2022</div>	<div>Time consumig</div> <div>The course is time consuming.</div> <div>"We noticed that this course is very time-consuming; besides the Monday that was planned for this course, we also needed to spend much time on the project on other days "</div> <div>Report 2022</div>	<div>Working rushed</div> <div>The project feels rushed, because there is not enough time.</div> <div>"The course made us realize again to not always design for the typical user group, but for everyone.</div> <div>Report 2022</div>

On the right is a table showing how the three design teams approached the project during the Inclusive Design elective in 2022.

	Inclusive design toolkits	Prior knowlegde	Literature	Stakeholder involvement			
	No inclusive design toolkits are used. But the teammembers read the toolkits	Two teammembers (of the four) had some experience with co-design sessions with children.	The papers that are used are used to back up the statements about inclusive design (why is it important).	<b>Get new insights from multiple perspectives</b>  Multiple nVIPs and VIPs from their own social circles	<b>Validate insights with experts</b>  Two Experts (VIP) and one expert (client)	<b>Further develop concept with experts</b>  Two experts (VIP) and one expert (client)	They started with multiple (non-experts) to discover painpoints. Later they did co-creation sessions with multiple experts to further develop the concept
	No inclusive design toolkits are used or read.	Two teammebers had experience with co-design sessions with VIPs (PiP course). The other two had no experience	The papers that are used are used to back up the statements about inclusive design (why is it important).	<b>Discover first painpoint</b>  One expert (VIP)	<b>Co-creation with first ideas</b>  One expert (VIP)	<b>Co-creation to go from ideas to a concept</b>  One expert (company)	<b>Validation session</b>  One expert (VIP)  They started with one expert to discover design opportunities. Later they built further on this knowlegde during co-creation session with one expert at the time.
	No inclusive design toolkits are used or read.	No prior knowlegde	The papers that are used are used to get familiar with visual impairments.	<b>Discover first painpoint and design opportunities</b>  One expert (VIP)	<b>Select idea</b>  Design team (2 nVIPs)	<b>Develop concept</b>  Three nVIPs	<b>Validate/evaluate concept</b>  24 nVIPs at the event  They started with one expert to discover design opportunities. Later they developed and tested their concept with more people

# Appendix F: Evaluation form Visio

This Appendix discusses the main findings of Visio’s evaluation of their involvement in Inclusive Design projects. Visio created an evaluation form after the Inclusive Design Lab’s two-year anniversary. Visio is involved in Inclusive Design projects of students at TU Delft and other universities. This Appendix includes the insights that emerged from these projects because some may be relevant to my project.

**Below are general findings that Visio has found that are relevant to this project:**

The term Inclusive Design is complex; different stakeholders interpret it differently. Inclusive is often understood as diversity (gender, origin, etc.) or as an accessible design for a specific group. Visio thinks that “Inclusive Design” is not the correct term to communicate towards companies rather the “most optimal viability”.

It could be better emphasised that Inclusive Design is a design process rather than the result. The goal is not to create one design that works for everyone,

but designing with a diverse group leads to usable designs for as many people as possible.

Inclusive Design is not (yet) commonplace within the education process. Students are not used to working together with experts (who are disabled) during participatory sessions as part of their education and are, therefore, unfamiliar with it. In all projects, Visio actively offered team members. However, getting the experts to participate as partners is still a challenge.

Inclusive Design should return every academic year and in various ways, and it should be embedded in the curriculum of the study programme. Only then will good practices emerge that future designers can learn.

Incidentally, many students also tackled Inclusive Design well. They have discovered that the Inclusive Design process is similar to their usual way of designing.

**In addition, a number of learnings emerged**

**during specific projects. The specific projects are described below, along with the insights gained from them.**

Three student groups from TU Delft addressed the question “How can different groups authenticate to their online banking environment in a simple, reliable and secure way?” during the Inclusive Design elective in 2021. Insights:

- There was relatively much focus on the result (more testing of assumptions/validation of ideas) rather than the process (how to tackle Inclusive Design/co-creation).
- The students’ approach is a set approach learnt in the study programme. So classical design, where users are involved as participants and not as co-designers.

A student from Rotterdam University tackled the question “How can Ziggo offer visually impaired people an accessible TV experience?” during his graduation internship in 2021. Insights:

- The experts were involved several times in the process through interviews, concept testing

and testing the final product. However, even in this project, the experts are more involved as participants than co-designers.

Six student groups tackled the topic of “inclusive cooking” during the 2020 Inclusive Design elective. Insights:

- A narrative scenario is an effective tool in participatory sessions with people with and without a visual impairment. The session ended with the question of imagining the ideal cooking plate.
- A student group had organised a participatory session but could not find experts. As a result, experts were involved late in the process.
- Two student groups evaluated their concept with people with and without a visual impairment to see how well the design fits the “mainstream” market. This aligns with the desire to create a solution that is not made specifically for people with visual impairments.

For a graduation internship, a student group from the Hogeschool van Amsterdam went to work for

CoolBlue in 2021 with a focus on voice e-commerce research. Insights:

- Perhaps Inclusive Design does start with a focus on a specific edge case (specific group) and then see what you learn from that and apply it in a design that can be used more broadly (this is also one principle of Inclusive Design).
- The experts were more involved in this case, possibly because it was about people with visual impairments.

Two student groups from TU Delft during the Inclusive Design elective started working with the question from waste processor Saver to look for an innovative and sustainable solution to improve the use of underground waste containers for all users. Insights:

- The students worked with experts throughout the process. Ideas and feedback were obtained through co-creation sessions with the experts, and they used this to improve their concept further.
- The students indicated that they had little experience with co-design sessions and Inclusive

Design. They had hoped to get more guidance in this area during the lessons and coach meetings. For instance, more inspiring examples and guidelines. It would have helped them with the project and increased the quality of the co-creation sessions if they had had more concrete examples and tips.

- The elective course Inclusive Design is only ten weeks, of which the study load is one day a week. This is too short to carry out all the research activities.

Several TU Delft student groups tackled the question “How do you design inclusively?” during the elective courses Inclusive Design and Prototyping for Interaction and Participation in 2021 and 2022. Students worked with experts to determine how they would like to be involved in a design process. Insights:

- Setting up a meeting specifically around someone with a visual impairment emphasises special treatment.
- In co-creation sessions where the tools are not accessible to everyone, someone with a visual

impairment may feel special in a negative way.

- There is a tendency to define visually impaired people by what they cannot do. View them as people who can do something and make your tools so they can use them. Engage them in the same way as other people, but with necessary adaptations. It is crucial to design these design tools universally so that participants feel completely comfortable and competent in using them.
- In online sessions via Teams/Zoom, there is more “equality” when everyone has their camera off.
- All participants should feel treated equally during the session. Experts should not feel “special” or feel like they are only at the session because they are visually impaired.
- Two types of design tools were investigated: guided storytelling (auditory) and tinkering with materials (physical); both tools worked well for all participants (people with and without visual impairment).
- The students found that a good icebreaker at the beginning of the session helps. For example, a round of introductions that also introduce

personality, preferences, experiences and skills to each other.

## Appendix G: Generative sessions with Inclusive Design students

Generative sessions were conducted with a total of 5 students who did Inclusive Design projects. These sessions all took place physically and lasted between 45 and 60 minutes. General questions were addressed in this session. But the students also created a timeline of how they experienced the Inclusive Design project. After that, we could delve deeper into the future. One of the questionnaires I had prepared for the session:

- Why did you choose to do this project? And based on what (pre)knowledge did you make this choice?
- What was your knowledge about inclusive design prior to the project?
- Were you interested in inclusive design prior to this project, why yes/no? Is it because you do you also feel excluded? Interested in people?
- Did you already have experience with co-design sessions or working with visually impaired people?
- What materials were provided to you during this project (think of different lectures, toolkits, papers, etc.). Did you also use these papers and

tools? If yes why, and why not? DO you think these resources were useful?

- Can you take me through the process of your project, what steps did you take?
- You started with creating a timeline, that was provided to you. But besides that, on what knowlegde did you base the other sessions?
- You started with multiple stakeholders and later validated that with the expert. Why did you do that?
- During the project did you change the approach towards these stakeholder meetings? What changed?
- How did you translate the insights from the sessions to designs elements?
- How did you take into account human diversity?
- What barriers did you encounter during the process?
- Are you more interesed in inclusive design after this project?
- Would you use this knowlegde in the future (carreer or student projects)? Explain what you would use.
- What advice would you give to future students?
- How would you apply this knowlegde in the future?

I have processed the insights I gained from this into statement cards. These statement cards can be found on the following pages.



<p><b>Gaining experience</b></p> <p>You need to gain experience with this part of design to understand it and get skilled.</p> <p><i>"You have to do it once to understand it."</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>??</b></p> <p>You need to learn during this project. You will not do it right immediatly</p> <p><i>"Now there is no time to make a mistake."</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Having affinity with the topic</b></p> <p>Having had a personal and cherished experience of being excluded due to disability, she has a lot of passion for this topic.</p> <p><i>"I also have a niece who is multiply disabled. It's a deep sense of unfairness that comes up." "When I was younger she had trouble hearing. I could not understand other people therefore "</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Not being aware</b></p> <p>The students didn't involve the experts during the whole project and didn't saw the problem of that</p> <p><i>"We did the ideation with our own design team. Not quite by the book, but I don't think that's necessary."</i></p> <p>Interview Student Inclusive Design 2022</p>
<p><b>Lacking information</b></p> <p>The literature couldn't provide information on how to do inclusive design sessions.</p> <p><i>"It felt very obligatory to use those papers/toolkits, but they are not always relevant. Because they don't explain how to do inclusive co-design sessions." "I quickly scanned the toolkits because I think</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Lacking experience</b></p> <p>There was no prior knowledge about co-design sessions.</p> <p><i>"A high level was expected - in general. But we had no experience with co-design sessions."</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Lacking information</b></p> <p>The literature couldn't provide information on how to do inclusive design sessions. Only the PiP reports, but they are made by students, is that sufficient enough.</p> <p><i>"The PiP reports provided some information. But I think it is hard to build on someone elses discoveries and experiences."</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Involving own environment</b></p> <p>The students involved mostly people from their own environment. Because they say they want to focus more broadly."</p> <p><i>"We took a more personal approach to the project. We used people from our own environment, so we could involve more people and these are not experts and therefore more open. Experts know what to say and what not</i></p> <p>Interview Student Inclusive Design 2022</p>
<p><b>Not being aware</b></p> <p>??</p> <p><i>"Fairly literally copied the insights. Is that a problem? They are happy with it. "</i></p> <p>Interview Student Inclusive Design 2022</p>	<p><b>Lacking information</b></p> <p>The students don't have access to the right resources to help them with the co-design sessions.</p> <p><i>"We don't have the right resources to co-design (online)."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Wrong assumptions</b></p> <p>The students had a different vision of blind people.</p> <p><i>"When I met Corien, I was surprised that she could see some things. I thought she was completely blind."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Taking time</b></p> <p>The students couldn't do everything they wanted within the given time.</p> <p><i>"Time restricts you"</i></p> <p>Interview Student 2 Inclusive Design 2022</p>

<p><b>Lacking information</b></p> <p>There was no prior knowlegde and the students couldn't rely on resources to gain knowlegde.</p> <p><i>"But mostly went into like this project with not a not a lot of knowlegde. Research, resources and papers and stuff like that."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Lacking time</b></p> <p>The students already started with designing without the experts, because otherwise the project was not feasible in the given time.</p> <p><i>"I think in between the first and second session, we are already started a bit on ideation. Before the actual the session, we conducted the brainstorming session."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>??</b></p> <p>The students would like to work together with the experts sooner.</p> <p><i>"Yes, because I think it took quite a while until we got an interview"</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Feeling uncomfortable</b></p> <p>Nobody knew how to approach the session and therefore it didn't feel comfortable.</p> <p><i>"Maybe the first session was a bit awkward for everyone because no one knew what it's happening/how to do it."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>
<p><b>Feeling satisfied</b></p> <p>The student was satisfied about the session where they really worked together with the expert.</p> <p><i>"It was actually quite nice [the first session]." "I really liked the storytelling."</i></p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Seperating stakeholders</b></p> <p>The students did different separate sessions with the stakeholders.</p> <p>The design team did separate co-creation sessions with the different stakeholders [observation]</p> <p>Interview Student 2 Inclusive Design 2022</p>	<p><b>Getting in touch with the user</b></p> <p>We are out of touch with the user and don't understand the user</p> <p><i>"I thought it would be really interesting to see how that really works designing with people with disabilities, because we very often design for them but often don't get in touch with them "</i></p> <p>Interview Student 2 PiP 2022</p>	<p><b>Creating awareness</b></p> <p>It starts with awareness</p> <p><i>"I think I am more aware that sometimes the user is not really thought of."</i></p> <p>Interview Student 2 PiP 2022</p>
<p><b>??</b></p> <p>A disability happens when something bad is designed.</p> <p><i>"Having learned quite a lot and something that has always stuck with me too is of was if people don't understand a design, then people are not stupid, then the design is no good. Then I have learnt quite a lot now "</i></p> <p>Interview Student 2 PiP 2022</p>	<p><b>Learning by doing</b></p> <p>They just tried doing the sessions, they didn't do literature research.</p> <p><i>"We didn't do literature research, we just started."</i></p> <p>Interview Student 2 PiP 2022</p>	<p><b>Hard to imagine</b></p> <p>We as nVIPs can not imagine what problems VIPs encounter</p> <p><i>"We had 2 design directions, but they both wanted another direction."</i></p> <p>Interview Student 2 PiP 2022</p>	<p><b>Sessions relied on one sense</b></p> <p>Online sessions were hard because you only could use one sense: speak.</p> <p><i>"One thing that didn't exactly work out, were the zoom sessions."</i></p> <p>Interview Student 2 PiP 2022</p>

<b>Takes time</b>	<b>Building connections</b>	<b>Learning by doing</b>	<b>??</b>
Not enough time to think about the sessions	The student was aware to change her explanation because she had a connection build with the VIP.	You learned the skill by doing it often.	The awareness and insights i will take with me.
<i>"Between sessions, we thought a lot. Of that model growing all the time, but actually we didn't have that much time to adjust that model then. I think if you had more time there you could go into much more detail"</i>	<i>"With the online presentation, I cannot see him, so then you are less aware that there is someone in the room. But then in my head he was there, because we do have a strong connection. This was something I was aware"</i>	<i>We had little trouble with the sessions, maybe because we did so many.</i>	<i>"I especially remember the insights, awareness and not having preconceptions"</i>
Interview Student 2 PiP 2022	Interview Student 2 PiP 2022	Interview Student 2 PiP 2022	Interview Student 2 PiP 2022

