

Discussing and facilitating understanding around gender identity in class: a speculative approach

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Abstract

Various misconceptions about gender identity present significant challenges for the LGBTQIA+ community. Discussing gender in an educational environment like the classroom can contribute to a mutual understanding among emerging adults. Speculative methods, for example, brainstorming about future scenarios and designing speculative artifacts, have shown a potential to steer discussion. As teachers and students seem to lack expertise about gender, they could benefit from supportive educational tools that focus on stimulating discussions. This qualitative study used an active participatory approach to explore speculative methods as an in-class support tool to stimulate discussion and understanding among university students in the Netherlands. The study consisted of two parts: interviews with four university teachers to understand challenges in discussing gender and methods to steer these discussions in the classroom, and a workshop and focus group with 14 Dutch University students to evaluate the speculative methods and identify valuable aspects and potential barriers. Before the workshop, the workshop participants completed a survey on their knowledge and attitudes towards gender identity. From the interviews and workshop results, it can be suggested that the speculative methods allowed participants to reflect on and discuss what they considered fundamental regarding gender identity and the LGBTQIA+ community. Furthermore, brainstorming helped participants reflect and alter their understanding of gender and share personal experiences. Participants were found to value the safety of the LGBTQIA+ community and aimed for a more representative picture of different genders in society. These findings can be used to develop future versions of speculative educational tools to facilitate discussions and promote understanding of gender.

Keywords: gender identity, speculative design, mutual understanding, discussion, education, educational tools.

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Discussing and facilitating understanding around gender identity in class: a speculative approach

Since 2021, there has been a legal mandate in the Netherlands requiring schools to provide education on sexual and gender orientation (Willem Huijnk et al., 2022), yet a degree of misunderstanding about gender identity among students and teachers persists (Losty & O'Connor, 2018). Gender identity is defined as an individual's sense of their own gender (The Gender Spectrum, 2013). The misunderstanding of gender identity is primarily caused by misconceptions and lack of awareness (Miller, 2018; Kaufman & Baams, 2022). Consequently, Dutch LGBTQIA+ students feel unsafe to express their gender identity at school (Kaufman & Baams, 2022).

While there is evidence that modifying the school curriculum can foster a safer school environment (Dijkgraaf, 2023; Ryan et al., 2013), there is also evidence that addresses the significance of in-class discussions (Mollon, 2019; Mikulec & Miller, 2017; Rossenberg, 2013). Engaging in discussions about gender identity in the classroom can have an impact on the acceptance and mutual understanding of diverse gender identities (Rossenberg, 2013). In this context, acceptance refers to an individual's willingness to embrace people with corresponding beliefs (Vocabulary, n.d.). Mutual understanding reflects an individual's capacity for empathy towards others (Vocabulary, n.d.). Since both factors contribute to the inclusiveness of different genders, facilitating mutual understanding through in-class discussions seems valuable.

Discussing gender in the classroom is especially important for students in emerging adulthood (Fan & Marini, 2000; Matud et al., 2022; Syed, 2015). Emerging adulthood is a stage between the ages of 18 and 29 (Syed, 2015). Over one million Dutch students in this stage are enrolled in universities (CBS, 2022). Therefore, in this study, the term "school" encompasses universities in

the Netherlands. Students transitioning through emerging adulthood experience a shift in their perspectives that differ from the perspectives acquired during childhood (Arnett, 2000; Syed, 2015). The phase is characterized by identity exploration and self-expression, which can create a shift in their understanding of gender identity and a heightened desire to make it more discussable (Arnett, 2000).

To guide in-class discussions about gender identity, teachers and students could benefit from supportive educational tools. An educational tool is an instrument or resource designed to help students engage, learn, and improve educational experiences (Wali & Omaid, 2020). Educational tools can be physical devices, applications, or (online) platforms that aid in teaching and learning (Wali & Omaid, 2020). For example, "Classroom Discussions" by Top Hats is an online educational tool used to spark conversations and involve students in classroom discussions using an app (Top Hats, 2023). Teachers can introduce a discussion topic through the app, to which students can respond by posting comments. As teachers experience challenges in teaching gender due to a lack of expertise and sensitivity of the topic (Allana et al., 2010; Giraldo & Colyar, 2012; Sodha, 2023; Tsouroufli, 2002; UNESCO et al., 2018), educational tools could support teachers to facilitate discussions.

In the Netherlands, various organizations offer educational tools focusing on gender identity. For instance, the Astra toolkit (COC, 2023) and the Genderdoeboek (Transgendernetwerk, 2022) are educational tools that explain gender identity by means of individual tasks. In addition, these educational tools discuss tips to guide teachers and students in creating an understanding of gender. For example, Let's Talk (Collins & Dillard, 2019) provides tips about discussing gender and sexual orientation with students. These educational tools are provided online (e.g., via an application) or offline (e.g., via a workbook). However, these tools mainly focus on providing

tips and information. At the time of writing, a few resources provide educational tools that stimulate in-class discussions specific to gender.

Approaching in-class discussions with a future thinking mindset can be interesting when discussing gender (Kuo-Hua Chen & Li-Ping Hsu, 2020). Futures thinking is a creative and exploratory cognitive process that uses divergent thinking (Jones et al., 2012), seeking possible answers to so-called "wicked" problems (DPMC, 2021). These are complex problems with not one correct solution or specific method to solve them (Rittel & Webber, 1973). Gender issues such as gender inequality and non-acceptance of gender identity can be perceived as wicked problems.

Speculative design is an approach to futures and critical thinking that explores possible futures by designing 'what-if' scenarios (Dunne & Raby, 2013; Mitrović et al., 2021). In this process, designers ask questions such as "What if everyday objects had different functions?" or "What if we interacted with technology in unconventional ways?". Rather than predicting what will happen, speculative design is about speculating what might happen (Dunne & Raby, 2013). Engaging with speculative methods invites people to think about near-future scenarios.

Using design artifacts, speculative design aims to open new perspectives and spark discussions (Dunne & Raby, 2013). Design artifacts are tangible representations created during the design process to communicate intent, ideas, concepts, and possible solutions (Bleecker, 2009). They exist in various forms, from prototypes to written stories (Blythe & Encinas, 2016; Wakkary et al., 2013). For example, Monuments for Future M/otherhood is a fictitious concept experience that discusses artificial wombs (Mandemaker, 2022). Figure 1 displays the speculative design artifact involving an experience and fictive images. In this context, design

prototypes or artifacts are used to reflect critically. Since speculative designs are ambiguous, it is the ambiguity that stimulates discussion.

Figure 1

Examples of the "Monuments for Future M/otherhood" speculative design artifacts



The aim of this study is to investigate the potential of speculative methods in fostering discussions that enhance mutual understanding about gender. This includes assessing its usefulness as an educational tool in the classroom. The following research question is explored to address this objective: "How can speculative methods be utilized as an educational tool to facilitate mutual understanding around gender identity among Dutch university students?". The research can provide insights into the benefits and challenges of utilizing speculative methods as an educational tool. Insights into the benefits and challenges of discussing gender in class can be

valuable for several purposes (e.g., school curriculum, gender organizations, etc.). Moreover, the initiative has the potential to enhance discussion and understanding of gender and its significance for a more inclusive and safer classroom.

Theoretical framework

Understanding Gender Identity

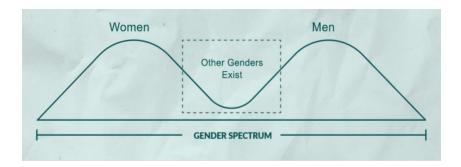
Before 1960, gender was defined as a binary concept based on the identity corresponding to the sex registered at birth (Money et al., 1955). In 1964, Stoller introduced the term' gender identity', emphasizing it as a sense of belonging to a particular sex instead of basing gender solely on biological characteristics. Gender identity was defined as an individual's self-perception and expression (Stoller, 1964; The Gender Spectrum, 2013), yet it persisted within a binary framework. By 1980, research expanded the understanding of gender identity beyond cisgender men and women (Crocq, 2021; Koh, 2012). For example, transgender men and women were recognized.

This recognition transformed the perception from a binary construct to a spectrum of diverse genders (Kilman, 2013). The gender spectrum is depicted as a linear line (see Figure 2), with cisgender men and women on both ends and all other gender identities positioned along this spectrum (Kilman, 2013). The spectrum includes over 107 gender identities (Sexual Diversity, 2022). Among these, two commonly recognized identities are transgender and non-binary. Transgender individuals identify differently from the sex and gender assigned at birth (Sexual Diversity, 2022). Another example is non-binary, an individual who does not identify exclusively with male or female identities (Sexual Diversity, 2022). Although the definition of

gender identity is acknowledged in Western society (Cambridge Dictionary, 2023), it remains a topic of debate (Brown et al., 2022).

Figure 2

The gender spectrum



Note. Model adapted from Kilman (2013)

Due to the fluctuating societal acceptance of gender as a spectrum, a growing group of LGBTQIA+ individuals feel unsafe in their daily lives (Kaufman & Baams, 2022). Statistics reveal that approximately one in five individuals have encountered insecurity and unsafety due to their gender identity (Baams et al., 2013; Movisie, 2022). The figures highlight the challenges faced by the LGBTQIA+ community, ranging from verbal harassment to physical violence, impacting their sense of safety and well-being (Movisie, 2022). Emerging adults and youth within the LGBTQIA+ community appear to encounter these challenges, particularly in school environments (Miller, 2018; Kaufman & Baams, 2022).

To achieve a safe and inclusive environment, there must be some form of mutual understanding between individuals. Mutual understanding is an individual's capacity for empathy towards others (Vocabulary, n.d.). It promotes empathy, reduces conflicts, and encourages respect among individuals (Fabes et al., 2019; Valk, 2011). To create mutual understanding, people can share experiences and talk to each other.

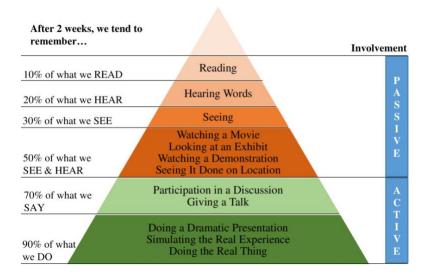
School is a place where young adults learn about societal constructs like gender identity, which makes it interesting to educate on this topic in class (Wang, 2017). In the Netherlands, several educational tools focus on education about gender identity, diversity, and inclusivity (Transgendernetwerk, 2022). These tools have the objective to facilitate understanding by applying different learning approaches.

Participatory and Active Learning Approaches

Active learning is an approach that aims to actively involve students in the learning process. When students actively participate in learning tasks, they absorb more information compared to receiving instructions passively (Cross, 1987; Kumar, 2007). Active learning is a discovery process where the student takes the lead, with the teacher playing a supportive role (Cooper & Brownell, 2016). As shown in the cone of learning (Figure 3), an active learning approach ensures that 70 percent of what one says and 90 percent of what one does is effectively retained (Korchanov, 2008).

Figure 3

The cone of learning



Note. Model adapted from Korchanov (2008)

Active learning is often done in a participatory context. This implies that students learn by working with fellow students in small groups (Berthelsen et al., 2009). Participatory learning may lead to unique insights and stimulation of new ideas (Berthelsen et al., 2009). This approach offers valuable insights into the perspectives and perceptions of individuals that could otherwise go unnoticed by the researcher. For example, the participating stakeholders of Van Waart et al. (2016) pointed out new problems that the researcher and the other participants had yet to consider. In addition, the study by Cambre et al. (2020) included a reassessment of views on various concepts (e.g., utility) after examining participants' design fictions.

Considering the range of benefits to learning, discussions have become one of the popular active participatory learning approaches in higher education (Ellis & Calvo, 2006; Howard, 2015; Wang, 2017). Discussion is an activity in which people discuss ideas and opinions (Cambridge Dictionary, 2024). Incorporating discussions effectively increases student engagement (Fabes et al., 2019; Roehling et al., 2010). Another benefit is that students learn more 'deeply' when actively participating in discussions (Díez-Palomar et al., 2021; Howard, 2015). As students share perspectives and knowledge during discussions, the dynamic exchange of ideas fosters a heightened interest (Frymier & Houser, 2016; Roehling et al., 2010). Moreover, it can help students develop critical thinking skills (Fabes et al., 2019; Howard, 2015; Roehling et al., 2010).

