

**Exploring Avatar Customization in Virtual Environments: The Influence of Narratives  
on Avatar Customization**

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## **Abstract**

In a modern and rapidly developing society, video games are a good example of a form of media that has come to play an emphatic role in everyday life. Video games are developing rapidly and in some areas are already more than just entertainment, for example, video games that are used for education. A big role in video games is the avatars you play or interact with, in many games these avatars are customisable. One important factor in this process of customisation, are the narratives that a game conveys to its users. This thesis investigates the influence sexist narratives have on avatar customisation, focusing on how a narrative influences design choices for an avatar and perceptions about gender stereotypes. Using both quantitative and qualitative research methods, this thesis discusses avatars created based on two different narratives, sexist and neutral. The results suggest that a sexist narrative leads to the development of avatars that are more consistent with gender stereotypes about women, compared to avatars based on the neutral narrative. This research highlights the relevance of developing inclusive and balanced narratives for video games.

## **Introduction**

In today's society, video games have taken on an increasingly important role. Video games are no longer just used as a form of entertainment but are now also used in other forms, think of the developments around virtual reality (e.g. Metaverse) or educational video games. In these video games, users often have the functionality to develop and customise their avatar. These avatars are used to give the player a visualization, they can serve as representations of the player their self. Take for instance the earlier mentioned Metaverse, in this world the goal is for people to interact or socialise. Thus avatars are created with the goal of interacting with other users, so the way a player designs their avatar, shows how a player wants to be represented towards other people they might interact with, so avatar designs are influenced by people's personal preferences. While it seems a fairly simple process, there are still uncertainties about what influences users while personalising these avatars. Not all avatars are created with just the goal of interacting with other players in mind, for example, some avatars are designed to guide the player in the game. Avatar design is a prominent feature in a lot of games, most of these games, do not have player interaction as their main goal. Whereas Metaverse is a place for people to meet and socialize most games are driven by some type of story or narrative. A well-known example may be GTA V, this game is driven by a narrative that promotes violence and criminal activities. In some occasions this is reinforced with avatars that may be visualisations of stereotypes or caricatures, which may be perceived as

hurtful to other players (LaCroix et al., 2018). This is also the case when it comes to gender. For most people, gaming is seen as a male hobby and this can be seen in the way games are set up. Most games focus around a narrative that appeals to males, female characters appear less often than males, and when they appear they often reinforce stereotypes (Rennick et al., 2023). As a result, women are victims of problems such as harassment, exclusion, and unequal opportunities in online environments. These types of narratives against women who play games seem to promote sexism (Cross et al., 2022). Therefore this thesis will take a closer look at how sexist narratives may influence design choices regarding a video game avatar.

### **The development of video games**

First off, to understand narratives in video games and what influence a sexist narrative may have on avatar design and sexist beliefs, it is important to understand why using video games is interesting for understanding the impact of narratives. Throughout the years video games rapidly progressed from simple games such as Tetris, to a form of interactive media which, is capable of telling a story and even conveying political or cultural messages (Haglund, 2011). This makes video games unique since video games are one of the few platforms offering the possibility of interacting and stimulating their users (McGonigal, 2011). The interaction players have in video games is often done through the means of avatars, avatars can be defined as playable or non-playable characters. Through these avatars, the player can interact with the video game world and possibly other avatars. Avatars in most games are seen as an extension or visualisation of the player (Szolin et al., 2022). That is why in this thesis we will be using avatars as a means of measuring how a sexist narrative may influence a player. So to conclude, because of this intensive form of interaction often involved in video games, it provides an interesting opportunity to explore how video games contribute to our cultural norms, and what kind of opportunities this offers for further developments in the industry of video games.