<b>??</b>	<b>Learning by doing</b>	<b>Imagine abilities</b>	<b>Getting used to each other</b>
??	We made the assumption that we would learn how to do the sessions by doing it	Recuiting people is difficult and imagining the abilities of a VIP is hard.	It is a proces of getting used to eachother
<i>The best way to learn it is to work a lot with various groups.</i>	<i>We had no trouble with the sessions. That was also because we saw it very much as we are just going to try it out.</i>	<i>"Getting in touch with these groups is difficult. The best way to bring it in from the start is to have a VIP on your design team."</i>	<i>[talking about a friend who is blind in one eye] This is just a natural process of each other getting used to each other, so now I'm not talking about it.</i>
Interview Student 2 PiP 2022	Interview Student 2 PiP 2022	Interview Student 2 PiP 2022	Interview Student 2 PiP 2022

<b>Setting an extreme example</b>	<b>Working towards overall inclusivity</b>	<b>Starting together</b>	<b>Making mistakes</b>
Getting extreme examples will open eyes.	Although they only included a VIP, the idea seems also appropriate for a more diverse group.	It was difficult to make the process accessible to VIPs, you really should have knowlegde about it.	It is hard to start with the project because they are afraid to insult the participants.
<i>"The lecture in the first year, where two men told about their experiences as small and big."</i>	<i>"I didn't feel we were making it [the ideal washing machine during the second session] specifically for visually impaired people [when they online worked together with VIPs]."</i>	<i>"If you are going to do this [an inclusive design project], you really should have a VIP in your project group already, while you are setting up the project."</i>	<i>"I was very nervous, for example, I was afraid I might say the wrong things. Also I just said, "we showed the VIPs that"."</i>
Interview Student 2 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022

<b>Getting personal</b>	<b>??</b>	<b>Setting rules</b>	<b>Understanding process</b>
They were doubting what they could ask the VIP, because it is kind of personal.	They had a lot of insecurities about how to approach her, but they can not ask everything to her.	They discussed with the participant the possibilities.	The design team didn't know how to go from research goal/wanted insights to activities. Because of little time, hard to imagine and not that much
<i>"We were wondering how far we could go in asking things. How much are they willing to tell? Was quite a lot in the end."</i>	<i>"We can not ask about everything what she prefers."</i>	<i>"We agreed how to approach this project ( if she could come to delft) etc"</i>	<i>"Making up activities (because you almost got information) was really the hardest part." "But it was so difficult, because so we wanted things, but we just didn't know how to do it." "We did try it with a blindfold but then think"</i>
Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022

<b>??</b>	<b>(not) having experience</b>	<b>Wanting guidance</b>	<b>??</b>
When working with VIPs it is best to work in small groups. Otherwise the conversation is hard to follow for the VIP.	The focus of the case was on the diagram. But to do investigate that, they first needed to understand the co-design sessions with VIPs.	The students had not enough knowledge/experience/inforamtion to tackle this project. They needed more guidance.	There was not enough time to really think things through.
<i>"The first meeting with 8 students was too much for Corien. She couldn't remember who was talking etc."</i>	<i>"Our case had a dubble layer: How to co-design with VIPs and how to apply the diagram" "I had a lot of difficulties with this diagram, I didn't understand it But we had to annlv it l"</i>	<i>"I also indicated to the coaches that I wanted more guidance"</i>	<i>"It was just all just a little short of time, so we were really in a hurry to find everything."</i>
Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022

<b>Collaborating in project</b>	<b>Take into account the little things</b>	<b>Getting insights</b>	<b>Imagine abilities</b>
It stills feels if the expert is a participant and not part of the design team.	The design team thought about the activities, but not really about the rest of the session.	When working on the assignments, the participant told a lot of valuable insights.	It is hard to imagine what the abilities are of the stakeholder
<i>"And upon entry was very nice, the VIP also had an icebreaker for us, because she had of VIP glasses and then we could experience it too. Then it didn't feel like she was just the participant but it was really more like a kind"</i>	<i>"She also said she thought there was too much on the table, she didn't recognise the stuff very well."</i>	<i>"While building and telling, she was already saying things in between that we wanted to know."</i>	<i>"I think we also felt she had worse vision than it actually is." "We did try it with a blindfold, but then think she's been doing it for years and I'm doing this for two minutes now So I can say that's the"</i>
Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022	Interview Student 1 PiP 2022

<div>Devide roles</div> <div>When people with different abilities work together on an activity, they will do the part they are good at.</div> <div>"An assignment with the nVIP and VIP: the VIP told a lot and I then made it."</div> <div>Interview Student 1 PiP 2022</div>	<div>Wanting information</div> <div>There was not that much information provided during the course.</div> <div>"I had a lot of difficulties with this diagram, I didn't understand it. But we had to apply it (I guess), this was the only paper that was provided"</div> <div>Interview Student 1 PiP 2022</div>	<div>Asking for help</div> <div>Because see could not continue with the project, she approached the client/expert.</div> <div>"I ran into problems with the project, hence I wanted to contact the stakeholders."</div> <div>Interview Student BEP 2022</div>	<div>No idea what to expect</div> <div>She went into the brainstorm without assumptions</div> <div>"I didn't really know what to expect from the sessions, so had to switch during th session how to approach it. Because she was keen to brainstorm with me."</div> <div>Interview Student BEP 2022</div>
<div>Questioning the relevance</div> <div>Not sure if the design is suitable for VIPs</div> <div>"My final product may not be entirely suitable for VIPs, there is a lot of text."</div> <div>Interview Student BEP 2022</div>	<div>??</div> <div>As nVIPs we can not imagine what the problems are.</div> <div>"They are often easy adjustments to make something inclusive. But often we don't know exactly what is going on"</div> <div>Interview Student BEP 2022</div>	<div>Characteristics</div> <div>Her personal life and characteristics are reflected in her life as a designer.</div> <div>"I want to help people, give trainings, did board year. Also with design, I want to help people."</div> <div>Interview Student BEP 2022</div>	<div>Characteristics</div> <div>Her characteristics is really help and not to feel better.</div> <div>This trait is more focused on other people though, so not necessarily to make myself feel better.</div> <div>Interview Student BEP 2022</div>
<div>Influenced by family</div> <div>This value is influenced by people you love</div> <div>"Teaching each other things runs in the family. My grandparents are teachers. My brother trains, etc. I got that from them.</div> <div>Interview Student BEP 2022</div>	<div>Trying to be included</div> <div>Never felt excluded, but had to try hard to feel included.</div> <div>"I think I used to find it quite difficult for a connection in group sometimes. I never really felt excluded but hard to made friends"</div> <div>Interview Student BEP 2022</div>	<div>Wanting to help</div> <div>She wants to help people, so they don't have to experience what she did experience.</div> <div>"With my trainings and board, I try to create the connection for others as well."</div> <div>Interview Student BEP 2022</div>	<div>Taking initiative</div> <div>When it is optional, only a few students take initiave to get in touch</div> <div>"We took our own initiative in week 4 to do a session with Visio. But we were the only 2 who had done so out of 14."</div> <div>Interview Student BEP 2022</div>

# Appendix H: Generative sessions with students

Generative sessions were done with students not participating in Inclusive Design projects. A total of six students participated, 3 master's and 3 bachelor's students with varying interests. These sessions were all physical and lasted about 45 minutes. These sessions were done to find out the values and needs of the students during a design project. This page shows which assignments were done. Next are the statement cards that were made with insights and quotes from the sessions.

**You are designing a new check-in system for public transportation as your graduation project.**



How would you approach this project? Please draw/explain it on the timeline below.

Activities


People involved

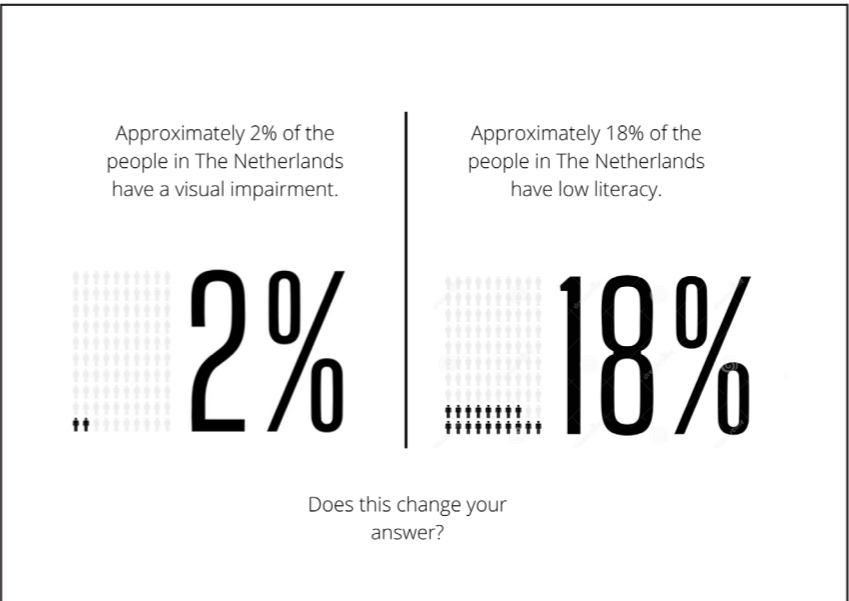
Values

Start of project

Finish

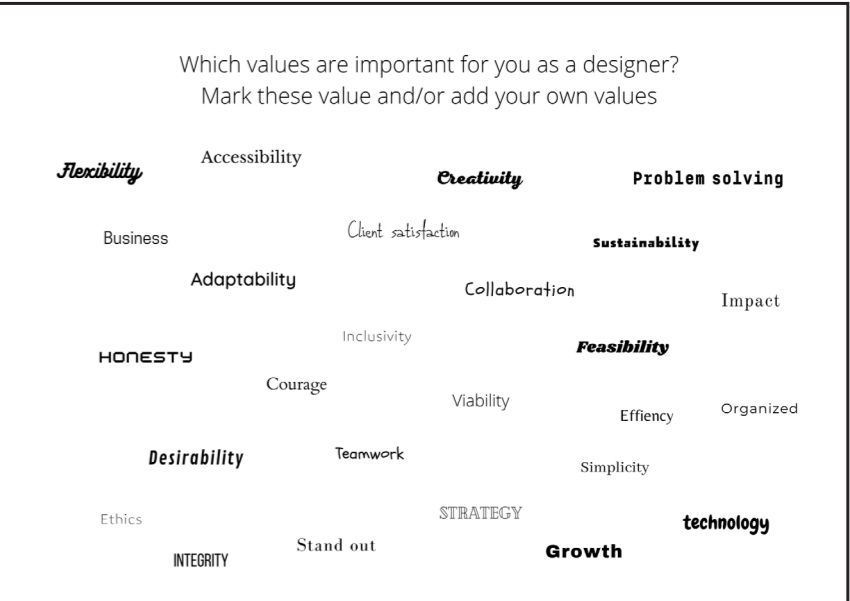
Would you take visual impaired people into account? And people who have low literacy?  
Why would you take them (not) into account? And how?





Cut the images and make a collage of your dream as a designer





What is your dream as a designer? Make a collage and explain.

<b>Influenced by family</b>	<b>Understanding the value</b>	<b>Get out of your comfortzone</b>	<b>Approaching people</b>
Her mother talks about this topic, and therefore she is more aware of it.	She sees the value of inclusive design	Get in touch with new people	The master student would approach people out her comfortzone, to test the product.
<i>"My mother's job is to make buildings accessible to the visually impaired. This makes me more aware of that too."</i>	<i>"I think public transportation I think it should be equal for everyone."</i>	<i>"But I also think you live in a bubble. But especially as a designer, you have to get out of that."</i>	<i>"I would approach people there to test the existing design."</i>
Interview Student DFI 2	Interview Student DFI 2	Interview Student DFI 2	Interview Student DFI 2

<b>understanding inclusive design activities</b>	<b>Forgetting invisible disabilities</b>	<b>Thinking first about 'typical users'</b>	<b>Talking to researchers</b>
The student knows why the design should work together with diverse people.	The student only keeps things in mind that she sees.	She first only wanted to involve regular users. But after seeing the whole planning, she also thought of involving diverse groups."	They want to talk to other designers and learn from them.
<i>Of course you have to design for everyone, but I think this should be done together. Making people feel that they can also provide input.</i>	<i>"I didn't think about low literacy, and other cognitive disabilities, because you can not see that."</i>	<i>"I would observe and interview regular travellers. [after a minute] interview different group, new, regular, tourists and disabled. Because everyone shou;d use public transportation "</i>	<i>"I would talk to designers that have experience with disabled people."</i>
Interview Student DFI 2	Interview Student DFI 1	Interview Student DFI 1	Interview Student DFI 1

<b>Not interacting with experts</b>	<b>Values of family</b>	<b>Focussing on own perspective</b>	<b>Working together</b>
We don't have experience or interactions with people with a disability as designers. So it is hard to imagine their capabilities.	Her parents both value to help people. They both help people to get better.	The students only want to focus on what they are good at. They are afraid to make mistakes	The student likes to work and interact with other people.
<i>"We don't have contact with people like that [that have low literacy/cognitive disability]."</i>	<i>"My parents are both doctors and sometimes my mother has ideas for which groups I have to design, like people with parkinson disease."</i>	<i>"I am not talented in technology, so I let someone else do that part.I don't dare to start with that part."</i>	<i>"I find teamwork and working atmosphere very important. A team also makes me work harder."</i>
Interview Student DFI 1	Interview Student DFI 1	Interview Student DFI 1	Interview Student DFI 1

<b>Keeping overview</b>	<b>Solving complexity</b>	<b>Not seeing the big picture</b>	<b>Forgetting disabilities</b>
The student is structured and organized.	The student wants to have a challenge and make an impact.	The bachelor student thought to involve the most typical users	The bachelor student is aware that the group stakeholders is bigger than typical users. But she is not actively thinking about that
<i>"I like to keep an overview of the project."</i>	<i>"I don't want to design just a chair, I want something complex to solve."</i>	<i>"I will involve regular users of transportation in my research and testing phase, like students, And also employees."</i>	<i>"Yes, actually I should have included visually impaired people... I forgot that."</i>
Interview Student DFI 1	Interview Student DFI 1	Interview Student Bachelor 1	Interview Student Bachelor 1

<b>Reflecting values</b>	<b>Getting aware</b>	<b>Difficulty to connect</b>	<b>Having hands-on approach</b>
Values come forward in personal and design life.	By education the student got aware of the importance of DfS.	Because she felt different, she had sometimes trouble with connecting	Hav
<i>"My personality is reflected in the things I value during a design process, like honesty, teamwork and organized."</i>	<i>"Studying did make me realise that sustainability is very important and that we as designers can influence it. Before this, I was not aware of it."</i>	<i>"I have never felt excluded. But did find it difficult to connect sometimes. Before I studied here, I thought very differently about things than my friends."</i>	<i>"I like work with a hands-on approach, so making something physical."</i>
Interview Student Bachelor 1	Interview Student Bachelor 1	Interview Student Bachelor 1	Interview Student Bachelor 1