To design an educational tool to discuss gender, it is valuable to explore students' and teachers' current attitudes and challenges to discuss gender in class. These insights can inspire

the exploration of possible new educational tools. Therefore, this study examines the following sub-question:

SQ1: What are the current attitudes and challenges of Dutch university students and teachers when discussing gender identity in the classroom?

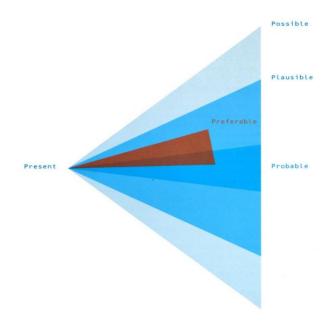
Discussing the Future through Speculative Design

The scientific approach of Research through Design involves the application of design methodologies to research (Zimmerman & Forlizzi, 2008). An example of this application is using design artifacts to concretize "wicked problems," such as gender inequality (Blythe, 2014). Wicked problems are cultural or social problems that are too complex to be solved with only one solution (Rittel & Webber, 1973). Design artifacts are meant to provoke thoughts about future scenarios. By doing so, artifacts provoke discussions about wicked problems (Cambre et al., 2020; Huusko et al., 2018). The resulting discussions can be analyzed for relevant knowledge (Prost et al., 2015). This study examines one approach that uses design artifacts to steer discussions: speculative design.

Central in future studies, which includes speculative design, is the consideration of possible futures (Dunne & Raby, 2013; Helgason et al., 2020; Mitrović et al., 2021). Such futures can be framed by adapting Sterling's taxonomies of the future (Figure 4), categorizing imagined futures across different levels of likelihood–ranging from probable to plausible to possible (Dunne & Raby, 2013; Sterling, 2005). Beyond these three categories, a fourth category represents preferable futures intersecting the plausible and possible futures.

Figure 4

Practice and vision of speculative design



Note. Sterling's taxonomy of the future (2005).

The ambiguity that remains between the problem and the proposed solution is called discursive space (Lindley & Coulton, 2015). Making futures tangible can be challenging (Candy & Kornet, 2019). Sterling's taxonomy of the future, while illustrating a wide range of possibilities, highlights the inherent ambiguity among them.

Speculative design is an approach in which designers use design artifacts to articulate the complexity of wicked problems (Mitrović et al., 2021). The design artifacts represent possible outcomes or solutions rather than accurate predictions of the future (Dunne & Raby, 2013). The goal is to provoke discussion following the speculative designs' interpretation (Zimmerman & Forlizzi, 2008).

An example in which speculative design is used to provoke discussion is the concept "Health Overshoot Day" (Studio Marleen van Bergwijk & Studio sociaal centraal, 2022). This is a

speculative installation that illustrates the increasing pressure on health care. The design consisted of an experience in which people looked at increasingly older versions of themselves in a mirror, asking, "Are you taking care of your older self?". The installation was designed to provoke confrontation and engage people in a dialog about the future of healthcare.

Another example is a study exploring the use of speculative methods involving university students within an educational context. Students employed speculative approaches to identify challenges and devise solutions for a post-COVID-19 return to campus (Lundmark & Rodela, 2023). The emphasis was on creating 'sustainable artifacts' as tangible proposals to facilitate a smoother, safer, and more welcoming reintegration into campus life. The research highlights how speculative methods enabled students to think critically, generate innovative solutions, and engage in discussions about future developments.

As speculative design can evoke discussion, this study explores speculative methods (e.g., designing artifacts) as a potential educational tool for facilitating discussions and mutual understanding of gender identity. To explore and evaluate specific aspects of the methods, this study seeks to explore the following sub-question:

SQ2: Which aspects are perceived as valuable to start communication among Dutch University students related to gender identity?

Challenges and Barriers to Speculative Design

Despite the potential of using speculative methods (e.g., future brainstorming) to steer discussions, several indications suggest that applying speculative design is not without challenges (Mitrović et al., 2021; Šuran, 2019). One of these challenges involves using speculative design in a participatory context (Farias et al., 2022; Janis, 1991). Engaging speculative design in a participatory framework might limit creativity and foster groupthink

tendencies, where individuals conform to group ideas despite their viewpoints (Janis, 1991). This can lead to individuals aligning with the prevailing group consensus instead of having critical discussions (Janis, 1991). Scholars should try to distance themselves from these tendencies and embrace their viewpoints.

Challenges specific to discussing gender identity are related to cultural sensitivity, fear of judgment, or resistance to discussing gender identity in an academic setting (Cooper & Brownell, 2016; Klein, 2016). However, there are limited studies about how these challenges may manifest in the classroom context. It would be helpful to examine the barriers specific to discussing gender identity. Exploring barriers among students can help identify design opportunities that can be addressed in creating new educational tools. Thus, the final sub-question is:

SQ3: What are some potential barriers for Dutch students to participate in speculative design tasks related to gender identity?

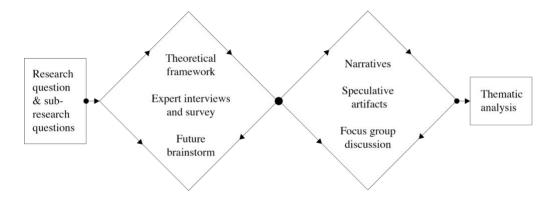
Method

Design

In this research, qualitative methods were used to investigate how speculative methods can function as educational tools to steer discussion and facilitate understanding of gender identity. A Double Diamond design process model (Childs et al., 2022; Osborn, 1963) was used for this study. Figure 5 shows an overview of the study's design.

Figure 5

Double Diamond Model of the Speculative Design Process



Note. Original graph from Osborn (1963) edited by Childs et al. (2022). The left diamond depicts the 'divergent phase' in speculative design used to discover and define scenarios. The right diamond depicts the 'convergent phase' and is used to develop and deliver speculative artifacts.

The study consisted of two components. First, the researcher interviewed teachers who possess expertise in diversity, inclusivity, and gender education or are familiar with these topics. The interviews provided insights into how teachers approach the discussion on gender identity and highlighted the difficulties encountered while discussing this subject.

A workshop was conducted in the second phase. The workshop utilizes an active and participatory learning approach. During the workshop, participants had to complete three tasks inspired by speculative methods. Using the four lenses model of the future (Cascio, 2009), participants brainstormed about possible future gender scenarios. Participants then wrote or drew narratives about future scenarios. In addition, the participants designed a speculative artifact (e.g., device, product, service). Finally, the participants participated in a focus group to explore potentially changed beliefs and evaluate the tasks.

Before conducting the workshop, the participants were required to complete a survey. The survey (see Table 2) was an effective tool to understand students' attitudes and knowledge concerning gender identity. A thematic analysis was conducted on the expert interviews, workshop tasks, and focus group.

Positioning of the researcher

As the researcher delved into the discourse on gender identity, it became important to address possible biases and viewpoints that might have influenced the research. While acknowledging that personal experiences and societal influences might have shaped perspectives on gender, the researcher recognized the limitations of the study.

The researcher is actively engaged in the LGBTQIA+ community, attending relevant events in Tilburg and maintaining connections through friends and family involved in this community. Nevertheless, it is crucial to note that the researcher does not identify as a member of the LGBTQIA+ community, which may have led to gaps in understanding and biases due to the complex nature of this multifaceted concept. Readers are advised to critically consider the researcher's background and possible biases when interpreting the findings of this study.

Expert Interviews

Participants

A total of four teachers took part in the expert interviews. The participants comprised two women, one man, and one non-binary person. The teacher interviewees were recruited via email, through purposive sampling (Lohr, 2022), with the main criteria being working as an educator with experience in diversity, inclusivity, or gender education. The participants came from Dutch

universities, such as the HVA, Avans University of Applied Sciences, and Fontys University of Applied Sciences.

Materials

The expert participants were provided with an informed consent form (Appendix A), a set of questions tailored for the semi-structured interviews (Appendix B), and a mobile phone to record the audio during the interviews. Given the semi-structured nature of the interviews, the researcher had the flexibility to modify the questions according to participant profiles and responses during the interview.

Procedure

The interviews took place in November and December 2023 via Zoom. The participants were asked to read and sign the informed consent before the interview. Afterward, the participants were asked to answer the interview questions (Appendix B). Each interview took 15 to 20 minutes and was recorded confidentially. After the interviews, the participants were debriefed.

Discussing Gender through Speculative Methods

Participants

A total of 14 participants were recruited using a snowball sampling method (Lohr, 2022), utilizing social channels (e.g., WhatsApp and Facebook) and organizations associated with gender diversity, such as The Umbrella Association and COC Tilburg/Breda. Participants in this study were between 18 and 29 to ensure a consistent age range, with an average age of 23,71. Seven participants are part of the LGBTQIA+ community and are in some way actively involved with organizations related to gender identity and diversity (e.g., Umbrella Association, COC,

Transgender network). Three identify outside binary gender classifications. The demographics of the participants can be found in Table 1.

Table 1

Overview of Participants' Demographics

		Gend	er (N)		A	ge	Nationality	LGBTQIA+	-
								community	
Male	Female	Non-	Transgender	Genderfluid	M	SD		Yes	No
		binary							
2	9	1	1	1	23,71	1,89	Dutch	7	7

Various inclusion criteria were used. For instance, the participants were all students in emerging adulthood (Syed, 2015) between 18 and 29. Because the workshop was conducted in Dutch, the participants were required to understand and speak the Dutch language. Another criterion was that the group of participants had to be diverse (i.e., participants with various gender identities) to create a representative study. Before participating in this study, the participants consented (Appendix C). Given the topic's sensitivity, the consent included providing a safe space for all participants during the study.

Materials

Survey. After consenting, a survey was conducted before the workshop to assess participants' knowledge and attitudes of gender identity. Moreover, the survey served as a tool to compare the survey responses with the workshop and focus group results to discover potential changes in knowledge, attitudes, and understanding. A total of 14 participants completed the survey, of whom 12 were present at the workshop. Two participants dropped out after the survey due to personal reasons. However, their survey responses were included in the analysis.

The survey consisted of 12 items. The survey included demographic questions and questions related to participants' knowledge, attitudes, and understanding of gender identity. Table 2 displays the complete list of survey questions. To conduct the survey, the questions were put into Qualtrics and sent to the participants via WhatsApp.

Table 2

Questionnaire Survey

Number	Question
1.	How old are you?
2.	To which gender do you identify most? [Option to not answer this question]
3.	How would you describe your current understanding of gender identity?
	[Limited, Basic, Moderate, Advanced, Expert]
4.	How important is it to you to have a deep understanding of gender identity in today's
	society? [not important, slightly important, moderately important, very important,
	extremely important].
5.	How open-minded do you consider yourself when it comes to different gender
	identities? [Not open-minded, slightly open-minded, moderately open-minded, very
	open-minded, extremely open-minded]
6.	Do you believe that schools should play a role in promoting discussions on gender
	identity? [strongly disagree, disagree, neutral, agree, strongly agree]
7.	How would you rate the inclusivity of discussions on gender identity in your
	school/class? [1=low, 5=high]
8.	Do you feel like you are able to discuss and express your gender identity in class?

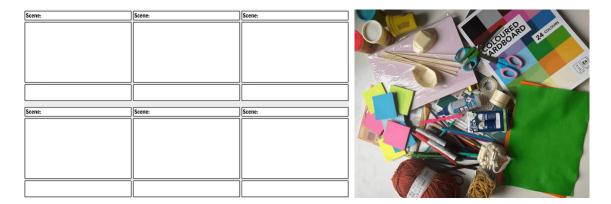
- 9. Have you ever participated in any form of discussion or conversation about gender at school or in class? If yes, could you briefly describe it?
- 10. Does your current school provide education about gender identity? If yes, could you briefly describe it?
- 11. In your opinion, should discussions about gender identity in class be integrated into the regular curriculum? [strongly disagree, disagree, neutral, agree, strongly agree]
- 12. What are some of the challenges you perceive when discussing gender identity in class?

Workshop. Three speculative methods were explored during the workshop. For the brainstorming session, post-its and a whiteboard were arranged to document the input of the participants. For the second task about writing or drawing a narrative, the participants received a template displaying a storyboard layout (Figure 6A). During the workshop, the facilitator provided low-fidelity prototype materials (e.g., paper, pens, cardboard, fabric, glue) for the 'speculative artifact task' (Figure 6B). A mobile phone was used to take photographs and record the session. Moreover, a notebook was provided for note-taking.