### **The influence of narratives in video games**

Before we delve into the specifics of sexism in video games, it is important to understand the narratives function in a game and how they can potentially influence players. When playing a video game, one is often at the beginning of the game informed about what the game will be about and in what setting or time period it will take place. This is all part of a video game's storyline. The story of a video game is often one of the most important parts of a

video game since its purpose is to capture and keep the users' interest in the video game. This is also known as the narrative of a video game. Narratives in video games are a powerful tool to convey the message of the video game (Toh, 2022). However, it can also be used to convey cultural norms and values to the player (Minson, 2018). Especially in video games that deal with controversial topics, such as crime or are set in environments where stereotypes are reinforced, this can have consequences for the player's perspective on the topics addressed in the video game (Bowey et al., 2017).

The scope of this thesis will focus on not only the influence a narrative has on avatar design but also on what influence narratives might have on how we perceive certain cultural norms regarding sexism. Through narrative and the themes covered in a game, certain stereotypes and biases regarding sexism can be conveyed to the player (Bowey et al., 2017). These narratives can possibly have an influence when the user is allowed to select and or customize their avatar. Investigating the influence of narratives offers more insight into how these shape societal attitudes and biases (Bowey et al., 2017). By examining the narratives in video games, it may provide insights into what strategies are possible in enhancing and promoting inclusivity in game culture and it may more clearly portray the interactions between media such as video games and its users (Minson, 2018). Learning more about the influences between narratives in video games and their users will also help game developers gain more insights into how they develop stories around their games that ensure greater inclusivity and a reduction in sexism and stereotypes.

### **The integration of sexism in video games**

Now that it has been discussed what narratives are and what role they might play in a video game, it is necessary to examine another major aspect of the gaming community, namely sexism. First off, sexism is a term which can have a variety of definitions, regarding the context, however for the purposes of this thesis sexism will be defined as attitudes or behaviours that are based on traditional sex role stereotyping (Glick & Fiske, 1997). This belief of sexism often creates the notion that one gender is superior to the other, or tends to have false beliefs or stereotypes surrounding a gender. Based on these beliefs of sexism, harmful stereotypes can form about the female gender, these can range from the belief that women are weak and are there to serve the man who protects them, to stereotypes about women who try to control men sexually (Fox & Bailenson, 2009).

These stereotypes can cause that people of a certain gender are not given the same opportunities as people of the opposite gender. These biases cause women to be prevented from developing in areas not considered suitable for them (Glick & Fiske, 1996). According to Swim et al., 2004, there are multiple forms of sexism, which include blatant, covert, and subtle sexism. Blatant sexism is defined as clearly discriminating against another gender, with no real intention of hiding it, an example could be a woman being told, during a job interview, that she is not able to work in a certain position, because women are too emotional. Covert sexism is in many ways the same as blatant, however, the difference here is that there is an attempt to conceal this form of sexism, for example, during a work meeting, a woman's ideas are ignored, but are accepted once a male colleague repeats the idea. Subtle sexism is often less obvious. This form of sexism is not necessarily meant to be offensive, for example, a woman receives a compliment that she is "pretty good in math for a girl," implying that most women are not good in math. This form of sexism is often not recognized by many people because it is perceived to be some kind of compliment.

Multiple forms of sexism are also a persistent problem in the gaming community (Tang et al., 2020). Sexism occurs in different ways that can affect female gamers, developers or characters. One of the ways that various media like games can create sexism is by emphasizing physical attractiveness (Aubrey, 2006). This can be seen in the way female avatars are presented in video games. Female avatars are more likely to wear revealing clothes (Bègue et al., 2017). According to the objectification theory of Fredrickson & Roberts (1997), the display and in some cases even glorification of unattainable physiques or sexist images and actions in video games and other forms of sexually objectifying media can cause audiences to adopt a certain perspective of the self, which allows for the persistence of stereotypes and biases. As this type of stereotyping occurs more often it becomes more profound in society (Rollero, 2013). However, it must be noted that even though sexist beliefs and stereotypes apply to all genders, research suggests that female characters are more often viewed as sexual objects and less important than males (Dill & Thill, 2007). Given these expectations, exposure to sexist beliefs towards women in gaming environments could potentially cultivate more negative biases or stereotypes (Kelly et al., 2022).