<b>??</b>	<b>Having insecurities</b>	<b>Not involving people</b>	<b>Involving people late</b>
Helping people actively is something her parents always do.	Having to little experience with designing to approach people right away.	First do a good research, and start designing. In the end involve people.	She wants to validate her ideas in the end if it is accessible for people with a disability.
<i>"Maybe helping people is something my parents teached me. With their work they are always helping people to life healthier."</i>	<i>"I find it scary to approach people right away when I still have little knowledge. I want to prepare well."</i>	<i>[Exercise] She first would do research (existing products, case etc.). Then she would start designing. After that she would involve people to test it.</i>	<i>[Exercise] She would first design design for regular users. In the end/halfway she would test if the product is usable for people with disabilities."</i>
Interview Student Bachelor 1	Interview Student Bachelor 1	Interview IPD Student 1	Interview IPD Student 1

<b>Questioning abilities</b>	<b>Not involving people</b>	<b>Relating to exclusion</b>	<b>Forgetting invisible disabilities</b>
People don't know what they want. Therefore she involves them late in the project.	Trust your own process, because people don't know what they really want.	Because her family has been excluded, she did think about it.	She only thinks of visible disabilities, and a language barrier (because she has experienced that).
<i>"For example, that video where people are asked about mobiles, they didn't want this at the time. They don't know what they want and as a designer you get demotivated then."</i>	<i>"So I would do what feels right to you (based on research and knowledge). After that, get people involved, then you'll see what you're really still missing."</i>	<i>"Also people with a language barrier. My parents and especially my grandmother, they can't speak Dutch at all."</i>	<i>"I indeed didn't think about mental disabilities"</i>
Interview IPD Student 1	Interview IPD Student 1	Interview IPD Student 1	Interview IPD Student 1

<b>Going into the deep</b>	<b>Having multiple interests</b>	<b>Taking everyone into account</b>	<b>Adapting to a changing world</b>
Hard to imagine abilities and experience of everyone. So you need to talk a lot with different groups, but she didn't plan to do that.	She wants to focus on humans (she thinks she has that ability already) and is now focussing on feasibility	She would take into account every user, and also potential users.	Designs should adapt to the continuous changing world.
<i>"You can't imagine how it feels to be in a wheelchair. So you should have an in-depth conversation with them."</i>	<i>"Because I took a minor in psychology, I do know more about interactions. And now I want to be able to realise it with the IPD Master's."</i>	<i>"I first would observe everyone, all sorts of users. And also interview people that don't make use of public transportation because they experience problems."</i>	<i>"Adaptability is an important value. The whole world changes and people do also change. Our designs should be able to adapt to those changes."</i>
Interview IPD Student 1	Interview IPD Student 1	Interview Student Bachelor 2	Interview Student Bachelor 2

<b>Adapting towards inclusivity</b>	<b>Efficiency is key</b>	<b>Designing for the open-minded</b>	<b>Combining aspects</b>
By adapting a design to the time and environment, it should be more inclusive.	A design should be efficient to use for everyone to make it inclusive.	Designing for people that are more open to new ideas.	She has multiple interests, technology has possibilities and keep in mind humans, you will get more meaningful designs.
<i>"Adaptability is related to inclusivity. If it is adaptable it also should be inclusive and more accessible for everyone."</i>	<i>"Efficiency is important in design, if your design is not efficient, it is not a good design. Think of material use, energy use, etc."</i>	<i>"It seems really interesting to design for children, they are so open-minded."</i>	<i>"I think we as designers can combine technology and humans. Those two aspects I find really interesting. I think there could be something really beautiful there."</i>
Interview Student Bachelor 2	Interview Student Bachelor 2	Interview Student Bachelor 2	Interview Student Bachelor 2

<b>Understanding human</b>	<b>Valueing helping people</b>	<b>Feeling as an extra part</b>	<b>Lacking appreciation</b>
Seeing the value of human centered design	Helping other people	When something is not integrated in the process, it is seen as an extra part.	She was disappointed because she didn't receive the appreciation that she should have to design inclusively.
<i>"I saw how important it was to understand humans. Because in the end, the design is for them."</i>	<i>"Helping people gives me a sense of worth. If people do the same for me, I know that I mean something."</i>	<i>"Sustainability is important but it seems like an extra part of the process, it is not integrated. It is not the primary goal of a project."</i>	<i>"One time we designed a smart home and took color blindness into account. But the coach didn't compliment us about that or didn't notice that."</i>
Interview Student Bachelor 2	Interview Student Bachelor 2	Interview Student Bachelor 2	Interview Student Bachelor 2

<b>Lacking knowledge</b>
She misses basic knowledge of one design aspect, therefore, she doesn't want to focus on that during a project.
<i>"I prefer that someone else does the business side of a project. I don't have that knowledge, because I missed a lot of lessons of my business course last year."</i>
Interview Student Bachelor 2

# Appendix I: Interview teachers

For the project, I interviewed 2 teachers. One of them is involved in the Inclusive Design course. The other teacher is not involved, but expressed an interest in inclusivity. I had prepared some questions and some conversation topics; during the interviews, it became a conversation where we covered these parts. The insight cards can be found on the right.

## Interview questions teacher Inclusive Design:

- Have you been teaching the Inclusive Design course for a long time? Do you see changes emerging in recent years regarding this course? Are students approaching it differently?
- Apart from the Inclusive Design elective, do you do anything related to inclusivity? Design studio or other courses? Do you draw students' attention to inclusivity? Do you tackle inclusive design for a company differently than when students learn it?
- Do you personally experience a change in recent years regarding inclusive design in general?
- What would you like to see different during a co-design session?
- What do students get stuck on the most?

- What advice would you like to give future students?

## Interview questions/conversation topics teacher:

- You proposed the idea of not calling them inclusive guidelines but just guidelines. Did you base that own experience? Did you test that, or did you got inspired by someone/another field of design? Did you try it?
- Do you think when there is another name for inclusive design, it will work better?
- I know you are also involved in more inclusion and diversity projects. Also, I saw that you are part of the team that has designed the Diversity, Equity and Inclusion for Embodied AI.
- There are some tools and initiatives to design more inclusively, but why do you experience that a lot of designers/students still do not take that into account? And why?
- You also teach some courses here at the TU Delft.
- Do you notice that other coaches are not always value inclusivity or are not always aligned?
- What do you think the IDE faculty should do to improve inclusivity?
- Or do you think that is necessary?

<div>Working preventively</div> <div>By doing inclusive design activities you work preventive (no additional extra costs and time later in the project).</div> <div>"You must be able to demonstrate that by applying inclusive design activities, you will end up costing yourself less time and money by not having to make these adjustments at the end or come up with additional solutions "</div> <div>Teacher Inclusive Design</div>	<div>Balancing values</div> <div>It is not always possible to include all values equally. But you need to think about it.</div> <div>"Sometimes you have to balance different values against each other. But best is to include them all."</div> <div>Teacher Inclusive Design</div>	<div>Implementing the requirements</div> <div>A starting point is to put it in the design requirements at the start of a project.</div> <div>"To start designing inclusively, you need to put that in your requirements."</div> <div>Teacher Inclusive Design</div>	<div>Providing examples</div> <div>To emerge awareness and understanding, examples should be provided.</div> <div>"To apply it, you should provide some examples."</div> <div>Teacher Inclusive Design</div>
<div>Integrating inclusivity</div> <div>Inclusive Design should be a common aspect of design that should be applied in more cases.</div> <div>"Actually it is a shame that inclusive design is a special course, it should be integrated in some cases."</div> <div>Teacher Inclusive Design</div>	<div>Conveying knowledge</div> <div>When the teacher gains knowledge, they teach that to their students.</div> <div>"Because the knowledge I gained during the course Inclusive Design, I could help my students during this case about children with a disability."</div> <div>Teacher Inclusive Design</div>	<div>X</div> <div>A next step can be taken by course coordinators.</div> <div>"It should be a nice step to implement inclusivity in the assessment."</div> <div>Teacher Inclusive Design</div>	<div>X</div> <div>There should be more attention go to inclusivity.</div> <div>"It [inclusive design] should be applied in cases in the bachelor. Not only as an elective in the masters."</div> <div>Teacher Inclusive Design</div>
<div>Overcoming threshold</div> <div>Hard to make the first contact, but when that is done, it gets easier.</div> <div>"Some students had difficulties to start collaborating with the stakeholders, but once they got in contact it was easier because the stakeholders were enthusiastic."</div> <div>Teacher Inclusive Design</div>	<div>Stimulating students</div> <div>By stimulating the students, the students will be more likely to do participatory inclusive design activities.</div> <div>"I stimulated them to do the participatory sessions [and every student did the sessions]."</div> <div>Teacher Inclusive Design</div>	<div>X</div> <div>Actively helping students to integrate inclusivity</div> <div>"I try to nodge students to let them think about inclusivity."</div> <div>Teacher</div>	<div>X</div> <div>Termonology of Inclusive Design is not that important</div> <div>"Strategy is more important than terminology"</div> <div>Teacher</div>

# Appendix J: Inclusive Design project case

During the Prototyping for Interaction and Participation course, a Master elective in Industrial Design Engineering, which ran at the same time as my thesis, a student team started working on an Inclusive Design case. They went further into the insights I had already gained during the process. This appendix contains more information about their case, research goals, research questions, approach and insights. The information described here comes from the report by Chen, de Jonge and Verstappen (2023) and sessions during the project:

## Case description

Inclusive Design is a design approach to expand the target groups for products. It serves to create accessible product options for groups that would otherwise be excluded. But how do you, as a student, actually collaborate with people during an inclusive design process?

We are creating a process in which everyone feels safe to share and open up. Working with people who have a disability (in our case, visual impairment) can be quite scary for students. They want to do it perfectly immediately. We want to work on

creating a prototype that can help students feel more comfortable in communicating with visually impaired people. Creating a safe space and feeling equal are key factors for this.

## Research questions

- What does “Equality” mean for VIPs during a session?
- Which tools can help make VIPs feel comfortable in a cocreation session with multisensory tool?

## Insights

In this paragraph, the relevant insights for my project that the design team found out, are listed:

- The two experts are a strong contender of creating a level playing field.
- One expert is fan of icebreakers. The other expert recommended a sensitizing assignment.
- The lack of interview guide made it difficult to create deeper conversations on the topic. But it helped them to have an equal starting point and gain more valuable insights during the meeting. But the studentteam preferred to have a prepared interview guide for the next meetings, because

of time limitations it is more effectient to prepare the session

- Having an introductory session helped us build a bond with their experts and made them more confident in future sessions: *“Having an introductory session helped us build a bond with our VIPs and made us more confident in future sessions”*
- By starting the session immediately with design assignments, experts are scared off. If they have to start drawing immediately, they begin to doubt what is expected of them during the rest of the session.
- Icebreakers, where the expert and student got to know each other’s personality and character, worked better than icebreakers, where they only had to do a creative assignment.

## Conclusion

We have the following recommendations to designers of participatory sessions with VIPS:

- Do sensitizing activities before the session and preparation thereof.
- Focus on a strong introductory session, to help

all participants feel acquainted everybody in the session.

- Be empathetic to VIP narratives, rather than simulating their experiences artificially.
- Provide more session information to VIPS beforehand. It could be beneficial to inquire about which methods VIP participants already have experience with.
- Promote the feeling of low stakes in regards to the expected “artistic” output of session activities.
- Limit the amount of prototyping materials available, specifically clay and paper are good multi-functional materials many are comfortable with. Take material color into account in regards to the session environment (strong contrasts are ideal).
- Focus on a broad spectrum of creative activities. Individual preferences vary and different activities have their own unique inputs and strong suits. We recommend roleplaying and lofi prototyping, as these worked well in our session.
- If mindmapping is necessary for a specific context, delegate it in a way everyone contributes in an equal way and that VIPs have

the opportunity to hear other's input and gain inspiration from it.

- Qualitative evaluation methods like interview work fine in such sessions, quantitative text-based methods prove to be problematic.

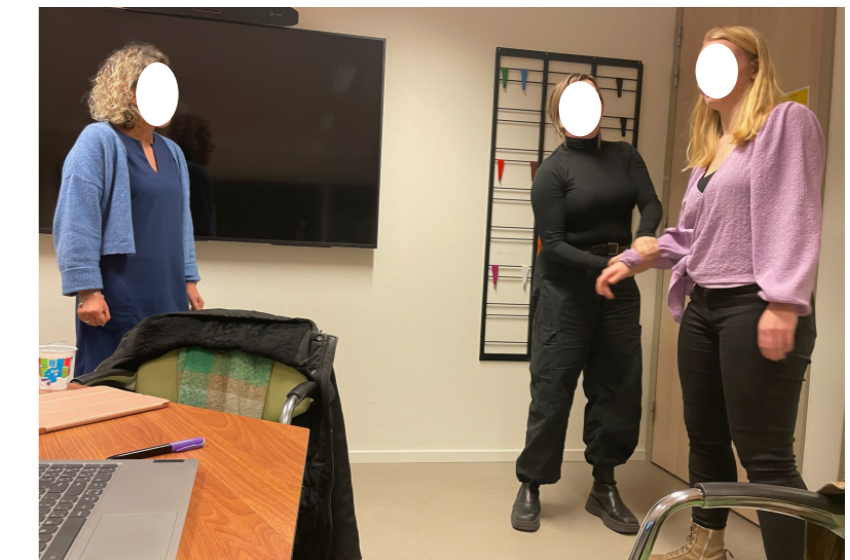
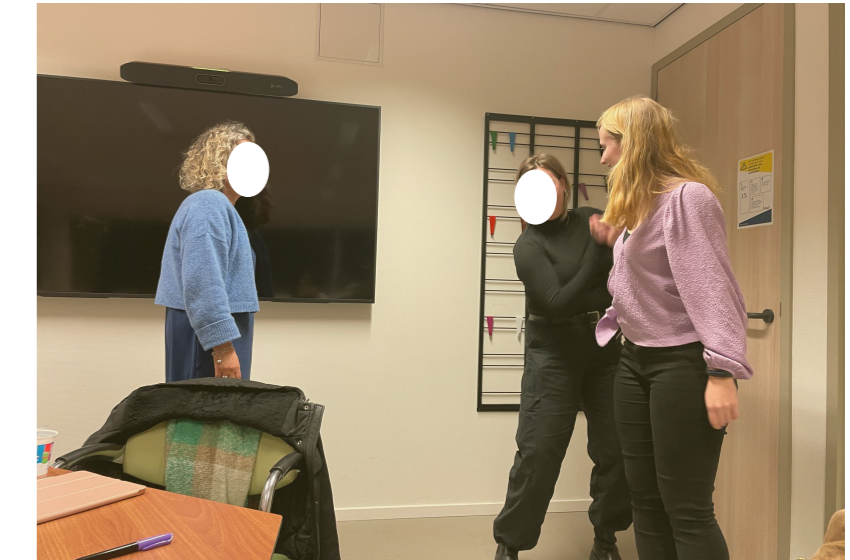
### Insights I derived from this project

There are also some insights that I can get from this project myself by analysing the project and reflecting on the process together with the expert:

- Although the student team indicated and understood that it was important that there should be an equal starting point for them and the expert. This was often not realised. Corien and I sometimes felt "stressed" during the co-design session because we had to think of things quickly on the spot.
- Even though they had doubts about some co-design activities, they were still going to try. They dared to do this and dared to keep asking questions.
- Corien had difficulty explaining to outsiders what she had done during the session. Others do not understand why these co-design activities are

important. It should be clearly explained why certain activities are done.

