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Talk That Talk

Design and evaluation of a persuasive card game against sexually transgressive behaviour

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Abstract. Sexually transgressive behaviour (STB) causes serious problems for, among others, students of higher education. The persuasive card game TALK THAT TALK was designed to promote *ethical bystander behaviour* in STB situations and contribute to a social transition to less sexual violence. To this aim, the game facilitates *Intergroup Dialogues* between female and male players. A controlled experiment was conducted to evaluate the game. The outcome variables of the experiment were obtained from the literature: *Willingness to Intervene*, *Awareness of prevalence of STB*, and *Bystander Responsibility*. Quantitative and qualitative analyses, including validated questionnaires and semi-structured interviews, were employed to measure the game's effects. Participants evaluated the quality of the game (session) and game experience positively and reported that meaningful intergroup dialogues about STB situations took place during the game session. As a result, in the experimental group a significant increase of the three outcome variables was observed, whereas in the control group a non-significant decrease was found. However, due to a selection bias in the recruitment of participants the effects were possibly overestimated. Reversely, a lack of practical skills training in the game may have led to an underestimation of the effects. We concluded that the game TALK THAT TALK may promote ethical bystander behaviour in STB situations by facilitating an intergroup dialogue between female and male participants. Future research should establish if the results can be generalised to a more representative sample of participants and if the game effects may be improved when institutes for higher education include the game in large-scale intervention programmes against sexually transgressive behaviour.

Keywords: persuasive game, sexually transgressive behaviour, ethical bystander behaviour, controlled experiment, Intergroup Dialogue

1 Introduction

In 2021 Amnesty International commissioned research into sexually transgressive behaviour (STB) among students of higher education in the Netherlands [1]. A main

outcome of the study was that one in ten students had experienced unwanted sexual penetration, i.e., rape. Three quarters of those STB victims suffered afterwards from problems of a mental, sexual, or relational nature. Many of them gave up their studies or (temp) jobs [1].

According to WHO, intervention programmes can contribute to a culture change and thus help reduce STB [2]. In school-based programmes the 'bystander approach' is considered effective [2,3]. This approach entails that students are made aware of their role as bystanders in STB situations and are empowered to intervene when they witness sexual violence. Intervening in STB situations, while also considering one's own safety and wellbeing, is called ethical bystander behaviour. Research shows that while bystanders are present in one third of STB cases, they only intervene in one third of the time [4a]. Promoting ethical bystander behaviour in intervention programmes may increase the latter number.

Persuasive gaming is a promising tool for behavioural interventions in organisations and society as a whole [5,6]. As such, persuasive games have the potential to promote ethical bystander behaviour and thus support a student culture with less sexual violence. An example of such a persuasive game against sexual violence is Boxing the Boxes [7]. However, instead of students in higher education, Boxing the Boxes targets secondary school pupils and, therefore, does not fit with the scope of this study. In addition, Boxing the Boxes was developed as a prototype and was not evaluated in a systematic way.

The objective of our research was to adapt and evaluate the prototype Boxing the Boxes to understand how persuasive games may be designed and used as an intervention tool to promote ethical bystander behaviour in STB situations and the social transition to a safe climate free from sexual violence.

Below, in Section 2, we operationalise the concept of ethical bystander behaviour as a set of outcome variables that may be used to establish the effectiveness of the adapted game. We review established methods to promote ethical bystander behaviour in Section 3. The outcomes of our review are used to adapt the prototype for our purposes. In Section 4, we design an experiment to evaluate the game and its use in facilitated game workshops with students. The experimental results are presented in Section 5, after which they are discussed, and conclusions are drawn, in Section 6.

2 Outcome Variables for Ethical Bystander Behaviour

To operationalise ethical bystander behaviour and develop outcome variables for the game, the health communication model by Kincaid et al. [8] for behavioural change is first introduced in Section 2.1. This model is thereafter adapted to yield a new health communication model for the transition to ethical bystander behaviour in Section 2.2. Finally, with the help of the new model, the outcome variables for measuring the effectiveness of the persuasive game are determined.

2.1 The Health Communication Model for Behavioural Change

The health communication model for behavioural change can be used to study and develop communication strategies to promote positive health behaviours [8]. It comprises four main components: communication, ideational factors, health behaviour, and health outcome. We will discuss each component below.