### **Sexist narratives**

Now that it is discussed how narratives play a role in influencing the player and the problem that is sexism in the gaming community, it is important to explain why this thesis will research sexist narratives. Video game narratives can be a viable way of providing

perceptions and opinions for its players (Haglund, 2011). This however may also have a downside since it would also be capable of reinforcing undesirable behaviour like sexist perceptions and stereotypes. Sexist narratives can be a problem, especially in the video game industry since the general belief that gaming is a predominantly male-dominated industry, this contributes to these disparities, perpetuating harmful stereotypes and alienating individuals of all genders (Cross et al., 2022). Research on the impact of sexist narratives may yield valuable results for the gaming industry. Since in the field of research on sexism in video games, little information still exists on how a narrative affects avatar creation by the user. Similar studies have been conducted, but these mostly focused on sexualised imagery or visualisations in games (Downs & Smith, 2009). These studies ignored a large part of the influence a narrative can have since it can play a big role in objectification (Bowey et al., 2017). Although previous studies have investigated the impact of narratives on gender perception and stereotypes, there is still a lack of how these narratives with sexist tones can impact avatar customisation preferences. In comparison, there is a lack of research on the influence of a video game's narrative content, especially when it comes to in-game experiences, such as avatar creation (Downs & Smith, 2009). Including avatar creation in this thesis, will hopefully help to create a better understanding of the impact a sexist narrative might have on in-game experiences like avatar creation.

### **Conceptual framework of the present study**

It thus becomes imperative to investigate the factors that promote or perpetuate sexism in video games. To research sexism in video games and narratives and how it affects avatar interaction, a framework is needed to provide standardised measures of sexism. For this research, the ambivalent sexism theory is used for this purpose (Glick & Fiske 1997). This theory provides a framework which may help to better understand the phenomenon of sexism. Although this theory does not address any form of specific media, it still offers opportunities to better measure sexism in video games by using the ambivalent sexism inventory (Glick & Fiske 1996). This argument is backed by research from (Stermer & Burkley 2015) who did similar research regarding video games while utilizing the ambivalent sexism theory.

The goal of using the ambivalent sexism theory in this research is to systematically identify and measure the presence of sexism in video games. According to the ambivalent sexism theory, there are two forms of sexism: one known as hostile sexism and the other as benevolent sexism. This coincides with the definitions of covert and blatant sexism as described by Swim et al. 2004. In the case of women, for example, this could be

objectification. Benevolent sexism, on the other hand, is often not intentionally hostile (Glick & Fiske 1997).

Since narratives are the main focus of this research and some people are more sensitive to stories and narratives than others, it is important to measure the extent to which these narratives have an impact on the user (Bilandzic et al. 2019). The narrative engagement scale is used for this purpose. Theoretically, this scale does not seem to make a distinction between different forms of media or whether the narrative is fiction or non-fiction (Ryan 2007).

By applying the narrative engagement scale, results can be better analysed concerning the extent to which narrative played a role during the creation of the avatar (Busselle & Bilandzic 2009). In addition, the use of this scale provides a standardised approach allowing for better comparisons with users and greater consistency and reliability. Overall, the integration of the Narrative Engage ability Scale provides a framework for assessing the effectiveness of narrative to engage players and its influence on the avatar creation process (Bilandzic et al. 2019).

### **Hypothesis and goals**

The main objective that will hopefully be achieved through this research is to explore the influence that sexist narratives in video games have on the creation of avatars in video games, and to subsequently investigate how these narratives influence player behaviour and choices at the point when the user is allowed to develop their playable avatar for the video game, the expected contributions of this thesis are as follows.