- Before the tasks are done, discuss more with the expert what his/her preferences are "Ask in advance which colour clay I prefer vs the table". So work together more as a team.
- During the session, there were many questions for Corien and not me, so the expert was still in the centre.



# Appendix K: Co-design sessions

Students kept indicating they wanted to be better prepared, and many ideas from the sessions related to this (co-design session 1 and 2, and research insights). Because of this, I eventually decided to start with a design myself, and continue iterating on it with students. I will describe in this appendix the co-design sessions held.

For every co-design session the participants filled in a consent form, see *Appendix O*.

## Co-design session 1

Participants: four graduate students.  
Duration: One hour.  
Goal of the session: Research what is learning process and discuss project.

Results the session: The results can be seen on the next page.

## Reflection on the co-design session

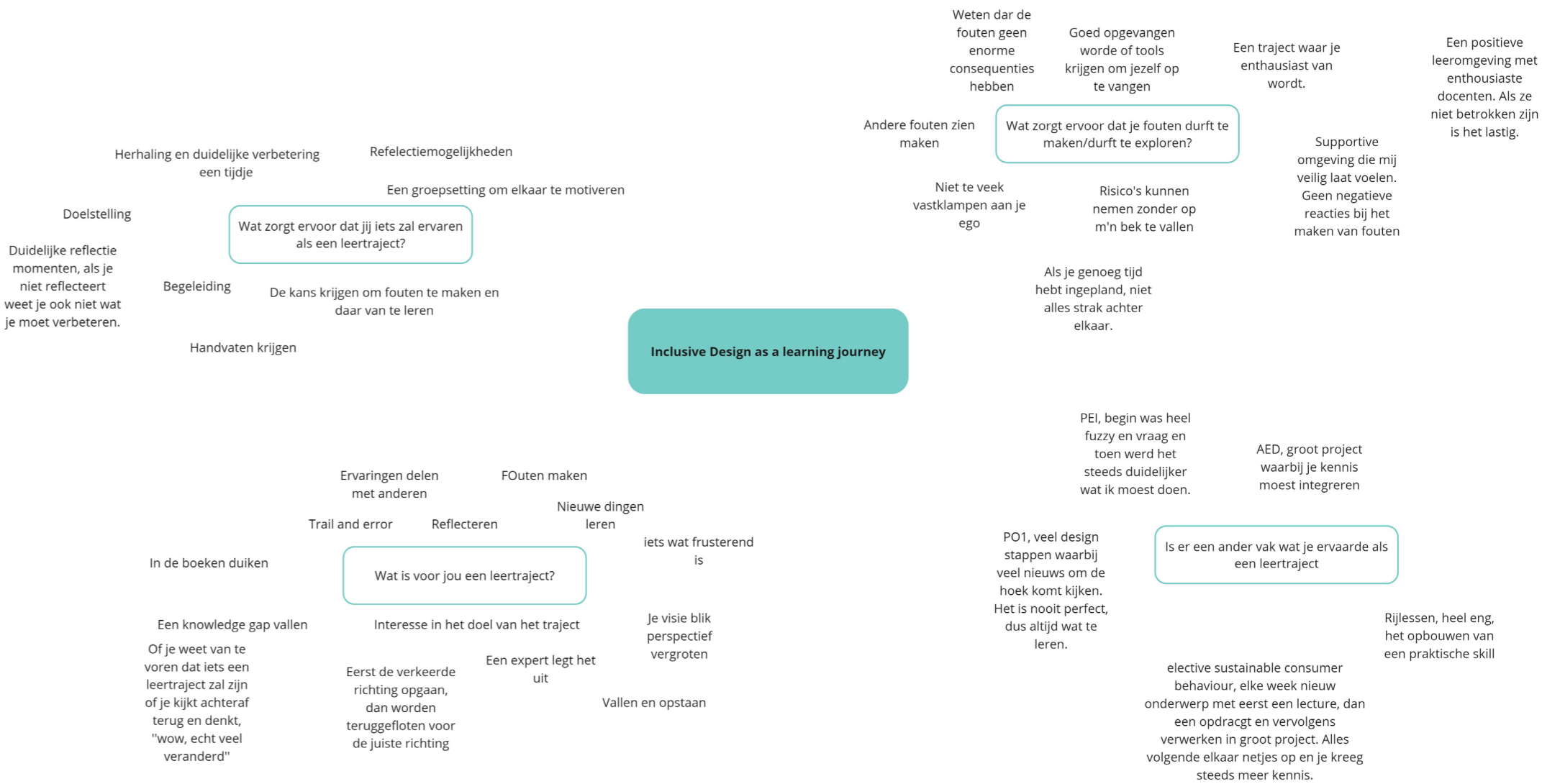
1. Explorative way of defining Inclusive Design: In the beginning, we had a sensitizing assignment where we discussed what inclusive design meant to them. However, I did not want to do in a session

that something was wrong or right, but many thought that inclusive design was “designing for people with disabilities”. Two students also thought it was enough to blindfold someone to represent if someone is visually impaired.

It is kind of interesting to learn about the term in an explorative way. I did not want to suggest it, but I should guide this more so that mistakes are not made.

2. Establishing what participatory design is: It is still not clear to all students what participatory/ co-design is, even though they have taken courses where they have applied it. They should be better informed about this beforehand. Define what co-design is based on examples the students have experienced themselves. Because often they have done something with it but are not aware of it.

3. Establishing that the terminology is less big: Much time was spent on the term inclusive design and what exactly it meant. The same goes for co-design. This is because the terms are very large. Next session, introduce these terms in an approachable way.



Co-design session 2

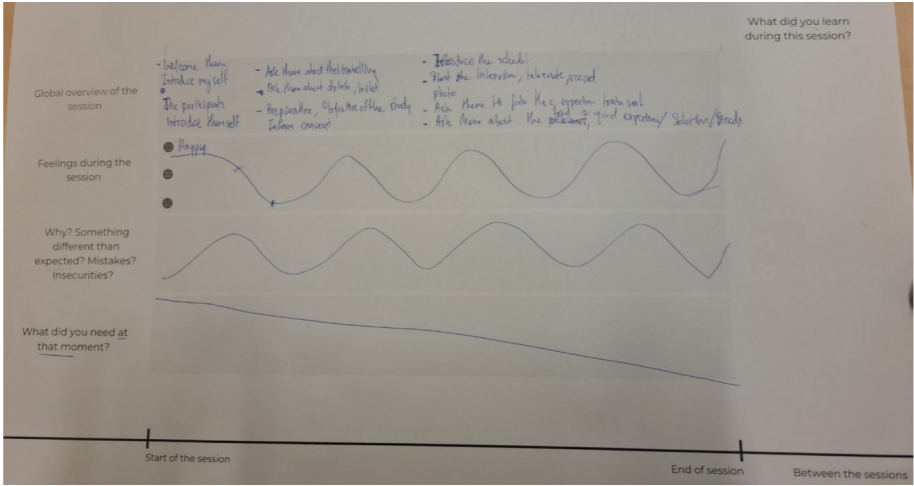
Participant: PhD who did co-design sessions with people who are visually impaired.

Duration: 1 hour.

Plan for the session: Research how she experienced the co-design session & What were her needs during the session?

- 1. Discuss prior knowledge and experience:
  - Previous experience and knowledge about Inclusive Design?
  - Previous experience and knowledge about co-design?
- 2. Discuss some things of the preparation of the session:
  - What were your expectations of the co-design session?
  - What were your main insecurities about these co-design sessions?
  - While preparing the session, what problems did you encounter?
  - What needs did you have during the preparation?

- 3. Get into the topic, discuss the co-design session:
  - See image



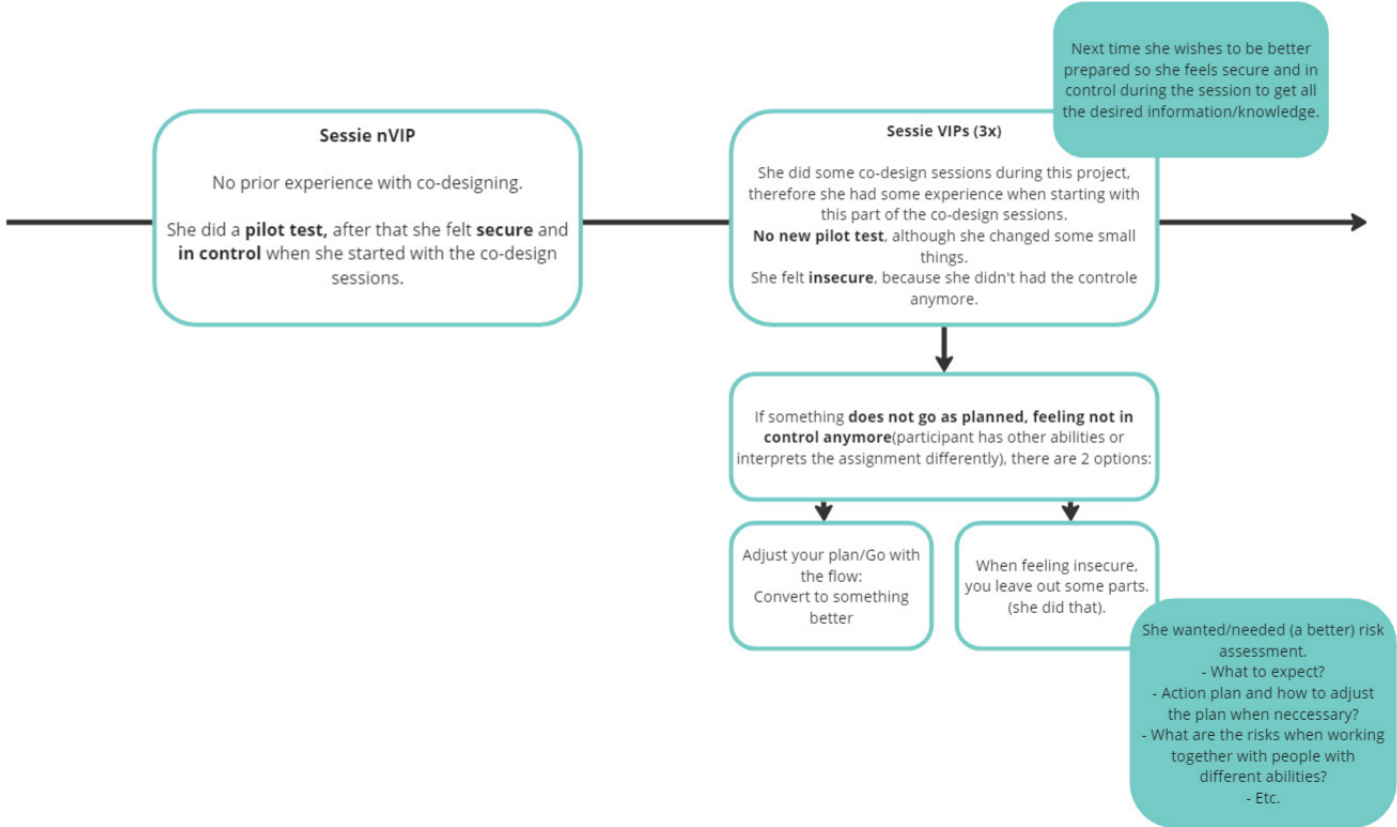
- 4 Design what you need:
  - She wanted a better risk assessment to be better prepared and more secure for the session.

Summary

She had no prior knowledge or experience with Inclusive Design or co-designing. She used the Sanders and Stappers book and the Delft Design Guide about contextmapping to get familiar with this new method, after that she started to create her own protocol. Started first with co-designing for people without a disability. Then she did these sessions for people for a visual impairment. She did no new pilot test for this new target group, even though she needed to change some things because the VIPs were not

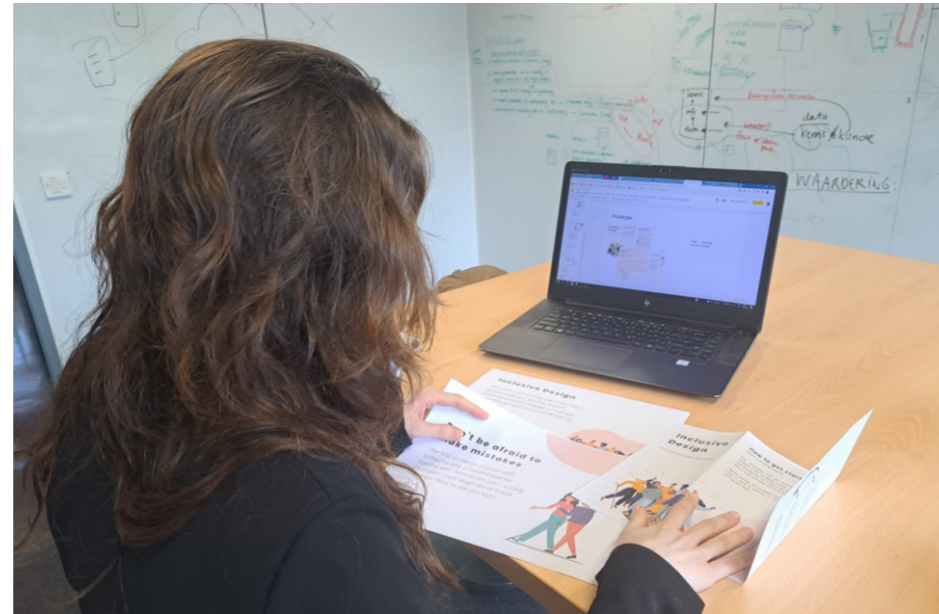
able to execute some tasks. But she still had the same protocol and same questions “I used the same protocol and same questions that I used when doing this with normal people. I thought this part doesn’t need a pilot test.” Looking back, she would have wanted to do a pilot test, to be better prepared. She had insecurities because she didn’t know the abilities of the visually impaired people. “I don’t know what the participants can do, I cannot imagine.”. Besides that she was afraid to ask some “side questions”, because she was afraid to hurt them “hurt them/

impact”. Therefore she doesn’t have the deeper knowledge. She would have wanted a better preparation so she would be more secure during the session and dare to ask more and therefore will get more insights when doing such sessions. What could have helped her to feel less insecure was a risk assessment, so she would know beforehand what she could ask, etc. Besides the disability, there was another barrier: language.