To guide the workshop, the researcher created a PowerPoint presentation (Appendix E). The presentation included slides on all the workshop steps, along with visual examples to inspire participants. The researcher asked several questions to guide the discussion. Question prompts include: "What changes do you hope to see in the representation of gender in media and popular culture?" and "In a future heavily influenced by technology, how might advancements positively or negatively impact the experiences of individuals with different gender identities?".

Figure 6

Overview of materials used during the workshop

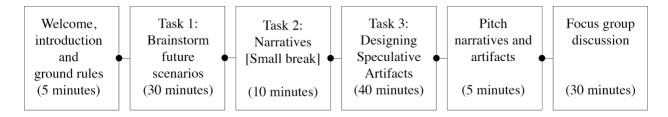


Procedure

The participants were invited to a two-hour workshop session. Before attending the workshop, the participants gave informed consent (see Appendix C) and completed the survey. The workshop session was conducted in an experiment room at MindLabs on the 11th of December 2023. 12 participants contributed to the workshop. In Figure 7, an overview of the workshop structure is shown.

Figure 7

Overview of the workshop structure



When the participants arrived, name tags were handed out to write down their names and pronouns. A short introduction round was held to get to know each other. After the introduction,

the researcher explained the workshop briefly, showed the schedule, and reminded the participants about their rights and responsibilities. All participants indicated they understood the rules and were willing to continue participation.

The first task was a plenary brainstorming session about scenarios around the future of gender. Four future archetypes were used to help structure the brainstorming session (Cascio, 2009). These archetypes, also known as the four lenses, consist of four generic themes related to expectations, providing a foundation for developing more specific future scenarios: the future is as we expect, the future is better than we expect, the future is worse than we expect, and the future is weirder than we expect (Appendix D). The four lenses encouraged participants to consider various possible futures rather than focusing on creating one specific future (Cascio, 2009).

The brainstorming session consisted of four rounds, each dedicated to discussing a single lens. Commencing each round, all participants independently wrote their thoughts on post-it notes. After one minute, the notes were collected, and the group started a discussion. During the brainstorming session, the facilitator took notes on the whiteboard. The facilitator and participants summarized the outcomes in a short group discussion to finish the brainstorming session.

The second task involved designing narratives about possible future scenarios in sub-groups (see Table 3). The facilitator created the sub-groups to ensure that each group consisted of one or more people from the LGBTQIA+ community. The sub-groups had to write or draw their narrative about a possible future scenario related to gender. The sub-groups could draw inspiration from the brainstorming session or create a new scenario. Creating a future-oriented narrative facilitated envisioning and emphasizing how an individual would live in a specific

scenario (Amer et al., 2013). During this task, the researcher observed the work and was available to answer questions.

Table 3Sub-groups

		Participant ID		
Group 1	P3	P4	P9	P10
Group 2	P1	P2	P5	P7
Group 3	P8	P6	P11	P12

The third task was to design low-fidelity speculative artifacts (e.g., products, devices, services). The artifact was supposed to envision a product, device or service that could exist in their future scenario (Kinch et al., 2023). The facilitator provided low-fidelity prototype materials (e.g., paper, pens, cardboard, fabric, glue). Again, the researcher observed the task completion and was available for answering questions. After 45 minutes, the groups had to provide their artifact with a title and short explanation, as volunteers of each group were invited to present their results in a one-minute pitch.

The last part of the workshop involved a focus group to gather insights into the participants' potential changed beliefs and evaluate the tasks. The researcher provided an initial briefing in which the researcher set clear expectations, explained the purpose of the focus group, and established ground rules (Appendix F). These ground rules included, for instance, respecting each other's views and avoiding interruptions. At the end of the workshop, the focus group was thanked for their time and effort.

Data-analyses

The data acquired from the expert interviews, survey, workshop, and focus group underwent examination employing a thematic analysis. Thematic analysis is a structured qualitative data analysis approach used to detect and outline recurrent themes or patterns in the data (Braun & Clarke, 2006). This study employed an inductive thematic analysis approach, extracting codes and patterns directly from the data (Braun & Clarke, 2006). The researcher transcribed the audio recordings from the expert interviews (Appendix G) and workshop (Appendix H) in a Google Word document using the transcription option from the office online, which was subsequently manually reviewed. An affinity diagram was used to organize and structure all the data from the workshop, including pictures of the created storyboard and artifacts, survey. The interviews, workshop and focus group responses were coded in Atlas.ai. After organizing the data, the researcher familiarized the data derived from the expert reviews, survey, and workshop through an initial read-through. Codes were generated from this data and later aggregated into themes.

The transcripts were coded for comments pertaining to any attitude, experience, or opinion related to discussing gender, gender identity, empathy, mutual understanding, or speculative design. This resulted in 238 comments. These comments were clustered thematically in several iterations.

In the first round of theme generation, six themes and 11 sub-themes were identified.

Although, after reassessment of the data, some themes and sub-themes were merged or reconsidered. For instance, "Establishing a Safe Learning Environment" was considered a sub-theme in the first round, but during the iteration it was found to be a main theme. Another example is the merging of two themes into "Connectedness Through Personal Narratives".

During the thematic analysis, five themes and one sub-theme were identified. The themes and

sub-theme can be found in Table 4. The extensive thematic analysis including example quotations can be found in Appendix I.

Table 4Themes and Sub-Themes from the Thematic Analysis

Theme	Sub-theme	Description
Establishing a Safe Environment		Importance and challenges to create a safe classroom environment to discuss gender identity
Gender-inclusive Representation in Daily Live		Addresses the integration of inclusive representation into everyday activities and experiences
Connectedness Through Personal Stories	Immersive experience with gender	Develop connection and empathy by sharing or discussing personal stories and experiences through for instance immersive technologies
Demystifying Gender Complexity		Ease heavy discussions through low-threshold approaches
Self-reflective behavior	and national from the Thomasic Analysis	Self-reflection as an important aspect of modifying perceptions of gender identity

Note. Themes and Sub-Themes retrieved from the Thematic Analysis. The complete Thematic analysis can be found in Appendix I.

Results

Using the thematic analysis framework from Table 4, this chapter presents an overview of the results across the themes. The first section includes the survey results on respondents' knowledge and attitudes towards gender identity. The second section elaborates on the themes identified through the expert interviews, workshop, and focus group responses. Participants from the

survey, workshop and focus group are represented as 'P' (e.g., "P1"). The participants from the expert interviews (i.e., teacher interviewes) are represented as 'E' (e.g., "E2").

Survey responses

All 14 respondents of the survey indicated having knowledge of gender identity, with five respondents (35,71%) answering "reasonable knowledge," seven respondents (50%) answering "good knowledge," and two respondents (14,29%) answering "excellent knowledge." When asked if the respondents think schools should play a role in promoting discussions about gender identity, 11 (78,57%) out of 14 respondents replied "yes," and three (21,43%) answered "no." An overview of the questions and responses can be found in Table 5.

Table 5Overview of survey multiple choice questions about knowledge and attitude towards discussing gender in the classroom

Question	Responses		
How would you describe your current understanding of gender identity?	Very Poor	00 (0,00%)	
	Poor	00 (0,00%)	
	Reasonable	05 (35,71%)	
	Good	07 (50,00%)	
	Excellent	02 (14,29%)	
How important do you consider having knowledge about gender identity in today's society?	Important	09 (64,29%)	
	Neutral	05 (35,71%)	
	Not important	00 (0,00%)	
How important do you consider it that everyone can be themselves in the classroom?	Important	14 (100,00%)	
	Neutral	00 (0,00%)	
	Not important	00 (0,00%)	

How open-minded do you consider yourself regarding different gender identities?	Very open-minded	12 (85,71%)
	Neutral	2 (14,29%)
	Not open-minded	00 (0,00%)
How would you rate the inclusivity of gender identity in your school?	Very inclusive	09 (64,29%)
	Neutral	05 (35,71%)
	Not inclusive	00 (0,00%)
I feel that I and others can discuss and express gender identity in the classroom.	Agree	10 (71,43%)
	Neutral	04 (28,57%)
	Disagree	00 (0,00%)
I believe schools should play a role in promoting discussions about gender identity.	Yes	11 (78,57%)
	Neutral	00 (0,00%)
	No	03 (21,43%)
Discussions about gender identity should be integrated into the regular curriculum.	Yes	04 (28,57%)
	Neutral	07 (50,00%)
	No	03 (21,43%)

The open-ended questions were analyzed to identify and highlight commonly given answers (see Appendix I). 12 participants indicated a lack of discussions on gender in school. Two participants discussed gender once while participating in a workshop about diversity and inclusion at school. However, all participants highlighted the absence of regular lessons on gender identity, diversity, and inclusivity.

The participants mentioned various challenges when discussing gender in school, citing fellow students' lack of knowledge and open-mindedness as most common. Additionally, participants noted the taboo surrounding gender due to the sensitivity of the topic and the wide range of opinions by fellow students.

Thematic analysis

A thematic analysis was conducted on the set of data, gathered through expert interviews, the workshop, and focus group. A total of 71 codes were recognized. In total, 5 themes were identified from the data set: Establishing a Safe Environment, Gender-Inclusive Representation in Daily Live, Connectedness Through Personal Stories, Demystifying Gender Complexity, and Self-Reflective Behavior.

Establishing a Safe Environment

Workshop participants

The workshop participants' concern for the safety of the LGBTQIA+ community was prominent throughout each task. All participants acknowledged the importance of a safe and inclusive environment. During the brainstorm, two participants (P9 and P11) indicated a diminished sense of comfort to engage in conversations about gender with individuals holding dissimilar beliefs. For instance, P9 expressed a reduced sense of security in openly expressing personal perspectives:

"No, but I think that if you were to include a few people from a specific province or area, the conversation would be completely different. That could also be interesting, but then I might feel a bit less safe to speak up freely".

In addition, P9 noted that having conversations about gender with people who are not likeminded would change the goal of the discussion: "I think this is more of a discussion, and otherwise, it would turn into a debate where the content gets lost and people just argue".

To ensure safety during the discussion, the establishment of ground rules is considered a good idea by P7: "Indeed, I actually believe that if you go back to the basics and also articulate the

norms and values beforehand, making it the guiding principle during a session or while using a toolkit, you can truly create an atmosphere where people feel open enough to express what perhaps not everyone dares to articulate".

The connection between knowledge and a safe environment was made during the brainstorm. Many participants cautiously agreed that understanding gender identity, inclusivity and diversity is essential to lead the discussion. For instance, P6 quoted:

"However, having a basic knowledge is a prerequisite when using such a tool. Engaging in the conversation ensures a safe environment and understanding, but prior knowledge is essential. Yes, there needs to be a general, neutral knowledge."

In addition, the participants discussed the role of teachers to provide a safe environment. The participants indicate that teachers should maintain neutrality and not impose their own opinions. P1 also mentioned that possessing basic knowledge about gender is required for teachers to guide the discussion: "Yes and of course also how do you stay inclusive, that includes training of teachers and all employees and so on of the school and yes... Yes and how do you deal with that as a teacher."

Teacher interviewees

To discuss gender identity, all teacher interviewees mentioned that the first step is to create a safe environment. Moreover, E4 emphasized that defining terms (e.g., inclusivity) is important to ensure that all students have the same understanding to prevent misconceptions:

"A lot of students think they understand gender, or diversity or other terms. But in fact they all have other perceptions of the words. So before even discussing gender, like before talking about it, it is so important to just teach them general information".

E1 also indicated that colleagues are skeptical about using different pronouns:

"I am non-binary, and my pronouns are they/them. I have a colleague who is very skeptical of this and does not want to use the pronouns. Furthermore, I notice that there is little understanding of neurodiversity. Both with managers and with colleagues who do not suffer from it themselves. It is often seen as nagging or something you have to become more "resilient" about."

All teacher interviewees agreed that implementing rules in the classroom before discussing gender is necessary to ensure a safe environment. E2 stated:

"Discussing gender might be very challenging for young people, as I experience this myself too, and students might not feel comfortable in class or something. So in order to have these discussions, a safe environment is crucial. [...] So setting ground rules for example 'respect everyone' [...] would be the first step".