Health Outcomes. Health communication can be used to reach different audiences and share health-related information to promote healthy behaviour of important actors or policies to ultimately improve health outcomes [9]. Sexual violence is a public health problem, as it can negatively affect the physical, emotional, and social well-being of an individual [2]. Therefore, reducing sexual violence would be a desired health outcome.

Health Behaviour. As mentioned in the introduction, ethical bystander behaviour can help reduce sexual violence, and is therefore considered a health behaviour. Two types of decision-making affect health behaviour: behavioural intention and behavioural willingness [10]. Behavioural intention involves a deliberate effort requiring analytical processes to plan or perform a behaviour [11]. However, not all behaviour is planned or reasoned. This unintended reaction is called behavioural willingness [10]. Both behavioural intention and willingness were found to be independent predictors of behaviour [12]. There are however three reasons to choose willingness – and not intention – as a predictor for behaviour. Firstly, for behavioural willingness to be measurable, little experience with a behaviour is required in comparison to behavioural intention. Secondly, when social circumstances and social images are relevant, the intention is weak [12]. Thirdly, long term-evaluation is needed to measure behavioural change, which was not possible in the short-time frame of this study [13]. Therefore, behavioural willingness was taken as an outcome variable for ethical bystander behaviour.

Ideational Factors. Research shows that effective bystander intervention programmes can change bystander behaviour, attitudes, awareness, and knowledge about sexual violence, which can contribute to a cultural change [3, 4, 14, 15]. They can also lower rape myth acceptance, which was found to be a barrier in ethical bystander behaviour [16]. Rape myths are generally false, stereotyped, and prejudicial attitudes and beliefs, that serve to deny and justify male sexual aggression against women and put the blame on the victim [17]. If the bystander doesn't believe in the innocence of the victim, the bystander might feel less responsible [16]. A lack of responsibility was found to be another barrier [18]. Therefore, rape myth acceptance, awareness about sexual violence and bystander responsibility are taken as outcome variables, addressing the cognitive ideational factors of the health communication model. In this paper we prefer the use of sexual violence myth acceptance because this study includes a broader scope of rape myth acceptance.

Communication. Communication plays a key role in persuasive games, as they aim to persuade the player's attitudes, beliefs or behaviour by either argumentation or providing information [5, 19]. Communication also plays an important role in intergroup dialogue, which is a participatory and interactive student-centred approach. It is characterised by critical dialogue communication processes that can help participants from different identity groups cope with differences and conflict in intergroup contact

[20]. It can contribute to cultural change within peer cultures by stimulating intergroup understanding, relationships and collaboration leading to individual and collective action against societal inequalities [21, 22]. Intergroup dialogue has the potential to promote ethical bystander behavioural and therefore can be considered as a communication approach in the persuasive game.

2.2 A New Conceptual Health Communication Model

Based on the theoretical findings above and the health communication model for behavioural change, a new conceptual health communication model was developed for this study (**Fig. 1**). According to the new model, a persuasive game –which integrates entertainment and dialogue – causally affects the ideational cognitive variables sexual violence myth acceptance (SVMA) and bystander attitudes existing of awareness and responsibility (BA). Research shows that lower rape myth acceptance and greater perceived responsibility are linked to greater willingness to intervene, and that awareness is an important factor for ethical bystander behaviour [4, 14,18]**.** Therefore in **Fig. 1** SVMA and BA consequently influence the willingness to intervene (WI) which is a predictor of ethical bystander behaviour. As a result, the serious game can reduce the prevalence of sexual violence among students by promoting the transition to ethical bystander behaviour.

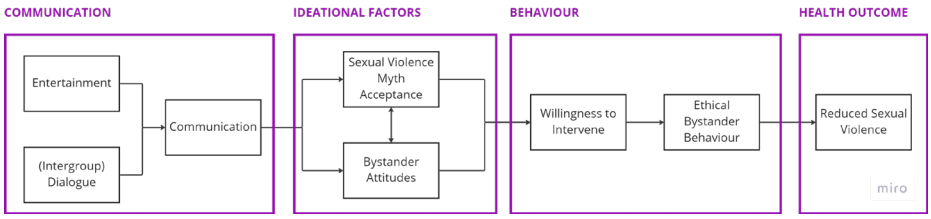

Fig. 1. New Health Communication Model for Promoting Ethical Bystander Behaviour.