## More co-design sessions

After this, I started with a prototype and co-designed and iterated from there with students. I started with a small prototype of a campaign/awareness posters and a co-design session that could be started in an approachable way and show that making mistakes is part of the process. I have involved to nine students and two experts.



## Awareness posters

Seeing others make mistakes is humorous and useful. But especially when I explain it. From just the text of the poster, it doesn't stick as much.

*"By this, the topic of inclusion is not heavy."*

*"It is humourous"*

*"The examples are very useful. Even experts make mistakes."*

It is passive, they want it more interactive:

*"It was passive, I want it to be more interactive."*

It does not put students to work, it should be more interactive:

*"Every groupmember has one card/poster and tries to apply that. In the end share the poster with everyone? > To make it more interactive."*

*"Maybe a follow-up? What can they do with the information?"*

*"It does not put you to work..."*

*"When to use it (context)? When is it during the course? On different moments in the project?"*

## Inclusive Design

Inclusion is something that never has a perfect endpoint. But this doesn't mean we shouldn't engage or improve upon how we have practised design up to this point.



## Don't be afraid to make mistakes

The first co-design session with someone who is visual impaired starting with "Nice to see you". Luckily the expert could laugh about it and responded "Nice to see you too!"



Interactive e-game

An interactive, humourous e-game to show that everyone makes mistakes

“I want more visuals.”  
“Maybe if the text is spoken it is more personal” >  
“It is more interactive, but it doesn’t put you to work.”



1. Which situation happend during practising Inclusive Design?

1.

The course coordinator who forgot the visual impaired person at the station, when she was running to catch her train after a co-design session. The visual impaired person didn't catch the train, the course coordinator noticed she forget her when she already was in the train.

2.

A co-design with someone who is visual impaired starting with "Nice to see you".

3.

At the end of a co-design session with a lot of visual impaired people, asking how their belongings looked like. The visual impaired person didn't knew how his backpack looked like. He thought it was a blue backpack from kanken fjallraven, but is was a blue backpack from Eastpack.

All situations happened!

So don't to make mistakes, you will learn from them! Because Inclusive Design is never perfect, but that doe

Learning journey flyer/booklet

A flyer or booklet that helps the student through tips, and mistakes made before. In fact, I think it is also important how to start “is there anything we need to take into account today?” rather than “how can we take into account your disability?” Not everyone experiences it as a disability.

Too much guidance when you want to let students explore Inclusive Design:  
“Gives too much guidance” > She said I didn’t want to supervise the students and didn’t want to dictate everything, but it seemed that way.

Als iets afgeraffelt wordt, heeft het geen zin  
“We should have done more reflection in the course, but there was no time for that.”  
“Het is zonde als het wordt afgeraffeld, want het was heel belangrijk”

Inclusive Design

How to do your first Inclusive Design project?

How to get started?

Before a co-design session

First, empathize with the experts who are involved in the co-design session. Understand their perspective. Try to live a day the same as them or walk with them the whole day.

Before starting the co-design session, consult them if there is anything to consider when working with them.

Don't be afraid to make mistakes

During a co-design session

Inclusion is something that never has a perfect endpoint. But this doesn't mean we shouldn't engage or improve upon how we have practised design up to this point.

Here are some examples of mistakes that have been made during Inclusive Design projects. But the designers learned from that. So make mistakes to become a better designer.

1 The course coordinator forgot the visually impaired person at the station while running to catch her train after a co-design session. The visually impaired person didn't catch the train, and the course coordinator noticed she had forgotten her when she was already on the train.

2 A co-design with someone who is visual impaired starting with "Nice to see you".

3 At the end of a co-design session with many visually impaired people, ask what their belongings looked like. The visually impaired person didn't know what his backpack looked like. He thought it was a blue backpack from kanken fjallraven, but it was a blue backpack from Eastpack.



Reflect on the session

After a co-design session

You must make mistakes because you will learn from them. Therefore, reflecting on a session and taking these learning points to the next session is essential.

	Element (what & why)	Evaluation (how did it work out)	Conclusion (future perspective)
1			
2			
3			
4			

- general approach
- my research question
- session set-up and structure
- session elements
- materials used
- instructions
- types of output
- communication style
- treatment of ethical aspects
- etc....

Prepare the session

Try to understand the experts

During the session

Don't be afraid to make mistake during a session.

After the session

Reflect on the session and use these learning points to improve your inclusive design skills in a following session.



### Immediately starting with a co-design session

Have students do a co-design session right on the first day. No time to make it perfect. Just before the session, let it be known that the expert (can be internal in the group or an external person) has broken his arm, for example, the session cannot run probably as planned.

It doesn't feel ethical to "give someone a disability", e.g. giving someone a sling.

You can learn a lot of this, because you dare to ask more:

*"It would be a great learning experience."*

*"And afterwards do a interview to learn from it."*

*"It is a safe environment to test it, students will feel comfortable this first time".*

*"You will feel safe."*

The chance students will not take it seriously:

*"I'm afraid students won't take it seriously, see it as a joke"*

*"It's hard to imagine a disability, students can exaggerate things with a blindfold, or not do it well."*

*"Theatrical. Students are going to have a hard time imagining it."*

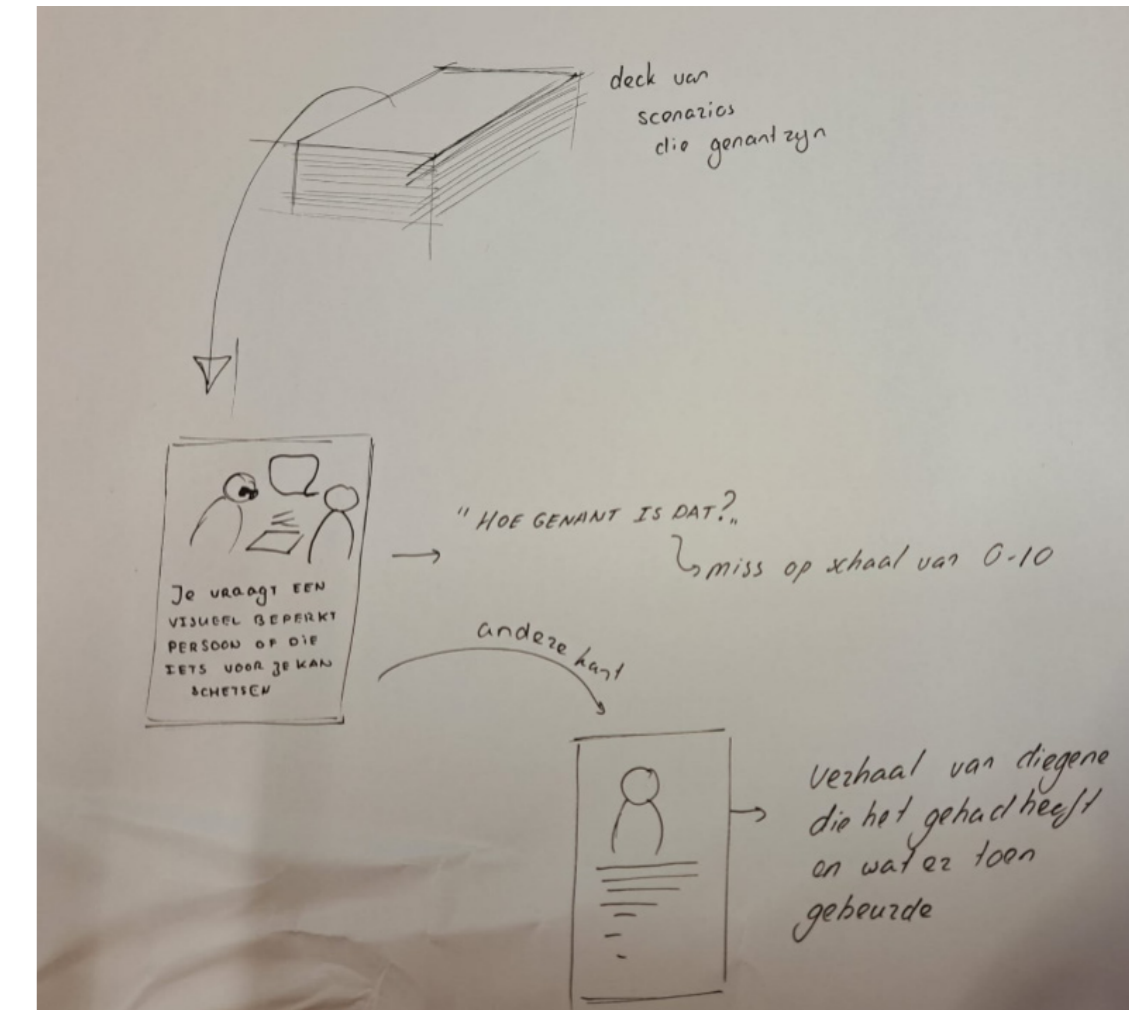
### Combine prototypes

After a multiple co-design sessions, it resulted in a game for the first session with the whole design team (to get to know each other and dare to make mistakes). Experts and students should both be able to answer and participate in this activity/game. This is a kind of icebreaker. The expert should not be the centre during this activity.

This activity or game should be doable without a collective preparation so everyone has a level playing field, and whereby students can not prepare themselves exceptionally well. Many ideas were generated for this during co-design sessions, but I thought most these outcomes felt forced to start a conversation. They contained of many questions and answers, where no natural conversations could follow.

First idea from the co-design session: Card game with global questions, with for instance questions like: what is a problem you experience every day? Think of games like shit happens/black stories. Experts can't do a card game.

In next sessions I explored this design direction further.



More ideas for the game/activity for the first session:

- Hunted/search game. Students are limited in this game, they have to search for something without having details. To simulate a disability. A card game where funny situations that happened during Inclusive Design projects have to be ranked (shit happens).
- Die, wheel, sound board, or button that reads questions or activities aloud.
- Icebreaker without visual aspects. No contest, were more things can go wrong then right (as in karaoke).
- Everyone has a button, with when everyone turns and in a certain way no babble comes out, but a task.
- Icebreaker can be uncomfortable, but if everyone does something stupid, you'll have an easier time doing it in the future. Let experts make mistakes too.
- Confidence exercise, that everyone should do something crazy or embarrassing. Or everyone has to close their eyes.
- Random vragen: geen voorbereiding, niemand heeft hier controle. Ontwerpteam moet de controle weghalen en gebruik maken van geluid. Soort icebreaker vraag achtige dingen zijn. 8 opties, niet elke optie relevant. Misschien een iemand van het team van te voren checken.

- At the table and everyone is given a number. When the button is pressed, e.g. it says number 1 and 3 have to leave the room "1 has to find out what their hobby is by storytelling."
- Automatic actions. Which action can you do without your sight - tricky, because automatic actions you must have done before.
- Something where you have to make a lot of mistakes until you get it right (discover).
- Everyone has 5 buttons, fill-in story. Everyone such a disc that will vibrate, when such a story goes off, if your thing vibrates, a word of yours is used. The rest have to guess whose word is it?
- Weerwolven
- Wie is de mol, if your disc vibrates you are the mole and have to sabotage the game.

Through co-design sessions, more and more design criteria are also emerging:

- It should be interactive
- It should put you into action  
It should be personal
- It should be accessible/inclusive
- It should allow you to get to know each other
- It should make clear that mistakes are allowed
- It should not be too guiding, as you want students to discover it themselves
- It should make sure the expert is not the centre of attention
- It should not let the team members feel time pressure (e.g. having no end goal)
- It works well when humour is applied.

## Appendix L: Workbook

This appendix presents the workbook for students.

# Breaking down barriers to Inclusive Design

A workbook for students



This workbook supports Delft University of Technology's Industrial Design Engineering students starting with an Inclusive Design project.

This workbook provides information on Inclusive Design that you will process reflectively and iteratively through exercises in this workbook during your Inclusive Design project.

# Contents

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What is inclusion?	7
What is Inclusive Design?	11
How to do Inclusive Design?	14
Tools for Inclusive Design	16

*Before starting your Inclusive Design project, you can read this chapter and do the exercises. You can also choose to do this after your first session.*

<b>Barriers to Inclusive Design</b>	18
Overview of barriers	19
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*This chapter can be filled in after the start of your project; the introductory session.*

<b>Breaking down barriers to Inclusive Design</b>	24
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*This chapter can be filled in after the start of your project; the introductory session.*

# Introduction to Inclusive Design

In this chapter, you will explore what inclusion means to you. This way, you will discover what Inclusive Design is because defining is often already the first barrier for students during an Inclusive Design project.

You can read this chapter and make the exercises even before you will start with your Inclusive Design project. However, you can also choose to do this after your first session.

## What is inclusion?

In this chapter, you will first explore what inclusion and exclusion is since this is the foundation of Inclusive Design. We will first start with two short exercises to get you to emerge in the situation.

### EXERCISE

Can you remember a situation in which you or a loved one were excluded, and how did you deal with it? Describe or draw this situation.

### EXERCISE

What does “being included” mean to you?

Nearly everyone has experienced exclusion and can recognize it when it occurs. Exclusion universally has the same meaning for everyone. It occurs when you are not a participatory member (Holmes, 2020), but when and why does exclusion happen to people?

As designers, we tend to create designs based on existing knowledge. For this, we often use our own abilities and biases as a starting point. As a result, we end up designing for people with specific abilities and assume that all abilities and senses are fully available all the time. Consequently, we ignore the wide range of human diversity. Therefore, people will be unintentionally excluded. This exclusion can occur at cognitive, social and physical levels (Microsoft, 2015).

It is not always noticed when exclusion occurs because people have the ability to adapt themselves to situations, which is why not everyone notices when they are excluded at certain moments.