The teacher interviewees acknowledged the role of the teacher in providing a safe classroom. At the same time, E3 acknowledged their limited expertise in teaching gender identity, diversity, and inclusivity: "We (teachers) have a lot of knowledge and expertise about gender but teaching about gender is something completely different. Finding a suitable and safe approach is challenging and takes a lot of time."

Gender-inclusive Representation in Daily Live

Workshop participants

The participants expressed the changing dynamics of gender and the disappearance of traditional male-female norms throughout the workshop. For example, during the brainstorming session (see Figure 8) about preferable future scenarios regarding gender, P12 mentioned that beauty products may become more inclusive: "*I also have imagined a future where beauty*

products for men and women are 50/50.". During the brainstorm exercise, six participants (P2, P3, P9, P10, P11, P12) mentioned having a positive future perspective on gender equality.

Moreover, the participants started ideating about gender inclusivity in sports. P12 envisioned a future scenario in which the Olympic Games expanded their categories beyond male and female athletes, including a category designated for transgenders or non-binary individuals:

"I have subdivision physical and psychic gender. So physically how you were really born and psychically how you feel. So, what division you have in that then. Look for example at the Olympic Games. It would be very crazy if you then put man and woman in the same category, because there is a big difference in muscle mass. But it's how you feel, so you could then maybe make a separate/sub thing of it for the people who fall in between (e.g., transgender, non-binary)."

The participants mentioned the possibility of a genderless future during the brainstorm exercise. According to three participants (P8, P9, P12) genderless futures would be beneficial. One of the benefits mentioned was that binary norms regarding pronouns would disappear if gender disappeared. P9 mentioned: "Ultimately, in a kind of utopian world, sexuality and even the binary aren't really the norm. Not even in everyday language. So that everyone still identifies as they wish. But then it's not necessarily that I automatically refer to you as she, her, or something like that.".

Figure 8

Brainstorming about the future of gender during the workshop session



Connectedness Through Personal Stories

Workshop participants

During the brainstorm, the participants came up with possible, preferable, weird, and worst imaginable future scenarios. The participants agreed that polarization was one of the main concerns for the future. P11 mentioned: "I think just questioning gender also triggers a lot of resistance". P6 and P8 think that the main cause of the resistance comes from people who are religious. In contrast, participants (P2, P8, P9) diminished the influence of religion and cited the parental influence on polarization. P9 summarized this issue:

"But also, that parents impose their political beliefs, or place too much emphasis on political beliefs onto their child, just as is happening now, [...]. And then you get a kind of hate generation because you're born into polarization".

Eight participants (P1, P5, P6, P8, P9, P10, P11, P12) also recognized that resistance may stem from the lack of personal relevance to the subject matter:

"Yeah, because how do you involve people who just consider it all a hassle, because that's also important. Because very often, with a topic like this, people immediately think, 'I have absolutely no interest in that" (P9).

After brainstorming about the future of gender, the participants were divided into sub-groups and had to write or draw a narrative about an imagined future scenario. P1, P6, P8 and P12 agreed that this was a helpful method to gain empathy for the 'main character'. P12 added that it gave new perspectives and insights: "Navigating the world from the character's perspective helped me, allowing me to see things through their lens".

During the speculative methods, all participants discovered common ground. P12 mentioned:

"What strikes me is that almost everyone thinks the same, which I didn't necessarily expect beforehand. [...] But it's quite interesting to see because sometimes you don't really know what you think about it yourself or how you want to think about it, and then you end up thinking the same about many things or 'Oh, I think almost the same way'".

Due to the common ground, six participants (P1, P3, P6, P8, P9, P12) mentioned feeling connectedness. Additionally, P1 expressed that the connectedness fostered honesty among the participants about personal experiences. One participant (P9) appeared to agree with the statements, while also suggesting that the connectedness may be influenced by the composition of the group.

Immersive experience with gender

The focus group expressed that an immersive experience (e.g., Virtual Reality) about gender might be sufficient to create understanding. P9 mentioned that people could engage in

empathetic exercises by assuming the perspective of someone with various gender identities (e.g., non-binary individual). P8 appeared to agree that an immersive experience could be a solution to gain empathy and understanding.

Teacher interviewees

All teacher interviewees observed that students in class experience difficulties in discussing gender identity. The teachers experience resistance to participation as a challenge when discussing gender in the classroom or at events, e.g., "[...] Discussing these types of subjects, or organizing events like purple Friday always comes with opinions, some positive, some negative. [...] But there is a lot of resistance" (E4). One expert (E1) also mentioned the limited knowledge of gender identity among students and fellow teachers:

"The lack of understanding around neurodiversity has to do with the unknown of it, colleagues and supervisor should get more knowledge about this because many students but also colleagues struggle with this. The lack of knowledge leads to lack of empathy, which can be very painful. The question is also how much should people and the organization as a whole want to do for people who are different. People talk about diversity and inclusion but when it comes to actions I see little happening yet. Then they still expect the other to adapt."

Expert E4 mentioned that the resistance and lack of knowledge can be solved by implementing personal stories from well-known people: "[...] *Additionally, employing living examples allows for a more profound sense of empathy. 'Non-binary' might sound abstract, yet we know and generally find Raven van Dorst - mostly - amusing and admirable. Etc"*.

Demystifying Gender Complexity

Workshop participants

During the evaluation of the tasks during the focus group, participants indicated they enjoyed the futuristic and creative approach of the speculative methods. In the survey participants noted that gender was a difficult and complex topic to discuss, but the speculative methods seemed to make the discussions easier. In addition, the balance between humor and seriousness created a light-hearted atmosphere, which all participants found important when discussing a "heavy" topic. For example, P6 said, "Yeah, I think that's possible in this lighthearted way. Because this way, sometimes you didn't feel like you were dealing with a heavy topic".

The complexity of gender was frequently discussed. Participants indicated that the complexity makes it complicated to really to share perspectives. The speculative methods helped them to actively participate despite their knowledge of gender. Participant P1 seemed to be more open in the active parts (e.g., during the brainstorm): "Yeah, for me, that active participation worked quite well because, for instance, I'm saying little now, but during the creation and brainstorming, I felt the barrier fading".

Teacher interviewees

The teachers collectively drew inspiration from exercises on the internet, for instance, conversation starter exercises (E2). However, the methods predominantly consist of passive exercises. Some experts express their intention to apply active exercises but cite constraints related to time and resources. E1 mentioned: "Yeah, I really want to implement active exercises, as they seem to be way more fun for students to engage in. But we simply have no time and also not the correct tools. And passive exercises are easy to facilitate, so it's just because we just lack time and inspiration, haha".

When asked about important facets a tool should include, it was mainly about getting people acquainted with the subject, and not being too complex: "It should be especially applicable to all subject areas, have a light-hearted tone. People should feel that they can practice and that "making mistakes" is allowed. Talk to the people involved, not just about them. Ask them what they like/need." (E1).

Self-reflective Behavior

During the brainstorm, participants discussed self-reflective practices as a crucial aspect for the future. P3 highlighted the significance of self-reflection in fostering empathy towards others. This approach prompted participants, exemplified by P3 and P9, to reflect on their behavior and viewpoints:

"[...] Because sometimes, well, I still try very hard to pay attention, and sometimes when I meet someone, I automatically say "your partner." And then it's something that isn't necessarily heterosexual or binary. And then I think, "Oh yes, it's good to keep thinking about and doing this" (P3).

Another example is that P12 indicates it is inconceivable that people identify themselves on their passports as non-human (e.g., objects). However, P12 revisits this vision, commenting that it could be feasible in the future:

"I want to come back to this by the way, because in principle if someone would like to identify themselves as an object for example, I don't think that should be forbidden either. Everyone should just have the freedom in that so I don't exclude that in the future it will just be possible to identify yourself as anything even as a non-human."

Designing Speculative Narratives and Artifacts

In the first part of the workshop, the participants cooperatively brainstormed about possible, preferable, worse, and weird future scenarios on gender. The researcher intervened primarily to clarify participants' statements as all participants asked each other for clarifications. During the brainstorming there were some similarities and the participants seemed to listen and understand each other.

The second part of the session consisted of two tasks which the participants had to perform in sub-groups. During the second and third tasks the participants designed a narrative about a possible future scenario and designed low-fidelity artifacts (see Figure 9). The narratives and corresponding artifacts presented various scenarios: a worst-case scenario depicting a 'disappearance closet' (group 1), a scenario (group 2) about a school system that restricts access based on non-acceptance of all genders, and a scenario (group 3), involving an identity coordinator ensuring inclusivity across all aspects. The participants' narratives and designs are shown in Figure 10, Figure 11, and Figure 12.

Figure 9The sub-groups designing speculative narratives and artifacts





Note. On the left, sub-group group 1 is writing a speculative narrative. On the right, sub-group group 1 is designing a speculative artifact.

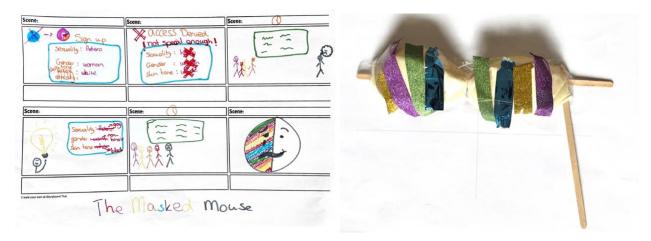
Figure 10

The speculative narrative and artifact created by group 1



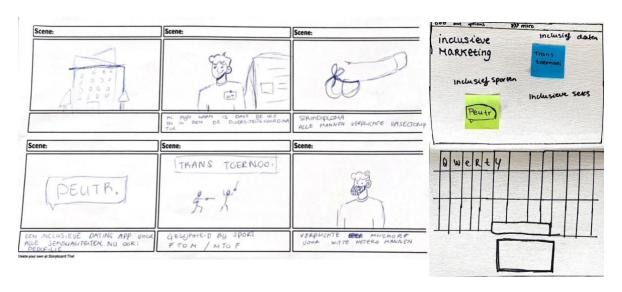
Note. The narrative and artifact are based on the worst plausible future scenario. On the left the written narrative is shown about the main-character Pietje which does not accept the LGBTQIA+ community. The corresponding artifact is depicted on the right, which embodies the "disappearance closet". This closet is designed to transport individuals from the LGBTQIA+ community to a safe world in which all people are accepted.

Figure 11The speculative artifact created by group 2



Note. The storyboard on the left portrays a school system that permits entry only to those embracing diversity and inclusivity. On the right, there's the depiction of the 'masked mouse,' a mask allowing individuals to present themselves differently. For example, if denied access initially, students can wear the mask to gain entry despite the initial refusal.

Figure 12The speculative artifact created by group 3



Note. The narrative and artifact are based on a possible future scenario. Shown on the left is a storyboard about an inclusivity-coordinator who ensures that inclusivity is considered within various sectors. On the right, a prototype of a website is shown that can be used for inclusivity marketing.

At the end of the workshop, a focus group was conducted to assess various aspects, including the evaluation of the tasks. P5 and P6 expressed that the introduction of the tasks needed to be clarified at the start of the session. After the first round of brainstorming, the participants had a better idea of what was expected. All participants agreed that the speculative approach during the tasks was helpful in thinking out of the box, especially during the brainstorm session. P9 indicated that "the worst" future scenario could be misinterpreted:

"What's satire to us might be someone else's reality. So, perhaps 'the worst' isn't applicable within the subject. Because that's not the approach with which we make it, but it might be for someone else".

Even though all participants agreed that a creative approach can work to get students engaged in discussions and create understanding, it was also mentioned that not all students would favor a creative approach.

Discussion

This study explored the discussion of gender identity with students using speculative methods that could potentially be used as an educational tool in the classroom to promote mutual understanding (Fabes et al., 2019; Valk, 2011). Through interviews and a workshop, key aspects, and challenges for discussing gender were identified. During the workshop, three speculative methods were tested to facilitate the conversation around gender. This chapter discusses the

extent to which questions were answered, how the speculative methods facilitated discussion, study limitations, and implications for future studies.

Attitudes and Challenges in Discussing Gender for Students and Teachers

The findings discussed in the subsequent section are relevant to SQ1 ("What are the current attitudes and challenges of Dutch university students and teachers when discussing gender identity in the classroom?").