In conclusion, the outcome variables for the evaluation of the game are sexual violence myth acceptance (SVMA), bystander attitudes (*i.e.,* bystander responsibility and awareness) (BA), and the willingness to intervene (WI) in situations of sexually transgressive behaviour. Moreover, communication processes (CP) are taken as mediating variables.

3 Game Design

We developed our game TALK THAT TALK by adapting the game prototype BOXING THE BOXES [7] to the scope of this study. BOXING THE BOXES is a persuasive card game about gender equality and safety. It was designed to facilitate an intergroup dialogue between female and male high school students. By posing a new scenario with each card, the participants are encouraged to share their experiences in a small group session, and to critically reflect on currently accepted gendered views and welcome new perspectives. Below we explain how we adapted the game to encourage intergroup

dialogue within the study's scope of STB among university students. For the game framework design, we review established methods for promoting ethical bystander behaviour in Section 3.1. For the game content design, we review bystander opportunities and explore the system of sexual violence in Section 3.2.

3.1 Game Framework

Intergroup dialogue. To guide and support the communication process, it is important to: (1) pose questions to stimulate participatory engagement, (2) encourage positive and respectful interaction by implementing ethical guidelines, (3) have a structured activity in small groups with an equal number of members from either group identities, and (4) facilitate learning with two co-facilitators, one from each group identity [21, 23, 24]. Encouraging a meaningful dialogue between strangers is challenging [5, 6, 25]. However, diverse groups do contribute to a more critical dialogue and help to expand the worldviews. Therefore, a safe space is important, in which participants feel physically and emotionally safe to share their perspectives and experiences openly and honestly [26].

Several components can contribute to a safe space, such as having an unbiased, non-judgmental, well-informed, calm, open, and respectful facilitator. Moreover, the participants should have good discussion skills (e.g., listening, being open-minded and respectful). The environment can also be beneficial for the outcome (e.g., quiet rooms, good lighting, face-to-face seating arrangements). A successful safe space can lead to group learning and an increased sense of self-awareness [25].

To ensure a safe space, TALK THAT TALK is played in a small face-to-face group setting with people from different gender-identity groups, and two informed and open-minded facilitators from different sexes.A (de)briefing was added to discuss the ethical guidelines and provide additional information about sexual violence. This adaptation to the prototype was made to further ensure a safe space and intergroup dialogue. Moreover, an intergroup dialogue was encouraged by posing questions with scenario cards.

3.2 Game Content

Bystander Opportunities. Research [16] shows that in many college settings, bystanders are present in primary bystander opportunities (*i.e.,* before the assault). Primary high-risk situations pose an immediate risk for the victim of getting assaulted and are easier to be recognized. Primary low-risk situations present more subtle rape supportive behaviours and norms, making it difficult to recognize and therefore to intervene. As situations shift from low- to high risk, there is a higher probability bystanders will intervene [16]. To prevent sexual violence, it is important to intervene early. Therefore, the game focused on addressing the participants as bystanders in primary bystander opportunities.

Categories. The pyramid of sexual violence explains how an environment of sexual violence in society is created and sustained [27, 28]. With literature studies, these layers were further extended and explained by Baijanova [29], resulting in additional sub-layers. The primary bystander opportunities were divided over the sub-layers of the

extended version. Therefore, the final five layers were introduced as the categories of the card decks. For more details see the report of Baijanova [29].

Scenarios. To create the content for each category, two brainstorm sessions with female and male students from Delft University of Technology were held, online desk research was conducted, and (personal) stories used. Additionally, Dutch data about the actors, type of relationship, location of transgression, and the circumstances before a transgression, related to sexual violence among students were used to shape the scenarios [1, 29].

Sexual violence is the most prevalent against young women and against people between 18 and 24 years old. It is most often perpetrated by their male peers and people between 17 and 30 years old [1, 30, 31, 32]. Thus, the focus of the game is on female victims and male perpetrators between 18 and 30 years old. In total 39 scenario cards were created which included scenarios or statements with either the question "What do you think" or "What would you do?". The first question reflects sexual violence myth acceptance, and the second the bystander's willingness to intervene in primary bystander opportunities. These cards are meant to reflect on what one would do in a scenario with a risk of sexual violence. The assumption is that the cards would create discussions about sexual violence myths and about how and when to intervene. These discussions would then lead to greater bystander attitudes. Consequently, these discussions would lead to greater willingness to intervene. **Table 1** provides an overview of the chosen design parameters, which are linked to the outcome and mediating variables.