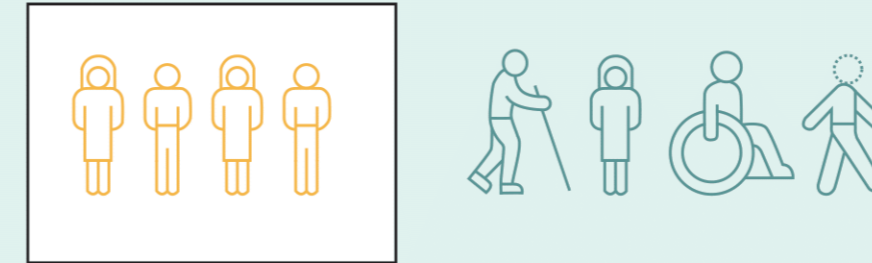
*Can you imagine a situation where you or someone else adapted themselves to avoid being excluded?*

Therefore, products should be adapted to people instead of asking people to adapt to products. To prevent exclusion, we must strive for inclusion. Inclusion means that everyone can participate in their own desired way. However, inclusion is still ongoing, never perfect, and there is always a place for improvement (Holmes, 2020). As Adobe Spectrum (n.d.) stated:

*“Inclusion is something that never has a perfect endpoint. But this doesn't mean we shouldn't engage or improve upon the ways we have practised design up to this point.”*

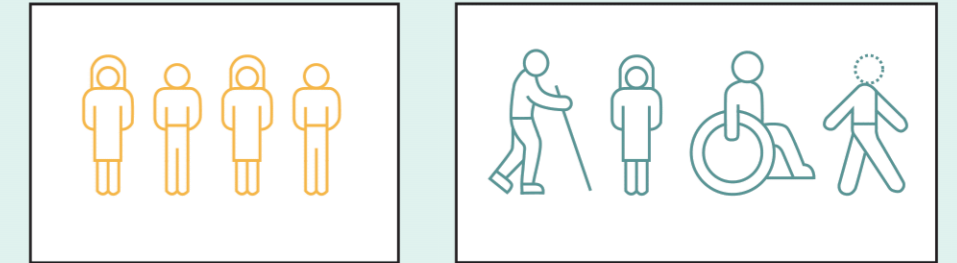
Two stages between inclusion and exclusion are sometimes still confused with inclusion: integration and segregation. In these cases, individuals can participate, but not in the desired way or in a modified form. The overview on the next page shows how the project views these four stages.

## Exclusion



Exclusion happens when diverse groups or individuals are denied participation in society, directly or indirectly.

## Segregation



Segregation happens when diverse groups or individuals are placed in separate environments designed or used to respond to their differences.

## Integration



Integration happens when diverse groups' or individuals' needs are met by employing policies. However, these people are often in the mainstream experience but treated as the “diverse” group.

## Inclusion



Inclusion means groups or individuals are accepted, welcomed, and equally treated. This way, everyone can participate in their desired way.






### Permanent, temporary and situational disabled

A disability can be permanent; about 15% of the population has a disability (World Health Organisation, n.d.). In addition, a disability can also be temporary. A temporary injury or the context can impact people's interactions with the environment. A disability can also depend on the situation because every environment has a different impact on a person's abilities (Microsoft, 2015). The overview on the right presents an overview of examples of when permanent, temporary and situational disabilities can occur.

This recognises that Inclusive Design is not only beneficial for people who have a disability but that it can also be beneficial for a larger group of people who are, for example, temporarily or situationally excluded. This leads to the conclusion that a person can be disabled by their environment, allowing a designer to create an exclusion with each choice they make in the design process. In other words, a designer can create a disability with their design because a disability happens when individual characteristics do not match the context. A person is thus disabled by his or her environment and therefore excluded from equal participation in society (van Houting, 2019; Microsoft, 2020; Adobe Spectrum, n.d.).

### EXERCISE

Can you finish this overview?

Permanent	Temporary	Situational
 One arm	 Arm injury	 New parent
 Blind		
 Deaf		

# What is Inclusive Design?

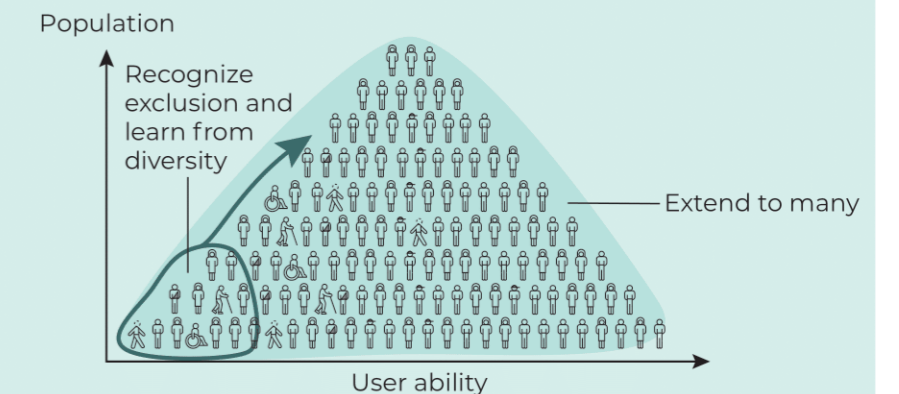
By designing inclusively, products, services, environments, and experiences will become accessible to people with a wide range of abilities.

Inclusive Design is still often confused with designing for people with disabilities. However, the basis of Inclusive Design is not accessibility, but the starting point is the exclusion that people experience when mismatches between them and their environment happen. Including these people in the design process will benefit a much broader group, such as those who are temporarily or situationally disabled.

The overview on the right and next page describes the term Inclusive Design from the project's point of view. In addition, the concepts of Universal Design and Accessible Design are also discussed in this overview; these terms are often confused with Inclusive Design because these approaches also focus on lowering barriers so that the broadest possible audience can use products (Joyce, 2022; Persson et al., 2015).

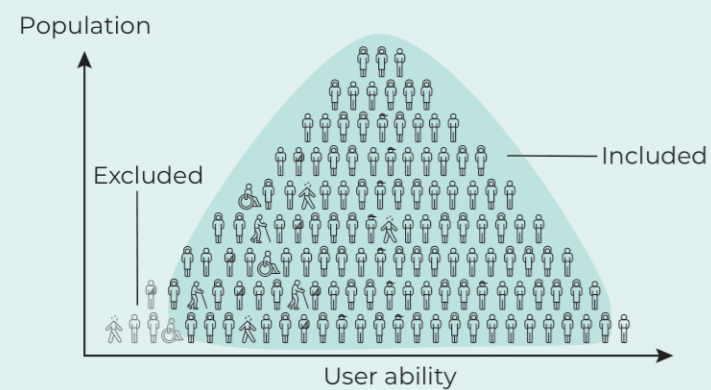
### Inclusive Design

Inclusive Design is an approach in which the designers partner up with people while considering the full range of human diversity to design for their desired participation in society (Inclusive Design Lab, 2020; Heylighen & Bianchin, 2018; British Standard Institute, 2004). Inclusive Design does not mean designing one thing for all people but designing a diversity of ways for people to participate so everyone has a sense of belonging (Khazanchi, 2018).



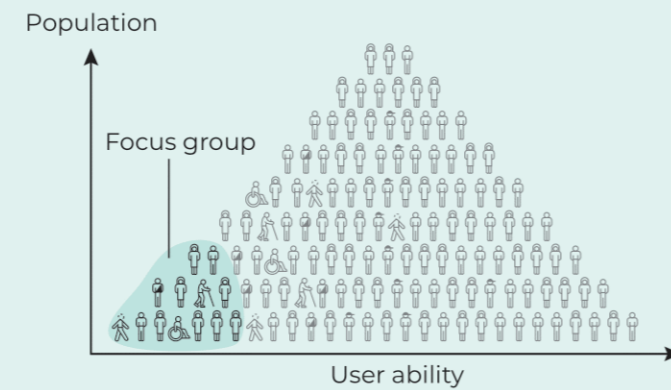
## Design for All / Universal Design

The definitions Design for All and Universal Design can be used interchangeably. These methods aim to design products accessible by all people, to the greatest extent possible, without the need for adaptation or specialised design (National Disability Authority, n.d., a.). This is equal to Inclusive Design, but in contrast, Universal Design is based on seven universal design principles and on creating one solution that can be used by as many people as possible (National Disability Authority, n.d., b.; Persson et al., 2015). Lastly, Universal Design focuses on identifying the most suitable target market and making selections to maximise the “Product performance indicators” for that target market (University of Cambridge, n.d.).



## Accessible Design

Accessibility is focused on the outcome of a design project in which the needs of people with disabilities are specifically considered, so products, services and facilities can be independently used by people with various disabilities (Chapman, 2020; DO-IT, n.d.). These products can be made available via a medical model (reimbursement). This emphasises the disability more, but it creates equality. Another option is that people with disabilities have to buy these products themselves. So people with a disability must finance it themselves, creating inequality because not everyone can afford it (Chung, 2020).



## EXERCISE

Give an example of a product for each of the three design approaches described on the previous pages.

### Inclusive Design

### Universal Design

### Accessible Design

# How to do Inclusive Design?

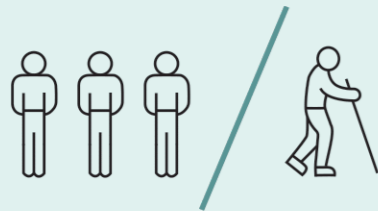
## Principles of Inclusive Design

Inclusive Design is an approach, and no set predefined methods or steps can be followed precisely for this. However, there are three principles that Microsoft has established for an Inclusive Design process. These principles can help designers in order to master the basics of Inclusive Design.

These principles are explained in the overview below.

### Recognise exclusion

It is essential to recognise exclusion; who is being excluded? Moreover, is this intentional, unintentional or structural? (Adobe Spectrum, n.d.; Microsoft, 2020).



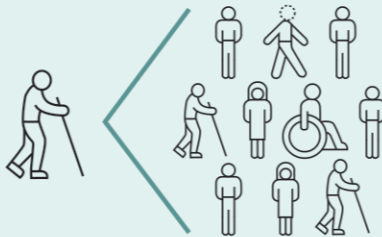
### Learn from diversity

Including people in the design process and putting them in the centre provides many insights into their experiences and how they adapt to their environment (Bhat, 2021; Microsoft, 2020).



### Solve for one, extend to many

Designing products that solve problems for an individual with a permanent disability could also benefit others (Bhat, 2021; Microsoft, 2020).



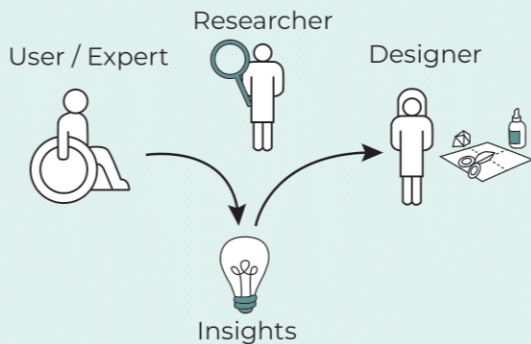
## Co-designing

To understand and include needs, values and experiences of people with various abilities in the design, these stakeholders want to be involved in the process. They want to be considered co-designers and given credit for their input and perspectives (Betts, 2019; Adobe Spectrum, n.d;

Sanders & Stappers, 2012). Thus truly designing together rather than simply listening to them. The overview below gives more information about co-designing. Users are experts in their own experiences. Therefore, they will also be referenced as experts in this report.

### Classical designing

In the classical user-centred design process, the researcher researches the user and passes this knowledge to the designer. The designer creates ideas, concepts, etc (Sanders & Stappers, 2008).



### Co-designing (Inclusive Design)

In co-designing, also called participatory design, the user is considered an 'expert of his/her experience'. Therefore, the designer and researcher collaborate on the tools for ideation, and these tools support the expert for ideation and expression (Sanders & Stappers, 2008).



# Tools for Inclusive Design

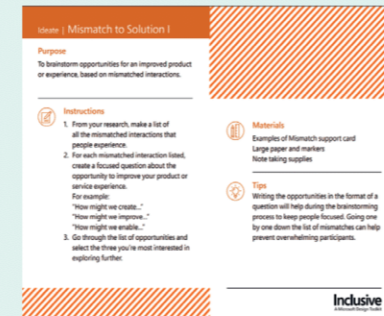
So there are some principles to consider when doing Inclusive Design, but there is no fixed step-by-step plan on how to do Inclusive Design. However, there are tools available to support designers with Inclusive Design. On the right, there are a number of tools that can be useful during your design process.

However, all these tools do not intentionally include emotional aspects when designing for inclusion (Boyuklieva, 2021). While this emotion and feeling are essential when doing Inclusive Design.

There is one dominant tool: The Microsoft Inclusive Design Toolkit. It is often used as a starting point in projects on Inclusive Design, including during projects at TU Delfts Industrial Design Engineering. This toolkit was released in 2015, and in 2023 they expanded their collection of tools and released a guidebook, worksheets and case studies primarily focused on cognitive exclusion.

## Microsoft Inclusive Design Toolkit

A manual with information about Inclusive Design and activity cards



## Microsoft Inclusive Design Cognitive Exclusion

A guidebook, worksheet, screeners and case studie about cognitive exclusion



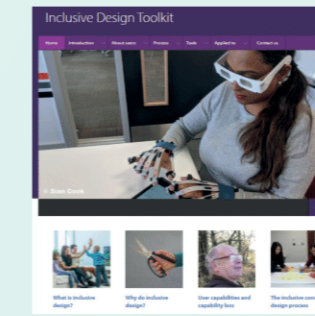
## Mismatch by Kat Holmes

A book with information about Inclusive Design



## Cambridge Inclusive Design Toolkit

A design method with tools to simulate disabilities



## Adobe Inclusive Design Workshop

Three booklets with information and exercises about Inclusive Design



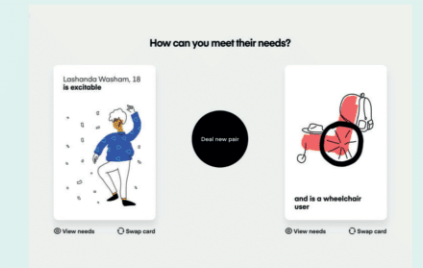
## Bridgeable Inclusive Co-Design Toolkit

A toolkit to guide designers with co-design with people with language barriers



## Cards for Humanity

A tool to design for different needs



## Government of Ontario Guideline cards

Guidelines for different levels of exclusion (audio, visual, thought, etc.).