The teacher interviewees seemed to argue that misconceptions remain a challenge when discussing gender. On the one hand, the workshop participants indicated having "reasonable" or "good" knowledge about gender identity. On the other hand, the teacher interviewees indicated misconceptions among students. The indication from the workshop participants having good knowledge of gender identity might be influenced by the heightened awareness of the topic in Dutch society (Huijnk, 2022). Thus, students may perceive familiarity with the topic, yet their understanding may be inadequate to engage in discussions about gender.

Introducing an external facilitator with gender expertise could potentially help guide classroom discussions. The teacher interviewees note that educators are often closed-minded about the topic, so students should have more input. However, students indicate they would benefit from clear guidance from teachers. The participants' indecision about the "right" approach to facilitating discussions underscores the complexity of addressing this topic in the classroom.

The participants further expressed concerns about students' resistance to participating in discussions about gender. Participants suggest that resistance may stem from religion and upbringing. This aligns with previous findings, which state that resistance to the LGBTQIA+ community often occurs among people who have been raised with a binary perspective of gender

or who have been raised with a religion in which binary norms are central (Adamczyk & Pitt, 2009; Van Den Akker et al., 2013).

The brainstorming and artifacts designed during the workshop seemed to provide a discussion platform for gender-inclusivity. Students appear to believe there could be more representation of diverse genders in areas such as sports (e.g., a sports team for non-binary people) and beauty products (e.g., beauty products for men). Sports and beauty products are so-called stereotypically gendered spaces, which are areas in which a particular gender is considered welcome or appropriate or not. Sports teams, for example, often adhere to a binary structure. Similarly, there is a prevailing idea that beauty products are primarily for women.

Workshop participants showed a strong response to self-reflection. While brainstorming possible scenarios, some participants seemed to reflect on their perspectives. For instance, during the brainstorming session on gender, participants initially found it challenging to conceive the idea of identifying as non-human entities (e.g., objects). However, upon reflection, the perspective changed. This suggests that participants were open to new perspectives and aimed for an inclusive society.

Key Aspects for Starting a Discussion

Overall, these results are valuable for SQ2 ("Which aspects are perceived as valuable to start communication among Dutch University students related to gender identity?"). During the workshop, several aspects were presented that students perceived as important regarding gender. The aspects discussed in this section can be considered when facilitating a discussion about gender with students.

The workshop participants considered the well-being and safety of LGBTQIA+ students. This was prominently mentioned while brainstorming about possible futures and in the narratives and

artifacts. The proposed narratives and artifacts primarily focused on inclusivity, safety, and acceptance.

The participants argued that discussions about gender can only appear in safe environments. Teacher interviewees indicated that to create a safe environment, all students must have the same knowledge and understanding of gender. Both teacher interviewees and students also suggested establishing ground rules. Establishing ground rules increases the quality of the conversation and guides the conversation toward its intended goal (Knight, 2014). Ground rules can be established by the teacher or in collaboration with students.

Speculative methods encouraged participants to share personal stories and experiences. Personal examples were shared when thinking about visions of the future. One of the teacher interviewees pointed out that using stories about real people can increase understanding. This is because people are more open to empathy the closer one is to someone (Kovacs et al., 2015). Similar to research on immersive technologies (Kovacs et al., 2015), students mentioned the potential of immersive experiences to share personal stories and show new perspectives through active stimulation.

The students seemed to demonstrate that the role of teachers in guiding discussions remains a crucial aspect. Although there were no signs of production blocking during the session (Diehl & Stroebe, 1987), the results showed that extroverted students dominated the workshop. An explanation could be that extroverted students have more prominent opinions on topics and, therefore, feel a greater need to express (Michael Nussbaum & Bendixen, 2003). Therefore, the role of the instructor is to moderate the session and allow everyone to share their personal experiences.

The participants mentioned the lighthearted atmosphere while evaluating the speculative methods with the focus group. A fun and enjoyable experience seemed to motivate the participants to be more open-minded. Participants also considered the tasks during the focus group helpful to see things from other perspectives and to find common ground, which may enhance group cohesion (Cota et al., 1995).

The students indicated to experience an open atmosphere while performing the speculative methods. The open atmosphere was due to the creative and participatory setting. By working together during tasks, students began to exchange thoughts organically, creating new insights that fueled increased self-reflection. Self-reflective behavior (e.g., reflecting on thoughts) can promote empathy and foster understanding in interpersonal interactions (Baron, 1981).

Barriers to Engage with Speculative Methods

Addressing SQ3 ("What are some potential barriers for Dutch students to participate in speculative methods related to gender identity?"), these findings underscore the relevance of understanding impediments that may hinder Dutch students' engagement with speculative methods concerning gender identity.

A barrier encountered during engaging with the speculative methods is the concern for safety regarding the exploration of the worst possible future scenarios. The workshop participants assumed that generating the worst possible future scenario made students feel less safe to express their opinions. People tend to ideate about dystopian scenarios to confront fears and anxieties and to provide insight into challenges and solutions (Tanenbaum et al., 2016). Even though ideating about dystopian scenarios can help to manage unforeseen problems (Tanenbaum et al., 2016), the results suggest that the participants prefer to think about utopian scenarios.

During the focus group, participants seemed reluctant to share their visions. This could be because they feel uncomfortable thinking about the future. Referring to the futures cone model (Bowles, 2018), the ideas generated in the brainstorming and incorporated into the artifacts shifted from the extreme edges of possible to plausible as participants discussed and designed more definitive visions. The focus group, however, made it clear that the dystopian tone of the workshop kept it beyond the realm of preferable. In addition, expressing emotions was a barrier during the speculative methods. Using emotion stickers so participants could express emotions without verbal communication might be recommended.

Limitations

There are several limitations in this study. Firstly, the expert interviews took place after the development of the study design. As a result, the study design did not incorporate potential valuable insights obtained during the interviews with the teachers. One of the examples of valuable insights provided by the teacher interviewees was the use of personal stories of "well-known" LGBTQIA+ individuals in the study design.

Secondly, as the participants did not know each other, it was not explored whether the speculative methods would help to start in-class discussions with fellow students. Thus, it remains unclear what the effects would be if the tools were used with participants familiar with each other. For example, the participants might be more open or closed during the conversations.

Thirdly, Due to the complex nature of the topic and the difficulties in recruiting participants, the researcher needed to find a widely diverse and representative sample. Ideally, more than half of the participants would have been part of the LGBTQIA+ community, but in this study, only 8 out of the 18 participants were part of this community. Even though all the break-out groups during the workshop session consisted of one or more representatives of the LGBTQIA+

community, in the ideal scenario, there would have been more. Lastly, the thematic analysis was only coded by one researcher. The interpretation of the data is subjective to confirmation bias, as the positioning of the researcher must be considered when interpreting the findings.

Future Research

Discussing gender in the classroom has been used to explore how direct face-to-face discussions between people can create mutual understanding. Future studies could examine the role of indirect experiences (e.g., using an application to communicate) with people and whether they can influence discussions and understanding between students (Zengilowski et al., 2023). However, more insight is needed to validate sentiment and understand how this approach can be transformed into accepting behavior.

Future research could validate these methods with students who already know each other.

Measuring with a "real" class allows to examine whether it leads to greater mutual understanding in the classroom. In doing so, quantitative outcome measurement methods could be applied to analyze the long-term effects.

Additionally, teachers who are working with gender diversity and inclusivity may be interviewed to evaluate the speculative methods further and identify new room for improvement. The workshop could be held in a real classroom setting with the teachers to test the consistency and generate additional outcomes. Lastly, multiple coders should be involved in future research to reduce potential bias when interpreting the results from the thematic analysis.

Conclusion

This study found that participatory speculative methods could help participants to reflect and engage on fundamental issues regarding gender identity. Contemplating possible future scenarios

and speculative artifacts allowed participants to propose aspects they considered important in the context of gender and engage in discussion. Further, brainstorming and designing helped participants reflect on their understanding of gender regardless of their experience. The results revealed that participants value the safety of the LGBTQIA+ community and pursue a more broadly representative view of diverse genders in society. A reasonable approach to creating a deeper understanding of gender could be the integration of personal stories. The issues raised in this study may be used in future studies on facilitating discussions on gender and to further explore the role of speculative methods.

References

- Adamczyk, A., & Pitt, C. (2009). Shaping attitudes about homosexuality: The role of religion and cultural context. *Social Science Research*, *38*(2), 338–351. https://doi.org/10.1016/j.ssresearch.2009.01.002
- Allana, A., Asad, N., & Sherali, Y. (2010). Gender in academic settings: Role of teachers. International Journal of Innovation, *Management and Technology*, 1(4), 343.
- Amer, M., Daim, T. U., & Jetter, A. (2013). A review of scenario planning. *Futures*, 46, 23–40. https://doi.org/10.1016/j.futures.2012.10.003
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469
- Baams, L., Beek, T., Hille, H., Zevenbergen, F. C., & Bos, H. M. W. (2013). Gender Nonconformity, Perceived Stigmatization, and Psychological Well-Being in Dutch Sexual Minority Youth and Young Adults: A Mediation Analysis. *Archives of Sexual Behavior*, 42(5), 765–773. https://doi.org/10.1007/s10508-012-0055-z
- Baron, J. (1981). Reflective thinking as a goal of education. *Intelligence*, *5*(4), 291–309. https://doi.org/10.1016/0160-2896(81)90021-0
- Berthelsen, D., Brownlee, J., & Johansson, E. (Eds.). (2009). *Participatory learning in the early years: Research and pedagogy*. Routledge.
- Bleecker, J. (2009, March 17). *Design Fiction: A Short Essay on Design, Science, Fact and Fiction*. https://blog.nearfuturelaboratory.com/2009/03/17/design-fiction-a- short-essay-on-design-science-fact-and-fiction/

- Blythe, M. (2014). Research through design fiction: Narrative in real and imaginary abstracts.

 *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 703–712.

 https://doi.org/10.1145/2556288.2557098
- Blythe, M., & Encinas, E. (2016, March 13). *The Co-ordinates of Design Fiction: Extrapolation, Irony, Ambiguity and Magic.* 345–354. https://doi.org/10.1145/2957276.2957299
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
- Brown, A., Parker, K., & Menasce Horowitz, J. (2022, June 28). Americans' Complex Views on Gender Identity and Transgender Issues. *Pew Research Center's Social & Demographic Trends Project*. https://www.pewresearch.org/social-trends/2022/06/28/americans-complex-views-ongender-identity-and-transgender-issues/
- Brown, T., & Wyatt, J. (2010). *Design Thinking for Social Innovation (SSIR)*. https://ssir.org/articles/entry/design_thinking_for_social_innovation
- Cambre, J., Reig, S., Kravitz, Q., & Kulkarni, C. (2020). "All Rise for the AI Director": Eliciting

 Possible Futures of Voice Technology through Story Completion. *Proceedings of the 2020 ACM*Designing Interactive Systems Conference, 2051–2064.

 https://doi.org/10.1145/3357236.3395479
- Cambridge dictionary. (2023, November 29). *Gender identity*. https://dictionary.cambridge.org/dictionary/english/gender-identity
- Cambridge dictionary. (2024, January 4). *Discussion*. https://dictionary.cambridge.org/dictionary/english/gender-identity

- Candy, S., & Kornet, K. (2019). Turning Foresight Inside Out: An Introduction to Ethnographic Experiential Futures. *Journal of Futures Studies*, 23(3).

 https://doi.org/10.6531/JFS.201903_23(3).0002
- Cascio, J. (2009, September 18). *Futures Thinking: The Basics*. Fast Company. https://www.fastcompany.com/1362037/futures-thinking-basics
- CBS. (2022). Welke studierichting volgen studenten? Nederland in cijfers 2022 / CBS [Webpagina].