Table 1. Link between Design Parameters and Outcome Variables

Design Parameters	**Description**	**Outcome Variables**
Content Cards	Content cards with scenarios or statements posing questions such as “What do you think?” or “What do you do?”. Four answers per card are provided	• Communication Processes • Willingness to Intervene • Sexual Violence Myth Acceptance • Bystander Attitudes
Briefing	Discussing ethical guidelines	Communication Processes
Debriefing	• Information about the system of sexual violence. • Statistics about the prevalence of sexual violence among students in the Netherlands	Bystander Attitudes
Participant Characteristics	• Equal number of female and male participants • Students between 18 and 30 years • Students (bachelors, masters, PhD) from TU Delft	Communication Processes
Game Environment	• Gender-mixed co-facilitators • Open-minded and well-informed facilitators	Communication Processes

- Fitted room to max eight people (6 participants and two facilitators)
- Good lighting
- Face-to-face seating arrangement
- Room with limited distractions

Overall game design/set-up. The overall game design and set-up is shown in **Fig. 2**. TALK THAT TALK is played in small groups of four to six players and has a game time of 30 to 60 minutes. There is a scoreboard with pawns, five decks of scenario cards with each a different category, one set ABCD cards for each player, a dice, and an hourglass of 3 minutes. One participant throws the dice, takes the respective card from the deck, and reads the scenario with the provided four answers out loud. Then the others guess which answer this participant will choose. Once everyone, including the respective participant has chosen, the answers are explained, starting with this participant. Once this participant is done explaining, the timer starts, and the others start talking. The respective participant gets a maximum of one point when at least one other participant guessed its answer right. The other participant gets one point for the correct answer. Points are kept with the scoreboard.

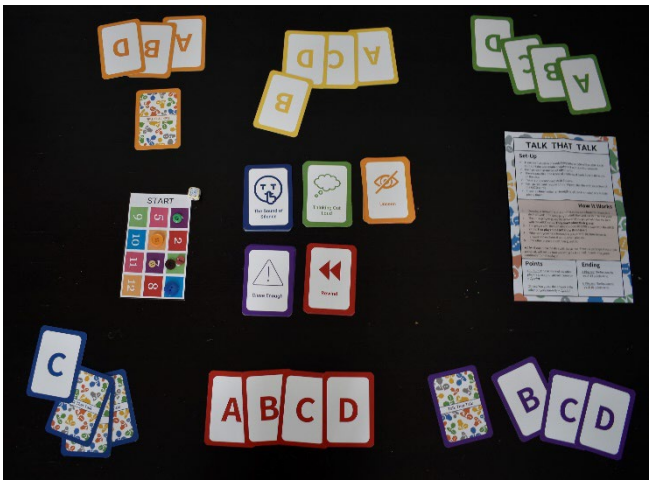

Fig. 2. Game Design and Set-up of TALK THAT TALK

4 Experimental Design for Evaluation

We designed an experiment to measure the following outcome variables: bystander attitudes (BA), sexual violence myth acceptance (SVMA) and the willingness to intervene (WI). Communication processes (CP) are taken as mediating variables. The effect of the game session on the outcome and mediating variables will be measured.

4.1 Setting and Participants

A quasi-randomized controlled trial was conducted with approval (ID nr. 2143) from the Human Research Ethics Committee of Delft University of Technology The Netherlands. A total of 64 students (32 females, 30 males, 2 undefined gender) between 18-30 years old ($M = 23.75$; $SD = 2.19$) and from different nationalities (23 Non-Western, 41 Western) participated. Participants were recruited via posters, email, social media, and study association channels for a study 'encouraging a dialogue among students about transgressive behaviour'. Participation was voluntary and rewarded with a 10 Euro shopping voucher.

4.2 Survey Development

The scales for measuring the outcome variables WI, BA, SVMA and the mediating variable CP were derived from different scientific literature sources [33, 34, 35]. First, the WI, BA, and SVMA scales were modified to fit the scales to the study scope. Then, these scales were pilot tested with 24 people, after which exploratory factor-analysis was conducted in SPSS to test the scales' quality. This process resulted in a one-dimensional 0 to 100 scale to measure WI and two-dimensional 5-point Likert Scale for BA (*i.e.,* No Awareness, Bystander Responsibility). We did not succeed in acquiring meaningful factors for the SVMA scale. Therefore, the SVMA scale was excluded from further evaluation in this study. The details of the pilot-test can be found in the master thesis report of Baijanova [29]. Lastly, the original CP scale by Nagda [36] was used to measure intergroup dialogue. This scale exists of the variables "alliance building", "engaging self", "critical self-reflection", and "appreciating difference". The final scales, questionnaire, and interview items can be found in **Table 2** and **Table 3**.