## Government of Western Australia Training Toolkit

Training toolkit on how to co-design with people with a disability

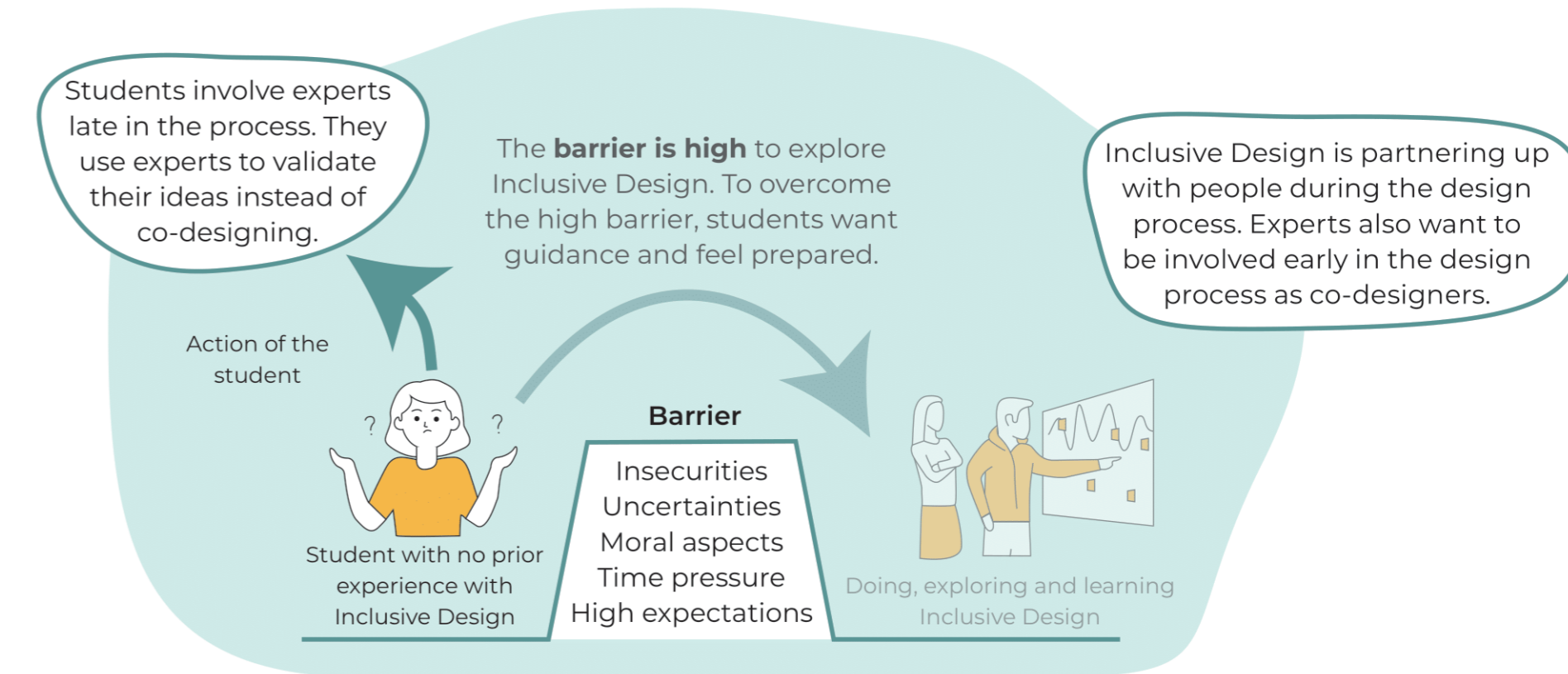


# Barriers to Inclusive Design

This chapter discusses the barriers that former Inclusive Design students experienced during an Inclusive Design process. These barriers are first presented in an overview, and then all barriers will be discussed individually.

This chapter can be filled in after the start of your project: The introductory session.

## Overview of the barriers



# Barriers

In conclusion, there are a number of factors that together result in the barrier being experienced as too high for students to explore Inclusive Design. On the right, these factors are briefly explained, and supported by quotes from students who participated in an Inclusive Design course.

## Insecurities

Students are insecure about their skills and competencies, they are still learning to design.

“ We are expected to build on skills we should have gained earlier. But I am still learning these basics. ”

## Uncertainties

Students find it challenging to have many uncertainties at once.

“ I find it scary to approach people immediately when I still have little knowledge. I want to prepare well. ”

## Moral aspects

Students experience moral aspects playing a role during Inclusive Design activities.

“ I was very nervous, for example, I was afraid I might say the wrong things and offend them. ”

## Time constraints

Students experience time constraints when applying Inclusive Design.

“ Now it felt rushed to find a solution as fast as possible while there was still so much to discover. ”

## High expectations

Students have high expectations during the Inclusive Design. This is also due to students often focusing on the outcome rather than the process.

“ A high level was expected. But we had no experience with inclusive co-design sessions. ”

## Tools and guidance

Students want tools/guidance to apply Inclusive Design. They work based on that information instead of experiencing it by trial and error.

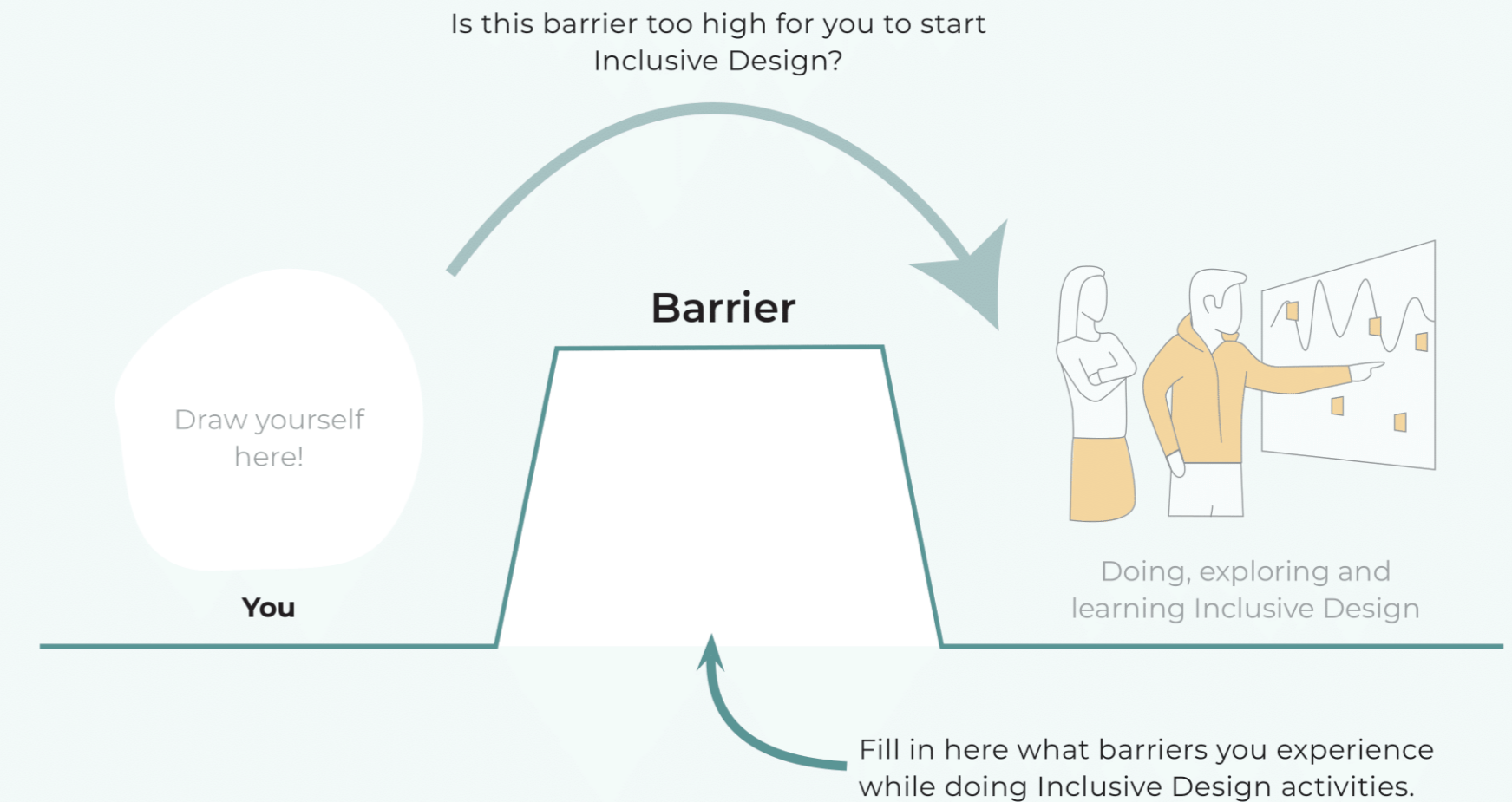
“ The papers/toolkits don't explain how to do inclusive co-design sessions. ”

# How do you experience these barriers?

Do you recognize these barriers during your own Inclusive Design project? Or do you experience other barriers? Do the exercise on the next page, and fill in which barriers you experience when starting with your Inclusive Design activities.

Having clarified for yourself what are your barriers to Inclusive Design, you can start working on them. It also already helps that this is now clear to you, and you can, for example, discuss it with your teacher and team members. The next chapter discusses how you can lower the barrier.

## EXERCISE



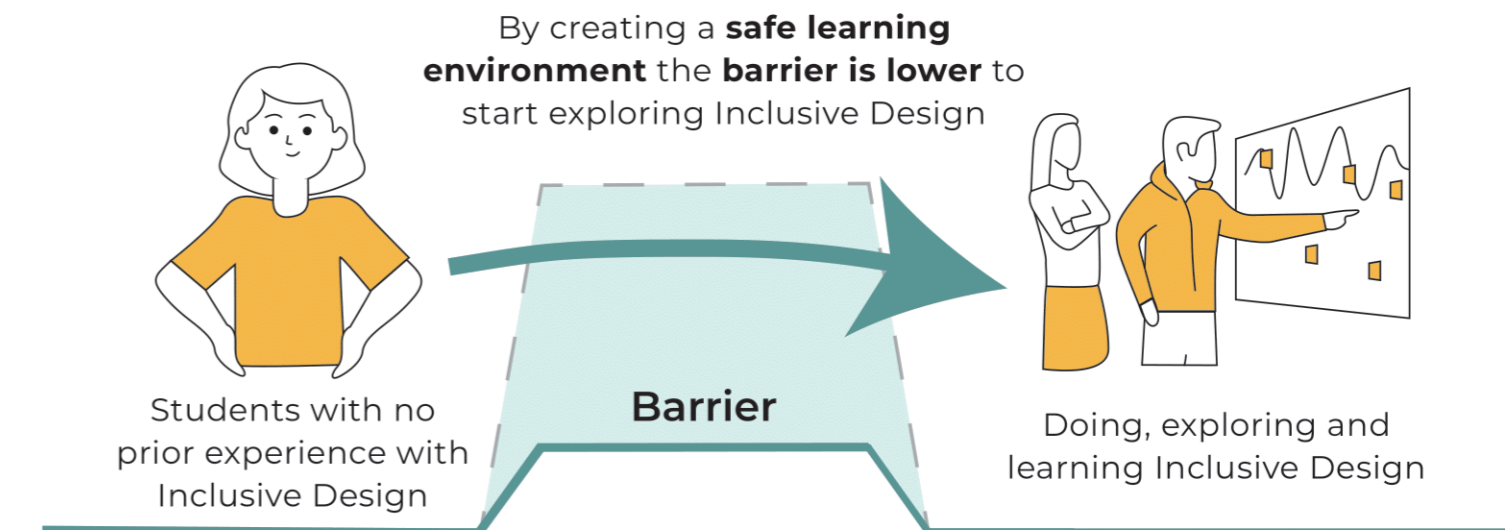
# Breaking down barriers to Inclusive Design

This chapter describes how the barriers can be lowered. This will be achieved by making you aware of the barriers and giving you insight into how experts experience an Inclusive Design process. Finally, it describes the actions you can take to create a safe learning environment to lower the barrier.

This last chapter can be filled in after your introductory session.

## Creating a safe learning environment

We aim to lower the barrier for you to let you explore Inclusive Design. This can be achieved when students experience safety as they look ahead to the session; this will reduce their insecurities, uncertainties, moral aspects, time pressure and high expectations. So to lower the barrier, a safe learning environment has to be created.



# Experts perspective

This page presents six insights on how experts (want to) experience Inclusive Design activities. Former students indicated it helped them to lower the barrier by understanding the experts' perspectives. These factors are briefly explained and supported by quotes from experts who participated in Inclusive Design activities.

## Not being the centre of attention

Experts do not want themselves or their disability to be the centre of attention.

“ Do not make people with a visual impairment feel like they are special. ”

## Preferring an informal activity

Experts prefer an informal activity instead of a formal meeting.

“ I like doing something concrete rather than sitting opposite each other. It is less formal. ”

## Being involved from the start

Experts want to be involved early in the design process.

“ Actually, everyone [the design team and the experts] should start at the same level of knowledge of the case. ”

## Noticing the discomfort of students

Experts notice when students feel discomfort.

“ Now there is still much discomfort during such a session. When you no longer have that barrier, it is much easier to have a conversation. I feel that students are afraid of saying the wrong thing and afraid to approach people and make it broader. ”

## Being a co-designer

Experts want to be a design team with the students and be seen as co-designers instead of advisors.

“ The session is more about presenting ideas, validating and checking the assumptions. ”

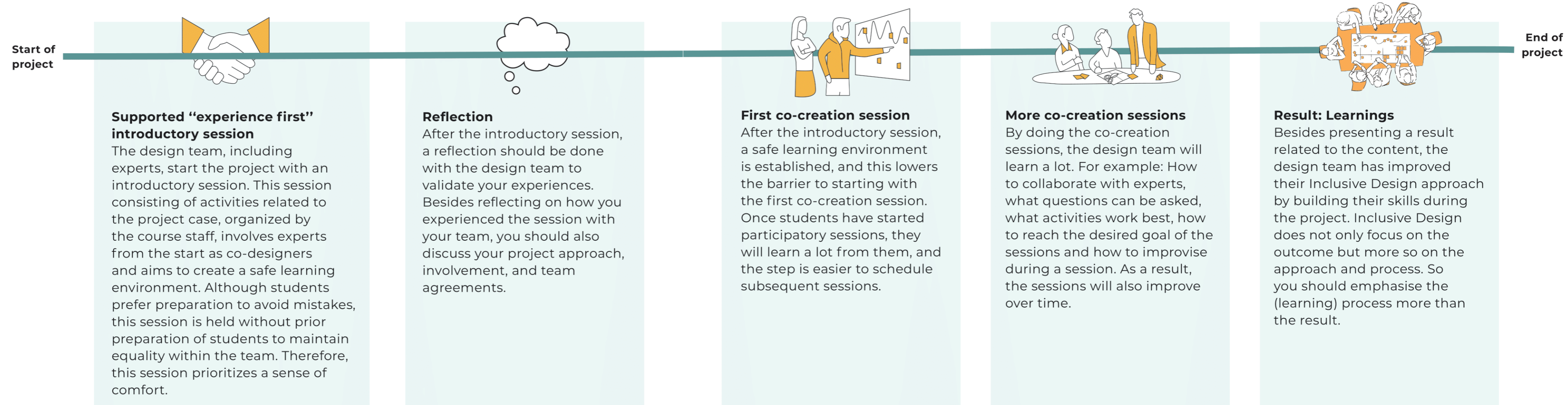
## Feeling no time pressure

Experts want no time limit to connect with the design team.

“ During a project, you have such a short time. It is difficult to empathise. ”

# How to create a safe learning environment?

This timeline shows which activities can be done to achieve a safe learning environment during an Inclusive Design project.