In this research, the aim is to explore how a sexist narrative within a video game influences the user who is allowed to develop their avatar, and whether a sexist narrative contributes to the glorification of sexist traits and gender stereotypes during the creation of these avatars. Shaping the themes and context of the narratives and comparing them to the user's avatars related to the narrative, should help to clarify how narratives shape players' choices. It will also give us an insight into whether narratives are a factor in contributing to players learning stereotypes and replicating these (Ng & Lindgren, 2013). By examining the relationship between narrative interpretation and players' attitudes about sexism, the aim is to clarify underlying mechanisms to find out which aspects and themes of a narrative are important in shaping their avatar related to this narrative. This offers insight into the possibility of modifying narratives on specific points without changing the original story too much, while also creating greater inclusivity. Third, identification of factors and aspects that

are deemed as important, according to the user while creating an avatar. The aim is to find out what factors users consider important when forming an avatar, for example, facial features, build or clothes. By exploring this the aim is to find out whether avatars are an extension of the user's personality or can be influenced by the impact of narratives in video games (Lin & Wang, 2014). Finally, the aim is to explore possible demographic differences from users in terms of avatar creation through narrative and sexism. Here, we will look at age, gender, cultural background and any experience with video games. Exploring differences in this area may bring more insight into how experiences and background influence the perspective persons may have on the world of video games and the culture surrounding them.

Using the insights discussed, drawing on other literature and ambivalent sexism theory, this thesis aims to answer the following research question: How do sexist narratives in video games, influence players' perceptions and representations of gender, and how do these perceptions impact avatar customization choices? The following hypotheses are suggested:

H1: Exposure to narratives containing forms of both benevolent and hostile sexism will inspire and result in more sexist traits during avatar creation than narratives that do not expose the user to sexism.

H2: Participants with a higher score on the narrative engagement scale are more influenced by the sexist narrative and therefore also make a more sexist or stereotyped avatars.

H3: Participants who are more biased regarding sexism, as measured by the ASI, will be more likely to go along with traditional gender stereotypes in their avatar adaptations.

By testing these hypotheses, this thesis hopes to yield answers to the research question, and thereby contribute to the video game community by forming a picture of the impact that sexist narratives can have, and to what extent sexism plays a role in the creation of avatars.

## **Methods**

### **Participants**

The total number of responses to the study was recorded to be 37, but three of these could be excluded due to these being trial runs, to test the usability of the questionnaires. Finally, one participant needed to be excluded since they did not complete 100% of the tasks. Additionally, after completing the study, participants were given the option



to have their data deleted due to some of the context of this study being possibly sensitive participants, which not a single participant opted to do. The final total came to 33 people who fully participated in the study. Gender was distributed as follows, from the 33 participants 9 were male and 24 were female. The age of the participants ranged from 18 to 52 years old ( $M_{age} = 24.58$ ,  $SD_{age} = 9.72$ ). The educational level of participants was skewed as 23 participants reported that they have completed or are still studying a bachelor programme at a university. Participants were also asked to rate their gaming experience on a Likert scale from 1 to 5, with 1 having no experience at all and 5 meaning participants considered themselves experts. The mean score was recorded to be 2.76 ( $SD = 0.87$ ), this indicates that participants self-reported to be a little below average when it comes to gaming experience. Participants were also allowed to choose which gaming genre they played most, here it was recorded that the most popular genres among participants were Action/Adventure, puzzle and simulation games. An overview of the participant information can be found in Table 1. Partaking in this study was voluntary and the participants filled out a consent form to ensure the ethical guidelines of this study. Additionally, this research was approved by the BMS faculty/University of Twente. To participate in this study, participants had to be at least 16 years old and be able to understand English at a basic level, there were no other requirements participants had to meet. Participants who were students at the University of Twente received 2 SONA points as compensation for their time after completing the study.