Table 2. Items of Willingness to Intervene and Bystander Attitudes Scales

Willingness to Intervene Scale	Bystander Attitudes Scale
1. I am willing to stop and check in on a woman who looks very intoxicated when she is being taken upstairs at a party to a bedroom.	**Variable: No Awareness**
2. I am willing to stop and check in on a woman who is surrounded by a group of men at a party and looks very uncomfortable.	**1.** There is not much need for me to think about sexual violence on campus
3. I am willing to express discomfort/concern if someone makes a joke about a woman's body.	**2.** I don't think sexual violence is a problem on campus.
4. I am willing to talk to people I know about the impact of using language that is negative toward women.	**3.** I don't think there is much I can do about sexual violence on campus.
5. I see a guy talking to a woman I know. He is sitting close to her and by the look on her face I can see she is uncomfortable. I am willing to ask her if she is okay or try to start a conversation with her.	**Variable: Taking responsibility**
	4. I plan to learn more about the problem of sexual violence on campus.
	5. Sometimes I think I should learn more about sexual violence.
	6. I think I can do something about sexual violence.

Table 3. Items of Communication Process Scale, Game Experience Questionnaire, and Interview Questions

Communication Process Scale	Game Experience Questionnaire	Interview Questions
Variable: Alliance Building	**1.** In which part of the physical experiment did you gain most awareness about and understanding in sexually transgressive	**1.** What do you think of the game and its game elements?
1. I was able to listen to other student' willingness to understand their own biases and	**2.** Was the content of the cards (the scenarios and its answers) relatable? Please elaborate.	**2.** How did the discussions/dialogue go?
2. I was able to hear other students' passion about social issues.	**3.** Do you have any positive feedback or tips to improve this game?	**3.** How was it to listen to other people's experiences and opinions?
3. I was able to hear other students' commitment to work against injustices.	**4.** How did you feel during the game?	**4.** Did you learn something from others? If so, what?
4. I was able to work through disagreements and conflicts.	**5.** Did you feel safe to answer and discuss honestly during the game, if so why (not)?	**5.** What did you learn from the game play?
5. I was talking about ways to take action on social issues.		**6.** What did you learn from the experiment overall?
6. I was exploring ways to take action with people with a different gender.		**7.** How was it to play the game with the other gender-identity group?
7. I was feeling a sense of hope in being able to challenge injustices.		**8.** Did you perspective change? If so, how?
Variable: Engaging Self		**10.** What kind of emotions did the game elicit with you?
8. I was able to disagree.		**11.** With who do you think you play this game with?
9. I was able to share my views and experiences.		**12.** How do you think the game can be improved?
10. I was able to ask questions that I felt I was not able to ask before.		**13.** What else would you find interesting to know more about?
11. I was able to address difficult issues and questions.		**14.** Would you play the game? And if so, why and how often?
12. I was able to speak openly without feeling judged.		**15.** How was the game environment for you?
13. I felt allowed to make mistakes and reconsider my opinions.		
Variable: Critical Self-Reflection		
14. I was being challenged to examine the sources of my biases and assumptions.		
15. I felt supported to appreciate the experiences different from my own.		
16. I was encouraged to think about issues that I may not have before.		
17. I was encouraged to understand how privilege and oppression affects our lives.		
Variable: Appreciating Difference		
18. I learnt from others.		
19. I was able to hear other students' personal stories.		
20. I was able to hear different points of view.		

4.3 Experimental Procedure

Before the game session started, all participants filled in an online pre-survey in Qualtrics measuring the willingness to intervene and bystander attitudes. One week after the

pre-survey, the control group participants filled in their post-survey online, while the experimental group started their face-to-face experiment (game session). Each game session lasted 90 minutes and existed of four parts: (1) filling in the consent form and demographics questionnaire, (2) explanation of game, creating a safe space and 30 minutes of game play, (3) a 10-minute break, and (4) a debriefing. Directly after the game session, participants completed the game experience questionnaire, the post-survey measuring the WI, BA, SVMA, and the CP scales as shown in **Table 4**. Next, one week after the experiment, the author conducted semi-structured interviews with participants from the experimental group over the phone. In all surveys, participants were asked to fill in the last three digits of their phone number to compare the results before and after the serious game session.