 Welke studierichting volgen studenten? Nederland in cijfers 2022 | CBS.

 https://longreads.cbs.nl/nederland-in-cijfers-2022/welke-studierichting-volgen-studenten
- Childs, P., Han, J., Chen, L., Jiang, P., Wang, P., Park, D., Yin, Y., Dieckmann, E., & Vilanova, I. (2022). The Creativity Diamond—A Framework to Aid Creativity. *Journal of Intelligence*, *10*(4), 73. https://doi.org/10.3390/jintelligence10040073
- COC. (2023). Astra toolkit Home. https://basisschool.coc.nl/toolkit/
- Collins, C., & Dillard, C. (2019). *Let's Talk: Facilitating critical conversations with students*. Teaching Tolerance.
- Cooper, K. M., & Brownell, S. E. (2016). Coming Out in Class: Challenges and Benefits of Active

 Learning in a Biology Classroom for LGBTQIA Students. *CBE—Life Sciences Education*, 15(3),

 ar37. https://doi.org/10.1187/cbe.16-01-0074
- Cota, A. A., Evans, C. R., Dion, K. L., Kilik, L., & Longman, R. S. (1995). The Structure of Group Cohesion. *Personality and Social Psychology Bulletin*, 21(6), 572–580. https://doi.org/10.1177/0146167295216003
- Crocq, M.-A. (2021). How gender dysphoria and incongruence became medical diagnoses a historical review. *Dialogues in Clinical Neuroscience*, 23(1), 44–51. https://doi.org/10.1080/19585969.2022.2042166

- Cross-Durrant, A. (1987). Basil Yeaxlee and the origins of lifelong education. In P. Jarvis (Ed.),

 Twentieth Century Thinkers in Adult Education. London: Croom Helm.
- Díez-Palomar, J., Chan, M. C. E., Clarke, D., & Padrós, M. (2021). How does dialogical talk promote student learning during small group work? An exploratory study. *Learning, Culture and Social Interaction*, 30, 100540. https://doi.org/10.1016/j.lcsi.2021.100540
- Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, *53*(3), 497–509. https://doi.org/10.1037/0022-3514.53.3.497
- Dijkgraaf, R. H. (2023). *Emancipatie: Een opdracht voor ons allen (Emancipatienota 2022-2025)*. Minister van onderwijs, cultuur en wetenschap.
- Dunne, A., & Raby, F. (2013). Speculative everything: Design, fiction, and social dreaming. MIT Press.
- DPMC. (2021, November 3). Futures thinking / Department of the Prime Minister and Cabinet (DPMC). https://www.dpmc.govt.nz/our-programmes/policy-project/policy-methods-toolbox/futures-thinking
- Ellis, R. A., & Calvo, R. A. (2006). Discontinuities in university student experiences of learning through discussions. *British Journal of Educational Technology*, *37*(1), 55–68. https://doi.org/10.1111/j.1467-8535.2005.00519.x
- Fabes, R. A., Martin, C. L., & Hanish, L. D. (2019). Gender Integration and the Promotion of Inclusive Classroom Climates. *Educational Psychologist*, 54(4), 271–285. https://doi.org/10.1080/00461520.2019.1631826
- Fan, P.-L., & Marini, M. M. (2000). Influences on Gender-Role Attitudes during the Transition to Adulthood. *Social Science Research*, 29(2), 258–283. https://doi.org/10.1006/ssre.1999.0669

- Farias, P. G., Bendor, R., & Van Eekelen, B. F. (2022). Social dreaming together: A critical exploration of participatory speculative design. *Proceedings of the Participatory Design Conference* 2022 Volume 2, 147–154. https://doi.org/10.1145/3537797.3537826
- Frymier, A. B., & Houser, M. L. (2016). The Role of Oral Participation in Student Engagement.

 Communication Education, 65(1), 83–104. https://doi.org/10.1080/03634523.2015.1066019
- Giraldo, E., & Colyar, J. (2012). Dealing with gender in the classroom: A portrayed case study of four teachers. *International Journal of Inclusive Education*, *16*(1), 25–38. https://doi.org/10.1080/13603110903518216
- Helgason, I., Smyth, M., Encinas, E., & Mitrović, I. (2020). Speculative and Critical Design in
 Education: Practice and Perspectives. Companion Publication of the 2020 ACM Designing
 Interactive Systems Conference, 385–388. https://doi.org/10.1145/3393914.3395907
- Howard, J. R. (2015). Discussion in the college classroom: Getting your students engaged and participating in person and online. Jossey-Bass, A Wiley Brand.
- Huijnk, W. (2022). *Opvattingen over seksuele en genderdiversiteit in Nederland en Europa* 2022. Sociaal en Cultureel Planbureau.
- Janis, I. (1991). Groupthink. In E. Griffin (Ed.) *A First Look at Communication Theory* (pp. 235 246). New York: McGrawHill.
- Jones, A., Buntting, C., Hipkins, R., McKim, A., Conner, L., & Saunders, K. (2012). Developing Students' Futures Thinking in Science Education. *Research in Science Education*, 42(4), 687–708. https://doi.org/10.1007/s11165-011-9214-9
- Kaufman, T. M. L., & Baams, L. (2022). Disparities in Perpetrators, Locations, and Reports of Victimization for Sexual and Gender Minority Adolescents. *Journal of Adolescent Health*, 70(1), 99–107. https://doi.org/10.1016/j.jadohealth.2021.06.024

- Kilman, C. (2013, May 14). The Gender Spectrum. *Learning for Justice*.

 https://www.learningforjustice.org/magazine/summer-2013/the-gender-spectrum
- Kinch, S., Pakanen, M., Heiselberg, K., Dindler, C., Iversen, A.-M., & Krogh, P. G. (2023). An exploratory study of using speculative artefacts in co-design. *CoDesign*, *19*(2), 91–109. https://doi.org/10.1080/15710882.2021.201684
- Kirby, D. (2010). The Future is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-world Technological Development. *Social Studies of Science*, 40(1), 41–70. https://doi.org/10.1177/0306312709338325
- Klein, U. (2016). Gender equality and diversity politics in higher education: Conflicts, challenges and requirements for collaboration. *Women's Studies International Forum*, *54*, 147–156. https://doi.org/10.1016/j.wsif.2015.06.017
- Knight, S. (2014). Creating a supportive environment for classroom dialogue. In *Developing*Interactive Teaching and Learning Using the IWB.
- Korchanov, S. (2008). *Definition dictionary of marketing terms (illustrated encyclopedia)*. Flita, Moscow. (in Russian)
- Koh, J. (2012). [The history of the concept of gender identity disorder]. *Seishin Shinkeigaku Zasshi* = *Psychiatria Et Neurologia Japonica*, 114(6), 673–680.
- Kovacs, P. T., Murray, N., Rozinaj, G., Sulema, Y., & Rybarova, R. (2015). Application of immersive technologies for education: State of the art. 2015 International Conference on Interactive Mobile Communication Technologies and Learning (IMCL), 283–288.

 https://doi.org/10.1109/IMCTL.2015.7359604
- Kumar, R. D. (2007). Participation for improved learning in an English language skills course: An action research report.

- Kuo-Hua Chen & Li-Ping Hsu. (2020). Visioning the Future: Evaluating Learning Outcomes and Impacts of Futures-Oriented Education. *Journal of Futures Studies*, 24(4).
 https://doi.org/10.6531/JFS.202006_24(4).0011
- Lin, L., & Long, D. (2023). *Generative AI Futures: A Speculative Design Exploration*. Creativity and Cognition, 380–383. https://doi.org/10.1145/3591196.359661
- Lohr, S. L. (2022). Sampling: Design and analysis (Third edition). CRC Press.
- Losty, M., & O'Connor, J. (2018). Falling outside of the 'nice little binary box': A psychoanalytic exploration of the non-binary gender identity. *Psychoanalytic Psychotherapy*, 32(1), 40–60. https://doi.org/10.1080/02668734.2017.1384933
- Lundmark, S., & Rodela, R. (2023, July 18). *Integrating Speculative and Systemic Perspectives into Service Design Education in the Chinese Context * Journal of Futures Studies*. Journal of Futures Studies. https://jfsdigital.org/integrating-speculative-and-systemic-perspectives-into-service-design-education-in-the-chinese-context/
- Mandemaker, L. (2022). *Monuments for Future M/otherhood*. World Design Embassies.

 https://www.worlddesignembassies.com/en/project/monuments-for-future-m-otherhood-lisa-mandemaker/
- Martínez-San Miguel, Y., & Tobias, S. (Eds.). (2016). *Trans studies: The challenge to hetero/homo normativities*. Rutgers University Press.
- Matud, M. P., Bethencourt, J. M., Ibáñez, I., Fortes, D., & Díaz, A. (2022). Gender Differences in Psychological Well-Being in Emerging Adulthood. *Applied Research in Quality of Life*, 17(2), 1001–1017. https://doi.org/10.1007/s11482-021-09943-5

- Michael Nussbaum, E., & Bendixen, L. D. (2003). Approaching and avoiding arguments: The role of epistemological beliefs, need for cognition, and extraverted personality traits. *Contemporary Educational Psychology*, 28(4), 573–595. https://doi.org/10.1016/S0361-476X(02)00062-0
- Mikulec, E. A., & Miller, P. C. (Eds.). (2017). *Queering classrooms: Personal narratives and educational practice to support LGBTQ youth in schools*. Information Age Publishing, Inc.
- Miller, S. (2018). Reframing Schooling to Liberate Gender Identity. *Multicultural Perspectives*, 20(2), 70–80. https://doi.org/10.1080/15210960.2018.1447067
- Mitrović, I., Auger, J., Hanna, J., & Helgason, I. (Eds.). (2021). *Beyond speculative design: Past-present future*. SpeculativeEdu.
- Mollon, Max. (2019). Designing for debate (Ph.D. thesis).
- Money, J., Hampson, J. G., & Hampson, J. L. (1955). An examination of some basic sexual concepts:

 The evidence of human hermaphroditism. *Bulletin of the Johns Hopkins Hospital*, 97(4), 301–319.
- Movisie. (2022). *Handreiking LHBTI-emancipatie*. OCW & VWS.

 https://www.movisie.nl/sites/movisie.nl/files/2023-

 O1/Handreiking% 20lhbti% 2B% 20Feiten% 20en% 20cijfers% 20-% 202022.pdf
- Osborn, A. F. (1963). *Applied Imagination: Principles and Procedures of Creative Problem Solving* (3rd Revised ed.). New York: Scribners.
- Prost, S., Mattheiss, E., & Tscheligi, M. (2015). From Awareness to Empowerment: Using Design Fiction to Explore Paths towards a Sustainable Energy Future. *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 1649–1658.

 https://doi.org/10.1145/2675133.2675281

- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169. https://doi.org/10.1007/BF01405730
- Roehling, P. V., Kooi, T. L. V., Dykema, S., Quisenberry, B., & Vandlen, C. (2010). Engaging the Millennial Generation in Class Discussions. *College Teaching*, *59*(1), 1–6. https://doi.org/10.1080/87567555.2010.484035
- Rossenberg, S. van. (2013). LGBTI children in the Netherlands. COC netherlands.
- Ryan, C. L., Patraw, J. M., & Bednar, M. (2013). Discussing Princess Boys and Pregnant Men:

 Teaching About Gender Diversity and Transgender Experiences Within an Elementary School

 Curriculum. *Journal of LGBT Youth*, 10(1–2), 83–105.

 https://doi.org/10.1080/19361653.2012.718540
- Sexual Diversity. (2022, December 7). *How Many Genders Are There? Gender Identity List*. Sexual Diversity. https://www.sexualdiversity.org/edu/1111.php
- Sodha, S. (2023, September 17). Teachers need guidance to resolve issues of gender identity in the classroom | Gender | The Guardian.

 https://amp.theguardian.com/commentisfree/2023/sep/17/teachers-need-guidance-to-resolve-issues-gender-identity-in-classroom
- Sterling, S. (2005). *Unit 7 study guide: Education for Sustainability* (Education in Change). London: London South Bank University.
- Stoller, R. J. (1964). A CONTRIBUTION TO THE STUDY OF GENDER IDENTITY. *The International Journal of Psycho-Analysis*, 45, 220–226.
- Šuran, O. (2019, July 23). *Critical about Critical and Speculative Design*. SpeculativeEdu. https://speculativeedu.eu/critical-about-critical-and-speculative-design/

- Syed, M. (2015). *Emerging Adulthood* (J. J. Arnett, Ed.; Vol. 1). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199795574.013.9
- Tanenbaum, T. J., Pufal, M., & Tanenbaum, K. (2016). The limits of our imagination: Design fiction as a strategy for engaging with dystopian futures. *Proceedings of the Second Workshop on Computing within Limits*, 1–9. https://doi.org/10.1145/2926676.2926687
- The Gender Spectrum. (2013, May 14). *Learning for Justice*.

 https://www.learningforjustice.org/magazine/summer-2013/the-gender-spectrum
- TopHats. (2023). In Class Discussion Tools. https://tophat.com/features/discussion-tools/
- Transgendernetwerk. (2022.). Het Gender Doeboek voor Scholen. *Transgender Netwerk*. https://www.transgendernetwerk.nl/kennis/toolkit/het-gender-doeboek-voor-scholen/
- Tsouroufli, M. (2002). Gender and Teachers' Classroom Practice in a Secondary School in Greece.