## EXERCISE

Reflect together with your team members on your introductory session.

## EXERCISE

What learnings did you take away from this project? And what advice would you give future Inclusive Design students?

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# Appendix M: Evaluation

Through these questions, the concepts were evaluated. These questions were addressed during evaluations that lasted about 30 minutes. Brief evaluations were also done with students and experts during the course of the Inclusive Design elective.

## Evaluating with four students who followed Inclusive Design course:

- When and how did you involve experts?
- How do you see your expert? (More as a team member or as a participant?)
- How did the experts positioned themselves?
- Did you experience insecurities during the course? And where did those insecurities come from? Did those insecurities stop you from doing anything?
- Did you experience uncertainties during the course? What were those uncertainties? Did those uncertainties stop you from doing anything? What could be clearer for you in the next edition?
- Did you experience difficulties with moral aspects? For example, did you not know right/ wrong or what you could or could not ask?
- Did you experience time pressure during the

course, and why? What was the consequence of experiencing time pressure? Did you handle things differently than expected because of time pressure?

- Did you feel there were high expectations during the course?
- What was your focus during this project learning process vs outcome?
- What are your expectations for upcoming sessions?
- Is the barrier to doing Inclusive Design lowered? Was it lowered during the course?
- Did it feel safe and familiar to explore?
- Did they dare to make mistakes/take risks?
- Did the first meeting feel useful for the project? How did you experience this session? What do you take away from this session?
- Addressing booklet: Would it have helped the booklet? Did you need more information on inclusive design?

## Evaluating with 2 experts who participated in the Inclusive Design course:

- How did you experience that first day?
- Did you manage to build a connection that day?
- How are you involved in the project?

- How does this compare to last year?
- Do you feel like a co-designer? And how is this compared to last year?
- Did you experience equality in the project?
- Did the students dare to explore and make mistakes?
- Did you notice any barriers that students encountered?

## Evaluate the workbook with students who did a project about Inclusive Design where I provided them my research insights (Appendix J):

- Is the barrier to doing Inclusive Design lowered by the information they already had beforehand? (Somewhat the same information that is also in the booklet).
- Could you recognise yourself in the information? Did you experience a barrier?
- It seemed like you were not afraid to make mistakes, you experimented with activities where you did not know if it was going to work.
- What caused that you were not afraid to make mistakes and tried out some things?

## Evaluate the workbook with students who do not follow Inclusive Design:

- Is it understandable for you, students who have no knowledge of Inclusive Design?
- Are there any questions/things that are not understood?
- Are there things missing, is there a need for something?
- Is this the right way to convey knowledge?

# Appendix N: Sensitizing assignment

The sensitizing assignment first consisted of several pages and was available as a booklet you could fill in. But it was also available as an audio format to record your podcast or video. These sensitizers can be seen later in this Appendix. In the end, it was decided to give students a shorter version. You can see this version on the next page.

The intention was to provide a timeline for the sensitizing assignment so that students could understand the value of sensitizing. This did not happen in the end. The timeline can be seen on the last two pages of this Appendix.

Brief version of the sensitisation assignment given to students

# Sensitizing assignment Inclusive Design project

Prepare or think about this “How do you actually interact with food?” by making this sensitizing assignment. Please make this assignment before the stakeholder visit on Monday, 24 April, to start the activities during the stakeholder visit with some preparation. It will take around 10 minutes and can be made, for example, on the train to Amsterdam.

What does your typical day relating to food look like in your everyday life? Consider, for example, when you eat, prepare food, and buy food. And what do you eat? What are the moments you love, and what are the moments you hate? Please fill in the timeline!



Waking up



Going to bed

What meal do you cook when you do not want to cook?



What is your most boring or craziest eating habit?

# Sensitizing assignment

Inclusive Design project

For this sensitizing assignment, we ask you to record a **vlog or podcast** about your **everyday life** for the next 5 days. Try to record around **1 minute per day**:

- **Day 1:** Introduce yourself shortly; who are you?
- **Day 2:** Show where you live. Are there things in your home with a special or funny meaning that you want to point out?
- **Day 3:** How does a typical day in your life look like?
- **Day 4:** Record something about your hobbies. Also, which other things are you good at?
- **Day 5:** Ask someone whom you know well to record a short clip in which they tell about you.

No obligations are attached to the video or podcast. Try to capture what you find interesting. Make the vlog or podcast in total around **five minutes** long.

This assignment will be used as a **starting point in the introductory session** to better get to know your team members. View all videos or listen to all podcasts during the introductory session and discuss it with each other.  
**Reflecting on this session:** What will you take from this session during the remainder of the project as a team?

# Sensitizing Assignment

Inclusive Design project

Name:

# Introduction

This booklet is meant to get you prepared and sensitized for the introductory session plannend on   day   at  time  with your design team for your new design project.

This booklet has a few little exercises you need to do these exercises before the first participatory session. The best would be to do a task every day, with a maximum of 10 minutes daily, on all five days to get as much out of it as possible. Bring this workbook to the introductory session, so you can share and discuss the booklet with your team members and get to know each other.

There are no right or wrong answers in this workbook. Just “your answers”, and your answers should be your personal experiences.

Try writing, drawing, and cutting and pasting as much as possible. The more stories you can tell, the more interesting your introductory session will be.

Good luck!

\* Others will see your workbook, so if you have personal stories you don't want to share, don't put them in the workbook.

# DAY 1

## This is me

Who are you? Describe yourself!

Please paste or draw a picture of you.

Occupation or study

Birthday and age



Interests

Household



DAY 1

DAY 2

Your favourites

Please share your favourites!

Favourite food



Favourite game

Favourite sport



Favourite place

Favourite vacation destination



Everyday life

How does your typical day in your everyday life look like? Please fill in the timeline!



Waking up



Going to bed

DAY 3

Everyday life

Did you experience any problems or difficulties during the day, did you encounter any forms of exclusion? And how did you handle and solve this?

DAY 4

I am good at...

Please describe 3 things you are good at. It does not have to be related to this project.

1

2

3

DAY 5

I want to improve...

Please describe 3 things you want to improve. It does not have to be related to this project.

1

2

3

Introductory session


Wait, leave this space empty until you get to the introductory session!

Hopefully, you got to know each other better through this sensitizing assignment during this introductory meeting.


Make agreements for the rest of the design project and write them down.





Draw your team members here!





Write the most interesting things down about this team member



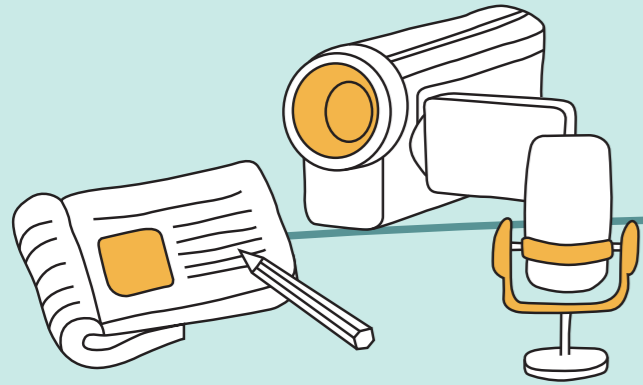








# Inclusive Design process



## Sensitizing exercise

**Prior to the project**, each team member (the students and the experts) will complete a sensitizing assignment. This exercise can be done in various ways, depending on the team's preferences. This sensitizing exercise will be used as a **starting point for the introductory session**.

*"By doing a sensitizing assignment, I feel more confident and well-prepared during the participatory session."*

- Expert who participated in multiple co-design sessions with students.

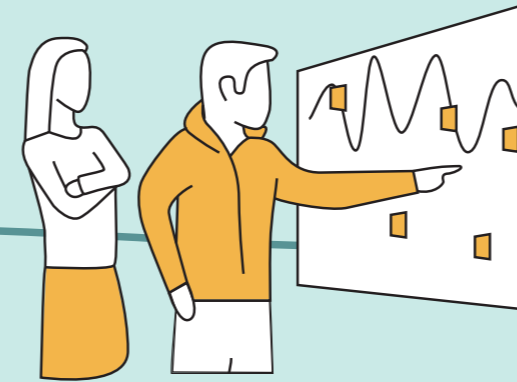


## Introductory session

The **design team, including expert(s)**, will meet at the **start of the project**. This session is not focused on the content of the project, but this session aims to **build a connection** and get a mutual understanding by discussing the **sensitizing exercise**.

*"Having an introductory session helped us build a bond with our experts and made us more confident in future sessions."*

- Student team (2023) about their Inclusive Design case during their Master elective.

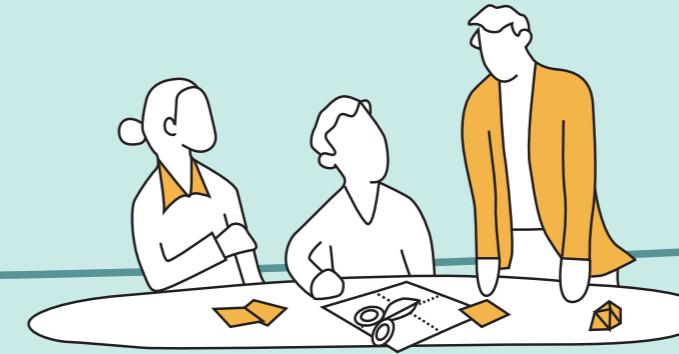


## First co-creation session

After the introductory session, a **safe learning environment** is being established. This **lowers the barrier** of starting with the first co-creation session and **improves collaboration** between students and experts. These co-creation sessions focus on the **content** of the project.

*"We had no trouble with the sessions since we considered them as try-out sessions."*

- Student team (2022) about their Inclusive Design case during their Master elective.

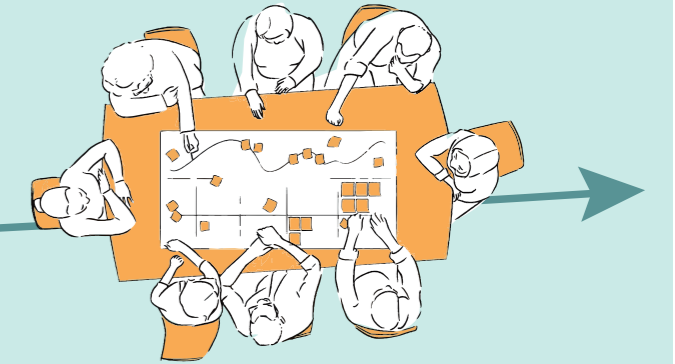


## Co-creation sessions

By doing the co-creation sessions, the design team will **learn** a lot. For example: How to collaborate with experts, what questions can be asked, what activities work best, how to reach the desired goal of the sessions and how to improvise during a session. As a result, the **sessions will also improve** over time.

*"We could find our way into this [the co-creation sessions] by facilitating the sessions, which improved over time."*

- Student team (2022) about their Inclusive Design case during their Master elective.



## Result: Learnings

At the end of the project the design team presents a **result** related to the content; based on the needs of the experts and the stakeholders. But more importantly the design team has **improved their Inclusive Design approach** by **building their skills** during the project. Inclusive Design does not only focus on the outcome but more so on the **approach and process**, making students feel more confident to use it in their next project.

*"It's not about the grade. For us, it's about what you learn. It is not about the result."*

- Visio about the Inclusive Design course.

# Appendix O: Consent form

## Participant Information

You are being invited to participate in a research study titled Inclusive Design activities at Industrial Design Engineering at the TU Delft. This study is done as a graduation project for the Master Design for Interaction. This study is being done by Dana de Jong from the TU Delft in collaboration with the Inclusive Design Lab and Koninklijke Visio.

The purpose of this research study is to investigate what are the needs and wishes of designers or design students when conducting inclusive co-design sessions, and will take you approximately 45 minutes to complete. The data will be used for research purposes, reports, publications. We will be asking you to explain about the inclusive co-design sessions; Previous knowledge and experiences, expectations, mistakes and learning process. Next, we will dive deeper in the needs and wishes you had during these co-design sessions by making a prototype.

As with any activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by de-identifying (pseudo/anonymising) data.

Your participation in this study is entirely **voluntary and you can withdraw at any time**. You are free to omit any questions before, during or after the study. You are free to request access to and rectify or erase personal data by contacting the Responsible Researcher.

Contact details Responsible Researcher:  
Dana de Jong  
+31 6 13088335  
[d.c.dejong@student.tudelft.nl](mailto:d.c.dejong@student.tudelft.nl)

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
<b>A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICPANT TASKS AND VOLUNTARY PARTICIPATION</b>		
1. I have read and understood the study information dated 02/02/2023, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>
2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	<input type="checkbox"/>	<input type="checkbox"/>
3. I understand that taking part in the study involves: The study will be recorded (audio, pictures and written notes)	<input type="checkbox"/>	<input type="checkbox"/>
<b>B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)</b>		
4. I understand that taking part in the study also involves collecting specific personally identifiable information (PII) and associated personally identifiable research data (PIRD) with the potential risk of my identity being revealed.	<input type="checkbox"/>	<input type="checkbox"/>
5. I understand that some of this PIRD is considered as sensitive data within GDPR legislation.	<input type="checkbox"/>	<input type="checkbox"/>
6. I understand that the following steps will be taken to minimise the threat of a data breach, and protect my identity in the event of such a breach (anonymous data collection, (pseudo-) anonymization or aggregation, secure data storage/limited access, transcription, blurring, voice modification).	<input type="checkbox"/>	<input type="checkbox"/>
7. I understand that personal information collected about me that can identify me, such as, will not be shared beyond the study team.	<input type="checkbox"/>	<input type="checkbox"/>
8. I understand that the (identifiable) personal data I provide will be destroyed 1 <sup>st</sup> of July 2023.	<input type="checkbox"/>	<input type="checkbox"/>
<b>C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION</b>		
9. I understand that after the research study the de-identified information I provide will be used for reports, public presentations, publications and websites.	<input type="checkbox"/>	<input type="checkbox"/>
10. I agree that my responses, views or other input can be quoted anonymously in research outputs.	<input type="checkbox"/>	<input type="checkbox"/>
<b>D: (LONGTERM) DATA STORAGE, ACCESS AND REUSE</b>		
11. I give permission for the de-identified recorded audio, video and pictures that I provide to be archived in a repository so it can be used for future research and learning.	<input type="checkbox"/>	<input type="checkbox"/>

## Signatures

\_\_\_\_\_  
Name of participant                      Signature                      Date

I, as researcher, have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

\_\_\_\_\_  
Researcher name                      Signature                      Date

Study contact details for further information:  
Dana de Jong  
+31 6 13088335  
[d.c.dejong@student.tudelft.nl](mailto:d.c.dejong@student.tudelft.nl)

**Breaking down barriers to Inclusive Design:**  
Creating a safe learning environment for  
Industrial Design Engineering students

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Master thesis by Dana de Jong