Table 4. Scales Linked with Surveys. *Note.* A small x means that the scale/questionnaire was included in the survey, while a minus means that it was excluded.

	Pre-Survey	**Post-Survey**
Willingness to Intervene Scale	x	x
Bystander Attitudes Scale	x	x
Communication Process Scale	-	x
Game Experience questionnaire	-	x
Demographic Questionnaire	x	-

4.4 Data Collection and Analysis

All survey data was pre-processed in Excel, guaranteeing the participant's anonymity, and analysed in Python. Two participants from the experimental group were excluded based on gender, to make the experimental and control group samples equal in size (N=32). Ordinal scales were changed to numerical scales for descriptive and inferential analyses. Overall mean scores for each construct were calculated. Within and between-subject tests were performed between pre-, post- and follow-up surveys of the experimental and control groups. Qualitative analysis was performed on the interview, survey, and field notes data with the software program MaxQDA. A structured list was made with quotes from the data that could help explain quantitative findings.

5 Results

From the game experience questionnaire and the interviews, we derived qualitative results of the participant's game experience. Moreover, we extracted quantitative and qualitative results from the surveys, game session observations, and the interviews to determine the effect of the game session on CP, WI and BA.

5.1 Game Experience

We found that the overall game experience was positive. From the 32 participants 26 said they felt engaged. We linked the participant's experiences with the game session elements.

Relatability of Cards. Two-thirds of the respondents thought the cards were relatable. For instance, a 25-year-old person (gender unknown) explained: *"They were all situations that I've found myself in or which I know people close to me have found themselves in".* However, the game was not relatable for everyone, particularly for male participants: *"I was engaged, but I think if there was a scenario more recognizable for me, I would have been more invested.* (male, 23 years).

Vagueness and Length of Cards. There were differing opinions about the vagueness of the cards. While some were frustrated about finding the meaning of the content cards, others thought the vagueness contributed to the dialogue, quoting: *"the situations and different answers were very clear, but they also left enough room to discuss, and left the scenario open for interpretation, which made the game a good talking place"* (male, 23 years). The length of the content was also questioned, with one participant suggesting a beamer to read the content on a big screen.

Game Duration. The discussions in the game were overall enjoyed. Many participants mentioned they would have liked to play the game longer than 30 minutes and play it more often. In addition, the time-limited discussion rounds were found by some to limit the depth and number of discussions, as it didn't provide enough room for discussions.

Intergroup Dialogue. All interviewed participants seemed to be in favour of playing the game with other genders. Especially, the female students and some male participants thought it was important to include men in the conversation.

Safe Space. Out of the 32 participants, 29 expressed they felt safe to express their opinions without feeling judged. This safe space was by some contributed to the disclosure and discussion about ethical guidelines in the briefing; the consent forms before the start of the game; the open-minded participants who the game attracted due to selection bias; the unbiased scoring system, which also provided breaks during the serious discussions and added playfulness; the facilitators who are important when emotions run high; and the small group size.

5.2 Effect of Game Session on Communication Processes

Descriptive analysis was conducted to determine the effect of the game session on the communication processes (CP).

Quantitative Results. From the results it is clear that the game session had on average a positive effect on the communication process. "Appreciating Difference" elicited the highest positive response with $M = 4.42$ and $SD = .54$. "Critical Self-Reflection" scored the lowest with $M = 3.98$ and $SD = .61$, together with "Alliance Building" with $M = 4.04$; $SD = .44$. The variable "Engaging Self" had a mean value of $M = 4.19$ and $SD = .46$.

Qualitative Results. All interviewees indicated that they gained different perspectives and that they found the discussions the most interesting part of the game. Quoting: *"The game itself was super interesting. It required thinking and somehow challenging your point of view and different opinions. I think it was super valuable to have this discussion, and such a discussion would not have been available without such an environment"* (female, 26 years). Reflecting and challenging your own point of view is an indicator for the variable "Critical Self-Reflection". In fact, 10 participants indicated they felt self-conscious and six felt challenged.