 Gender and Education, 14(2), 135–147. https://doi.org/10.1080/09540250220133996
- UNESCO, Joint United Nations Programme on HIV/AIDS, United Nations Children's Fund, United Nations Entity for Gender Equality and the Empowerment of Women, & World Health Organization. (2018). *International technical guidance on sexuality education: An evidence-informed approach*. UNESCO. https://doi.org/10.54675/UQRM6395
- Valk, J. (2011). Worldviews of Today. In K. Sporre & J. Mannberg (Eds.), Values, Religions and Education in Changing Societies (pp. 103–119). Springer Netherlands.
 https://doi.org/10.1007/978-90-481-9628-9_10
- Van Den Akker, H., Van Der Ploeg, R., & Scheepers, P. (2013). Disapproval of Homosexuality:

 Comparative Research on Individual and National Determinants of Disapproval of

 Homosexuality in 20 European Countries. *International Journal of Public Opinion Research*,

 25(1), 64–86. https://doi.org/10.1093/ijpor/edr058

- Van Waart, P., Mulder, I., & De Bont, C. (2016). A Participatory Approach for Envisioning a Smart City. *Social Science Computer Review*, *34*(6), 708–723. https://doi.org/10.1177/0894439315611099
- Vocabulary.com. (n.d.). Mutual understanding. In *Vocabulary.com Dictionary*. https://www.vocabulary.com/dictionary/mutual understanding
- Wakkary, R., Desjardins, A., Hauser, S., & Maestri, L. (2013). A sustainable design fiction: Green practices. ACM Transactions on Computer-Human Interaction, 20(4), 23:1-23:34.
 https://doi.org/10.1145/2494265
- Wali, A. Z., & Omaid, M. E. (2020). The Use of Smartphones as an Educational Tool in the Classroom: Lecturers' Perceptions. *International Journal of Emerging Technologies in Learning* (*iJET*), 15(16), 238. https://doi.org/10.3991/ijet.v15i16.14179
- Wang, V. X. (Ed.). (2017). Encyclopedia of Strategic Leadership and Management: IGI Global. https://doi.org/10.4018/978-1-5225-1049-9
- Willem Huijnk, Roxy Damen & Lonneke van Kampen. (2022). *LHBT-monitor* 2021/2022. Sociaal en Cultureel Planbureau.
- Zengilowski, A., Lee, J., Gaines, R. E., Park, H., Choi, E., & Schallert, D. L. (2023). The collective classroom "we": The role of students' sense of belonging on their affective, cognitive, and discourse experiences of online and face-to-face discussions. *Linguistics and Education*, 73, 101142. https://doi.org/10.1016/j.linged.2022.101142
- Zimmerman, J., & Forlizzi, J. (2008). The Role of Design Artifacts in Design Theory Construction.

 *Artifact, 2(1), 41–45. https://doi.org/10.1080/17493460802276893

Appendices

Appendix A: Informed Consent Form Experts

Dear participant, you are invited to participate in this study about how a speculative design workshop can be used as a classroom tool to discuss and build mutual understanding around gender identity/equality, conducted by Carmen de Groot at Tilburg School of Humanities and Digital Sciences. The objective of this study is to test whether speculative design can be used as a new teaching approach by educators to discuss the topic of gender. Before deciding whether to participate in this study, you must understand what the participation entails, the purpose, procedures, risks, and benefits.

What are you going to do?

During an (online)meeting you will be interviewed according to a list of questions. These questions are related to your expertise, knowledge, and viewpoints.

How long does the participation take?

The interview comprises nine questions that take 20 to 30 minutes.

What are the potential risks and benefits?

The risks of participating in this study are minimal but essential, given that gender identity and equality can be sensitive topics.

Confidentiality and data protection

Your personal data and identity will be treated with strict confidentiality. Any collected data during this study will be stored securely and can only be accessed by authorized research team members. During this study, voice recordings of the interview will be made. These are deleted as soon as the data is transcribed. Your identity will remain anonymous in any publications or reports derived from this study.

Voluntary participation

You are not obligated to participate in this study. If you agree to participate, you can withdraw immediately without consequences. If you withdraw, all the data will be removed from the study immediately.

Contact information

If you have any questions after reading this consent or any other concerns regarding the study, you can contact Carmen de Groot via C.R.degroot@tilburguniversity.edu.

I confirm that I have read and understood the information in this consent form and freely agree to participate in the interview. I authorize the researcher to make voice recordings. I fully understand the research study and its requirements and am willing to participate voluntarily. If you agree, choose "yes". If not, choose "no".

Ye No

Appendix B: Interview Questions Experts

- 1. Please introduce yourself. What is your name, age, current profession, and field of expertise? How many years of experience do you have in your field, and what was the highest education degree that you have achieved?
- 2. Have you taught about gender identity, inclusion, or diversity within a classroom or other settings like workshops, readings, events, or maybe in your own field?
- 3. Which methods do you use to discuss or teach about gender?
- 4. Where do you get all your information/methods from? Do you search for it yourself, or do you use certain methods or tools that already exist?
- 5. Have you ever faced any challenges or difficulties when talking about gender identity, inclusivity, and diversity with a group of people?
- 6. In your experience, were there any students or people who might struggle with discussing the topic? Where do you think these struggles come from? What is your own perspective on this particular issue?
- 7. Have you ever considered using creative or active participatory methods to teach about gender, for instance, leading discussions or other active exercises?
- 8. Do you have any suggestions on how new (classroom) tools could be developed to help people guide these discussions about gender identity?
- 9. Do you have any other comments, remarks, or suggestions that you would like to add?

Appendix C: Informed Consent Form Students

Dear participant, you are invited to participate in this study about how a speculative design workshop can be used as a classroom tool to discuss and build mutual understanding around gender identity/equality, conducted by Carmen de Groot at Tilburg School of Humanities and Digital Sciences. The objective of this study is to test whether speculative design can be used as a new teaching approach by educators to discuss the topic of gender. Before deciding whether to participate in this study, you must understand what the participation entails, the purpose, procedures, risks, and benefits.

What are you going to do?

Firstly, you will be asked to finish a survey with some demographic questions and questions about your current knowledge and experience around gender. After finishing the survey, you are asked to participate in a Speculative design workshop and focus group discussion with other participants. The workshop and focus group will be conducted at Tilburg University. During the session, you will use different tools to gain new insights about the future of gender. To finish the workshop, there is a focus group discussion.

How long does the participation take?

The survey comprises seven questions that take 5 to 10 minutes to complete. Participating in the workshop and focus group will take 2 hours and 30 minutes.

What are the potential risks and benefits?

The risks of participating in this study are minimal but essential, given that gender identity and equality can be sensitive topics. If you consider it a sensitive topic, be aware of the possibility of

discomfort during the workshop because of other opinions. The facilitator ensures that the discussions are adequately conducted without possible displays of discrimination, insults, or other harmful behavior. To facilitate this, the facilitator creates a safe environment for all participants to be themselves and express their opinions. The benefits of participating in this study are testing a new speculative design teaching approach. Moreover, the workshop and focus group will provide meaningful conversations and give new perspectives on gender.

Confidentiality and data protection

Your personal data and identity will be treated with strict confidentiality. Any collected data during this study will be stored securely and can only be accessed by authorized research team members. During this study, voice recordings of the workshop and focus group sessions will be made. These are deleted as soon as the data is transcribed. Your identity will remain anonymous in any publications or reports derived from this study.

Voluntary participation

You are not obligated to participate in this study. If you agree to participate, you can withdraw immediately without consequences. If you withdraw, all the data will be removed from the study immediately.

Contact information

If you have any questions after reading this consent or any other concerns regarding the study, you can contact Carmen de Groot via C.R.degroot@tilburguniversity.edu.

I confirm that I have read and understood the information in this consent form and freely agree to participate in the survey, speculative design workshop, and focus group. I authorize the researcher to make voice recordings and take pictures during the workshop. I fully understand the research study and its requirements and am willing to participate voluntarily. If you agree, choose "yes". If not, choose "no".

Yes

No

*Link to the Qualtrics survey

Appendix D: Four Lenses Model

Four lenses: futuring sessions Speculative design sprint Date:

Appendix E: Powerpoint Presentation Workshop

ONDERZOEK NAAR GENDER IDENTITEIT EN DIVERSITEIT IN HET HOGER ONDERWIJS

WELKOM! ZOEK RUSTIG EEN PLEKJE, WE GAAN ZO BEGINNEN!

TILBURG UNIVERSITY - FACULITEIT VAN HUMANITIES AND DIGITAL SCIENCES

DOEL VAN HET ONDERZOEK

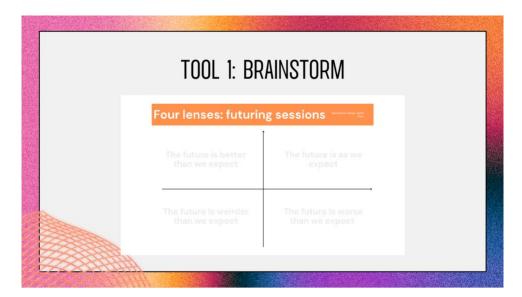
- Jullie ervaringen betreft het bespreken van gender identiteit, inclusiviteit en diversiteit.
- Tools testen om te kijken of die helpen om het onderwerp beter te begrijpen.
- Brainstormen over manieren om het bespreekbaarder te maken en begrip te creëren.

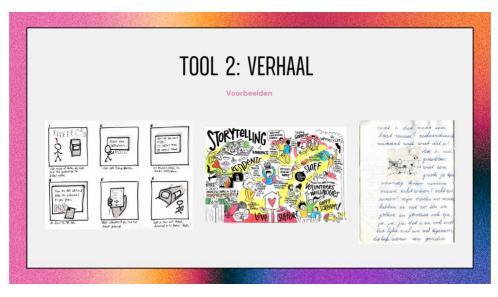


HUISREGELS

- Deze sessie is een veilige ruimte waar iedereen zichzelf kan zijn.
- Respecteer elkaar.
- Onderbreek
 Okaar piet
- Alle antwoorden zijn juist.
- Voel je vrij om je standpunt te delen, zelfs als het verschilt van anderen.

HET VERLOOP VAN DE CREATIEVE SESSIE 03 01 02 04 Tool 2: toekomst Tool 3: product, Tool 1: brainstorm sessie over de verhaal artifact, prototype we alles gaan toekomst van schrijven/tekenen ontwikkelen. bespreken, met elkaar in gesprek gender identiteit, over gender diversiteit en identiteit. • Pauze gaan over het inclusie. onderwijs. tussendoor.







FOCUSGROEP/EVALUATIE



DOOR CARMEN DE GROOT

BEDANKT VOOR JE DEELNAME!

VOOR VRAGEN OF OVERIGE ZAKEN NEEM GERUST CONTACT MET MIJ OP!

Appendix F: Focus Group Instructions and Rules

Welcome to the focus group session. Thank you for taking the time to participate in this study and the focus group discussion to talk about the previous study conducted and gender identity. My name is Carmen de Groot, and assisting is Julianna Hoekstra. We are both students at Tilburg University. This focus group discussion aims to discuss the speculative design workshop, the barriers and motivations of this approach, and your attitude and understanding of gender after participating. Before we start the focus group discussion, it is important to discuss a set of ground rules.

Ground rules

- This focus group discussion is a safe space where everyone can be themselves.
- Respect each other.
- Do not interrupt each other.
- All answers are correct.
- Please feel free to share your point of view, even if it differs from others.
- Do not judge each other based on their point of view.

This focus group discussion is video recorded. We are tape-recording the session because we do not want to miss any of your comments. The video recording is only available for the research of this study, and your data will not be shared.

*Ask if anyone has questions before starting the focus group session.

*Start the focus group discussion.