Many seemed open to other perspectives and opinions, quoting: *"I felt open about talking about my experience with the group, because I also felt like nobody was there to try to win the argument to be the better opinion. It was just an exchange. I liked that."* (male, 23 years). This openness to listen to other's worldviews and feeling allowed to make mistakes and speak openly without being judged fits with the variables "Appreciating Difference" and "Engaging Self".

Moreover, the cards seemed to be a good discussion starter, inspiring the participants to discuss topics they find difficult discussing with their peers in real life: *"The questions and answers were inspiring. Normally if people sit together, the topic of sexual violence won't appear. So, the game and the cards were needed to actually start a conversation"* (female, 26 years).

Conflict arose, but from observation and interviews it seemed to stimulate alliance building and the intergroup dialogue overall. Quoting one participant: *"In that situation the emotions were so high, so I took in a very extreme position and thought that no other answer was correct. But then we discussed it and I saw the others' perspectives. This situation was super valuable to me"* (female, 26 years).

5.3 Effect of Game Session on Outcome Variables

The effects of the game session in the experimental group on the outcome variables WI and BA were tested with paired t-tests and compared with the paired t-test of the control group, see **Table 5**.

Willingness to Intervene (WI). The paired t-test showed a significant positive effect of the game session on WI with t (32) = -2.46 and p = .019. These results were supported by the insignificant findings from the control group (t (32) = .33; p = .742).

One interviewee mentioned that the game was a reminder to intervene, while another realized that doing something is better than nothing. Others stated that the game was empowering and that the answers on the cards were a source of inspiration of what a bystander can do. These positive responses confirm that the game influences the willingness to intervene. However, most of the interviewees mentioned that they missed learning bystander skills. Quoting: *"I don't know how to translate this game to real life. Because if something happens, it's like, okay sure, this is a big situation, but then I wouldn't know what to do about it"* (female, 22 years).

Bystander Attitudes (BA). The variable "no-awareness" was significantly lower in the post-survey compared to the pre-survey survey in the experimental group with t (32) = 4.78 and $p < .001$. In the control group the awareness changed little between the

pre-and post-survey (t (32) = -1.18; p = .247). This change was found to be insignificant supporting the findings from the EG.

Similar results were found for bystander responsibility. The difference between the pre-and post-survey in the experimental group is little albeit significant (t (32) = -2.25; p = .032). In the control group the difference between the pre-and post-survey was even smaller and insignificant (t (32) = .482; p = .663), supporting the finding that the game session had a positive effect on bystander responsibility.

Almost all interviewees indicated that their situational or problem awareness increased because of the game. One third of all the participants contributed it to the information provided in the debriefing and the discussions generated during the game. Quoting: *"The debriefing was especially informative because it covered topics that I wasn't well informed about"* (male, 28 years) and *"The game play increased my awareness the most, because discussing with peers gives more insights than just numbers"* (female, 23 years).

Table 5. Statistical Results for the Effects of Game Session on Outcome Variables. **Note.** An asterisk * indicates that the p-value is ≤ .05, meaning that it is significant; The number of asterisks indicated represents the significance level; p = p-value; t = t-value; M= mean; SD= standard deviation.

Variable	Statistical Comparison	Experimental Group	Control Group
Willingness to Intervene	Pre-Survey	M = 71.88; SD = 17.88	M = 73.09; SD = 17.68
	Post-Survey	M = 77.11; SD = 20.58	M = 70.56; SD = 23.02
	Pre-and Post	***t* (32) = -2.46; *p* = .019***	t (32) = .33; p = .742
No Awareness	Pre-Survey	M = 2.91; SD = .80	M = 2.86; SD = .80
	Post-Survey	M = 2.30; SD = .71	M = 3.05; SD = 1.03
	Pre-and Post	***t* (32) = 4.78; *p* < .001****	t (32) = -1.18; p = .247
Bystander Responsibility	Pre-Survey	M = 3.48; SD = .82	M = 3.50; SD = .89
	Post-Survey	M = 3.67; SD = .77)	M = 3.42; SD = .87
	Pre-and Post	***t* (32) = -2.25; *p* = .032***	t (32) = .482; p = .633

6 Discussion and Conclusion

6.1 Discussion

The results show that the respondents evaluated the game TALK THAT TALK and their experience positively (Section 5.1). This may be due to the extensive briefing, group discussions, and debriefing. Moreover, Section 5.2 showed that the game successfully facilitated an intergroup dialogue between female and male game participants. Participant explained that the safe space created during the game session, and the largely unbiased contents and scoring system of the game contributed to this result.

The results presented in Section 5.3 demonstrate that the persuasive game TALK THAT TALK, can promote ethical bystander behaviour and thus contribute to a safe climate free from sexual violence. The study found that after playing the game, participants showed a significant increase in willingness to intervene, awareness about sexual violence on campus, and bystander responsibility. This is in contrast to the control

group, where these variables showed a decreasing trend. These results are comparable to the findings of the role-playing adventure-based videogame SHIP HAPPENS [37], which also demonstrated a significant increase in bystander attitudes. The study confirms the effectiveness of the new developed conceptual health communication model for behavioural change. The model posits that a persuasive game can encourage systems thinking in community members about sexually transgressive behaviour in their environment by using entertainment and encouraging intergroup dialogue.

The outcomes of the qualitative analysis confirmed the quantitative results and provided some explanation of the quantitative effects. For instance, the interview results show that the participants' willingness to intervene had increased because the game had improved their bystander attitudes. The reason for this is that the in-game discussions and consecutive debriefing raised awareness about STB on campus and generated a feeling of responsibility to learn more about the problem. As a result, this led to a higher willingness of participants to intervene in future STB situations. Moreover, the game provided specific examples of how to intervene in STB situations, which also contributed to the willingness to do so.

6.2 Limitations of the study and suggestions for future work

Some design choices and unexpected circumstances limit the applicability of the outcomes of the study. For instance, the decision to recruit participants to the experiment on a voluntary basis introduced a selection bias. We believe that our participants may have been more open for learning and talking about this topic than the average student. This may have contributed to a more effective intergroup dialogue. Therefore, the effect of the game may have been less pronounced if a more inclusive sample had been attracted to play the game.

Additionally, the limited scope of TALK THAT TALK excludes other intersections of sexual violence with race, gender identity, and sexual orientation. Including other forms of intersection may increase game engagement, and result in increased understanding in how sexual violence affects different identity groups [23].

Moreover, the study did not evaluate the effect of the game on rape myth acceptance, and the behavioural change model did not integrate the effect of bystander skills. According to McMahon, et al. [16] and Bennet, et al. [18] rape myth acceptance and lack of bystander skills can hinder ethical bystander behaviour and form barriers to cultural change. Therefore, a lack of practical, hands-on activities in the game and the acceptance of rape myths may have limited its effectiveness. Many participants stated that, although the game had made them more willing to intervene in future STB situations, they did not know how to do so. It is important in future work to design additional activities for participants to learn intervention skills for future STB situations. A suitable approach may be to embed the game in a larger intervention programme that includes demonstration and hands-on practice of appropriate behaviour. Additionally, future work should include an evaluation of the game's impact on rape myth acceptance. Further evaluation can more clearly determine the effectiveness and limitations of the game and the new developed health communication model.

6.3 Conclusions

The game TALK THAT TALK addresses the issue of sexually transgressive behaviour (STB). Specifically, the game was designed to promote *ethical bystander behaviour* in STB situations among students of higher education. To evaluate the game, we conducted an experiment and measured the game effects using both quantitative and qualitative methods. To operationalise *ethical bystander behaviour,* we adapted the Health Communication Model for Behaviour Change by Kincaid *et al*. [8] and selected the constructs Willingness to Intervene (WI), Bystander attitudes (BA), and Sexual Violence Myth Acceptance (SVMA) as dependent variables in our experiment. Validated questionnaires were used to measure these variables.

The game and debriefing were designed to create a safe space for the exchange of ideas and experiential learning. Following the literature on cultural change we used the idea of *intergroup dialogue* between male and female game participants as the game's prime mechanism. Game cards were used to trigger such dialogue about situations of sexually transgressive behaviour. The quality of this dialogue and its communication processes was therefore hypothesised as a mediator variable in our experiment.

We conclude that a persuasive card game like TALK THAT TALK may be used to create awareness about the issue of sexual violence against women. Respondents also reported a significant increase of bystander responsibility and willingness to intervene in STB situations. The use of intergroup dialogues seems a successful strategy to encourage the exchange of different perspectives between game participants. To improve the effectiveness of the game even further we suggest that institutes for higher education embed the game in a large-scale intervention programme. In such a programme the game should be followed by hands-on activities, facilitated by experienced trainers, to practice skills to intervene in situations of sexually transgressive behaviour.

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