Appendix G: Expert Interviews Script

 $\underline{https://drive.google.com/file/d/1QnRoLndrX9eU1y35N4rgOFcWcNUMujPd/view?usp=sha}\\$

re_link

Appendix H: Workshop and Focus Group Script

https://drive.google.com/file/d/1XBLwhtVCBPTUvR2o6oaB3hh2j6-7-

lAi/view?usp=share_link

Appendix I: Thematic Analysis

Responses generated through a affinity diagram from the open-ended survey questions

Questions	Common responses
Have you ever participated in any form of discussion or conversation about gender at school or in the classroom? If yes, could you briefly describe this?	 No (P1, P2, P3, P4, P5, P6, P7, P10, P11, P12, P13, P14) Yes (P8, P9) Conducted a workshop on gender and sexuality Briefly discussed during a lesson on sexual orientation
Does your current school offer education on gender identity? If yes, could you describe this briefly?	 No (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14) Not that I'm aware of (P1, P2, P5, P11, P13) They don't provide direct lessons at my school, but they do have a board that oversees it (P6, P7, P8, P9, P12)
What are the challenges you face when discussing gender identity in the classroom/work/social environment?	 Lack of knowledge (P1, P2, P3, P11, P12, P13) Not being open-minded and therefore ridiculing (P1, P2, P3, P6, P8, P11, P12, P14) Influence of upbringing (P8, P9) Taboo (P8, P9, P13) Many different opinions (P1, P6, P7, P9, P11, P14) Sensitive topic (P8, P9, P12) Not facing challenges (P4, P5)

Thematic Analysis Workshop, Focus group and Interviews

Main theme	Sub-Theme	Description	Quotation Examples Student participants	Quotation Examples Expert participants
Establishing a Safe Environment		Importance and challenges to create a safe classroom environment to discuss gender identity	"Yeah, and the question is, when do young people feel safer: with someone who is neutral to them or with someone who is already familiar? Because if they don't feel safe in a group, which is always quite fragile, they'll never truly be vulnerable. So, the basic requirement is feeling safe." (P11) "I think it's especially important that people know what it is. And that people don't engage in discussions before they even know what they're talking about." (P6) "I think this [discussion] is more of a discussion, and otherwise [with people who are not like-minded], it would turn into a debate where the content gets lost and people just argue". (P9)	"A lot of students think they understand gender, or diversity or other terms. But in fact they all have other perceptions of the words. So before even discussing gender, like before talking about it, it is so important to just teach them general information". (E4) "Discussing gender might be very challenging for young people, as I experience this myself too, and students might not feel comfortable in class or something. So in order to have these discussions, a safe environment is crucial. [] So setting ground rules for example 'respect everyone' [] would be the first step". (E2) "We (educators) have a lot of

questioning gender also triggers a lot of resistance." (P11)

"[...] And now there are people who say they are really strongly against it. So, I think this also indicates that in the future, there will be a lot of discussion about it." (P2)

"I'm also afraid that the opposing voice will become louder and louder." (P1)

"No, but I think that if you were to include a few people from a specific province or area, the conversation would be completely different. That could also be interesting, but then I might feel a bit less safe to speak up freely."

(P9)

"I think it starts with a bit of education [...] leading to opposing viewpoints. I think most of the time, this can be prevented by providing education." (P7)

"However, having a basic knowledge is knowledge and expertise about gender but teaching about gender is something completely different. Finding a suitable and safe approach is challenging and takes a lot of time". (E3)

"I am non-binary and my pronouns are they/them. I have a colleague who is very skeptical of this and does not want to use the pronouns. Furthermore, I notice that there is little understanding of neurodiversity. Both with managers and with colleagues who do not suffer from it. themselves. It is often seen as nagging or something you have to become more "resilient" about. become "more resilient". (E1)

a prerequisite when using such a tool. Engaging in the conversation ensures a safe environment and understanding, but prior knowledge is essential. Yes, there needs to be a general, neutral knowledge." (P6)

"I wouldn't feel completely comfortable anymore [if people who are not likeminded participated], but I could talk about it this way." (P8)

"Yeah, now that we're talking about it, I would find that a barrier or be afraid of it. Discussing this in a group with everyone having a different mindset than mine." (P9)

"Indeed, I actually believe that if you go back to the basics and also articulate the norms and values beforehand, making it the guiding principle during a session or while using a toolkit, you can truly create an

		atmosphere where people feel open enough to express what perhaps not everyone dares to articulate". (P7)	
Gender-inclusive Representation in Daily Live	Addresses the integration of inclusive representation into everyday activities and experiences	"I have subdivision physical and psychic gender. So physical how you are born and psychological how you feel. Look at the Olympic Games, for example. It would be very crazy if you would put man and woman in the same category, because there is a big difference in muscle mass, but how you feel, so maybe you can make a separate/sub thing for the people who fall in between." (P12). "Ultimately, in a kind of utopian world, sexuality and even the binary aren't really the norm. Not even in everyday language. So that everyone still identifies as they wish. But then it's not necessarily that I automatically refer to you as she, her, or something like that." (P9)	

"Yes, so are genderneutral beauty products." (P12)

"Well, completely denying gender would seem very strange to me. Because I think it also serves, in how we coexist and biologically speaking." (P11)

"[...] But we shouldn't deny it either... ...that there are biological differences. That they are also useful. I can write that down as well." (P7)

"[...] Something like equality between man and woman, and other genders." (P2)

"I also had imagined a future where beauty products for men/women are 50/50." (P12)

"I also had a bit of the other extreme [when thinking about worst future scenarios], where the LGBTQIA+ community fades away a bit and understanding and acceptance

			diminish. Yes, that as a woman, you can't marry women anymore, or can't be transgender, or something else." (P2)	
Connectedness Through Personal Stories	Immersive experience with gender	Develop connection and empathy by sharing or discussing personal stories and experiences through for instance immersive technologies	"But involving that and immersion that always works for everybody. Because people always want to show that they are smart or that they understand or something. Yes this is a bad examplemaybe but [] but it comes down to giving your opinion or giving your interpretation. So maybe you can use something futuristic without it being a creative expression like drawing or dancing or Or people just always find it super important to express their opinion. And if you capitalize on that then it will come back pretty well I think." (P9) "Searching for common ground or something, that seems like a nice addition perhaps. [] Yeah, really stepping into someone else's	"[] Additionally, employing living examples allows for a more profound sense of empathy. 'Non-binary' might sound abstract, yet we know and generally find Raven van Dorst-mostly - amusing and admirable. Etc". (E4) "[] Discussing these types of subjects, or organizing events like purple Friday always comes with opinions, some positive, some negative. [] But there is a lot of resistance". (E4) "I think the resistance has many different causes, but I think the biggest cause is that these issues are part of social constructs that have been around for an incredibly long time. People

shoes." (P7)

"For me, it [the narratives] helped to immerse myself in the character, so you start viewing the world from their perspective." (P12)

"Yeah, or just making it very personal. So that you... That you have to make it very personal, so start thinking, like, *imagine... if I were* homosexual or nonbinary, that you actually start thinking about what emotions come with that and how do you personally feel about it? Yeah." (P11)

"[...] It's often not about giving an opinion but more about understanding each other." (P10)

"What would also work for me is if you attach some sort of emotion to it." (P11)

"Yeah, and we really confirm each other during the exercises, and that makes the group

are used to a certain way of doing things and when things change in this or a different perspective is shown, it brings fear and uncertainty. Environmental factors such as culture, religion, where you come from, upbringing, etc. play a big role in this." (E2)

"I think that above all, you have to make people think, plant a so-called "seed. It also often works if it is made personal and if you stay close to the target audience's experience." (E2)

"Yeah, students often think that they are openminded or have a lot of knowledge about a subject like gender. And then you start talking with them and see that they really lack a lot of knowledge. Especially about what inclusivity and diversity is, but also regarding

		feeling bigger and everyone more honest." (P1) Especially in this way, if it's in a group setting that's fairly divided, with people both against and in favor, then it would be okay to talk about gender and would also help in connecting." (P8)	the gender spectrum and stuff. There are just a lot of misconceptions". (E1)
Demystifying Gender Complexity	Ease heavy discussions through low-threshold approach	"[] I'm not that creative, but I still found it surprisingly enjoyable to do and got into it." (P2) "But at least being actively involved. I think that would engage a lot of people." (P8) "So, initially, I personally found it challenging, but afterwards, it was quite nice. Yeah. But almost when it was once discussed, then I think it went smoothly on its own. Even though I don't always find it an easy topic to talk about." (P6) "[] it's easy to understand, and the outcome will also be the same. I found it	"People must first become aware of their own assumptions and biases. People need to feel that they can practice and that making "mistakes" is allowed. Talk to the people involved, not just about them. Ask them what they like like/need. Take your time (per lesson but also for any program, people need time to get used to new things) A follow-up lesson or reflection seems like a good idea anyway." (E1) "Above all, it should be applicable to all fields, have a

nice to communicate in this way." (P4)

"Yeah, kind of. It's not like I have a huge desire for it because I find such conversations difficult. But I do think it should be a topic of conversation, and the elements were nice; they provided more openness and delved into it more than I expected."
(P2)

"Yeah, I think that's possible in this lighthearted way. Because this way, sometimes you didn't feel like you were dealing with a heavy topic." (P6)

"So, keep the conversation open like this creative session. Yeah, so when you talk about what our mutual norms and values are, you really engage them in the lesson." (P8)

"Yeah, for me, that active participation worked quite well because, for

light-hearted tone. Make it concrete and recognizable not abstract, far off, So use an example from a colleague or student. Information must be correct and upto-date. Informing seems to me to be *important before* you can really discuss meaningfully. Give suggestions on how and in what class to use this tool. For example. *I wouldn't really* know where it would fit. How to handle less safe situations (e.g., people who are judgmental). The discussant needs to be made less vulnerable (I wouldn't know how either)" (E1).

"Yeah, I really want to implement active exercises, as they seem to be way more fun for students to engage in. But we simply have no time and also not the correct tools. And passive exercises are easy to facilitate, so it's

		instance, I'm saying little now, but during the creation and brainstorming, I felt the barrier fading." (P1) "Yeah, I think that's possible in this lighthearted way. Because this way, sometimes you didn't feel like you were dealing with a heavy topic". (P6)	just because we just lack time and inspiration, haha". (E2) "Certainly, there have been times when talking about gender identity and diversity has been challenging, especially in mixed groups. Some students may be reluctant due to uncertainty or even misunderstanding. Social settings can also affect the dynamic. It is then really super difficult to break that dynamic. Sometimes it fails. That sucks but that is also because it is very new."(E3)
Self-reflective behavior	Self-reflection as an important aspect of modifying perceptions of gender identity	"I think a lot has been said, and I also agree with that; I believe creatively combining knowledge is a great foundation. I have found this to be positive, giving me new insights and allowing me to see things differently." (P2) "[] I had actually never thought about	

it that way before. The diverse future scenarios that we discussed." (P6)

"You become more conscious about it, especially in thinking deeper about it. Yeah, it has given me insights. At least you think about it more deeply." (P8)

"What strikes me is that almost everyone thinks the same, which I didn't necessarily expect beforehand. [...] Maybe. But it's quite interesting to see because sometimes you don't really know what you think about it yourself or how you want to think about it, and then you end up thinking the same about many things or 'Oh, I think almost the same way." (P12)

"[...] Because sometimes, well, I still try very hard to pay attention, and sometimes when I meet someone, I automatically say "your partner." And then it's something that isn't necessarily

	heterosexual or binary. And then I think, "Oh yes, it's good to keep thinking about and doing this" (P3). "But more in a creative way, sometimes it's a bit funny, sometimes it's odd. The assignments really push you out of your comfort zone in terms of thinking." (P1) "You do get a bit of structure in the way you should approach it, but also what you can think about, like the good side, the bad side, and the futuristic side. I think it makes it easier with that guidance." (P7)	
Comments about the method	"So, a sort of wrap- up session where you briefly write on the board what everyone finds important, what the similarities are, what the core values are that you extract from it." (P4) "[] However, because you're so engaged in a future scenario, it's nice	

afterwards to be grounded again by bringing it back to the core. So, there's some sort of conclusion attached to it, instead of ending with an open-ended discussion." (P3)

"But also by adding an evaluation moment, that can also take the form of something creative, to come to a conclusion there." (P11)

What's satire to us might be someone else's reality. So, perhaps 'the worst' isn't applicable within the subject. Because that's not the approach with which we make it, but it might be for someone else." (P9)