**Table 1**

*Sample Characteristics of Participants*

Gender	Age Range	Gaming experience range	Educational level	Times a genre was selected as a favourite
9 Male 24 Female	18-52 ( $M = 24.58$ , $SD = 9.72$ )	1-4 ( $M = 2.76$ , $SD = 0.87$ )	Primary School = 0.00% Secondary School = 5.88% Studying University of Applied Science (HBO) = 8.82% University of Applied Sciences (HBO) = 14.71% Studying University = 50.00% University Bachelor = 20.59% Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS, etc.) = 0.00%	Role-Playing Games = 10 First-Person Shooter = 10 Strategy = 11 Sports = 10 Puzzle = 10 Simulation = 10 Fighting = 0 Racing = 6 Other = 2

## **Design**

This study used a mixed-methods approach to examine the relationship between exposure to sexist narratives in video games, avatar creation and sexist beliefs. Participants were instructed to read two narratives of a role-playing game, afterwards, they were tasked with creating an avatar for this game, based on the narrative they just read. The narratives differed on one key aspect, one of the narratives had contained sexist elements, while the other did not and was considered neutral. Due to the goal of the study, it wasn't possible to inform participants fully at the start of the study. If participants were aware that one of the narratives was sexist, they could potentially be biased when creating the avatars. Therefore a lie of omission was used by not informing the participants that the goal of the research was to study sexism in narratives and avatar creation. Participants for this study were recruited using convenience sampling. This study used both quantitative and qualitative measures.

Quantitative measurements such as using the narrative engagement scale and the ambivalent sexism inventory, which is a scale that is derived from the ambivalent sexism theory.

Qualitative measurements took the form of the thinking out loud method which allowed motivations for certain choices in the avatar creation process to be verbalised and measured.

The independent variables in this study were the narratives presented to the participants. The participant was allowed to read the story either from a computer screen or from a piece of paper. To prevent the order of the narratives from influencing the results, the arrangement of the narrative was randomised. The dependent variables include participants' scores on the pre-adopted narratives engagement scale, participants' choices made while creating the avatar and finally, the level of sexist beliefs as measured by the ambivalent sexism inventory after creating the avatars.

## **Materials**

### ***Questionnaires***

To record responses from the participants, one questionnaire was developed in an online environment, using Qualtrics. The questionnaire consisted of a consent form, questions for recording the demographics of the participants, the narrative engagement scale (NES), two narratives and ending with the ambivalent sexism inventory (ASI). The NES is a 12-item test measuring how well participants engage with a narrative or story. The items on this scale could be answered using a Likert scale from 1 through 7, with higher scores meaning a higher level of agreement. The NES tests 4 aspects on which a narrative can be effective, these are Propensity for presence, Emotional engageability, Propensity for suspense/curiosity, and ease

of accepting unrealism (Bilandzic et al., 2019). The ASI consists of 22 items, which can be answered using a Likert scale from 1 through 6, with higher scores meaning a higher level of agreement. The ASI is based on the ambivalent sexism theory, the 22 items are equally divided into testing both hostile and benevolent sexism, as was explained in the ambivalent sexism theory.

### ***SAS scale***

Additionally a scale was made, specifically for the purpose of this study, the scale was developed by the two researchers of this thesis. The scale is called the sexist avatar scale (SAS), The SAS is a subjective scale and was developed to quantify the degree of sexist representation in the avatars developed by the participants based on the two narratives. The use of this scale allowed the researchers to perform analysis on the created avatars. The goal of the scale was to measure to what extent participants customized their avatars in a way that shows traits of sexism or gender stereotypes. To quantify the results of the avatar creation a point system has been chosen, based on certain traits, clothing descriptions or general appearances, an avatar will receive points. A table with an overview of which descriptions of the avatar will result in a point has been given in Table 2. The SAS is a subjective scale, which means that the scale was constructed based on the judgements and perspectives of the two researchers. The subjective basis of this scale is innate for the construction of this scale. Since the scale's goal is to capture the complex aspects of gender stereotypes and sexism, which may be hard to quantify using objective measures.

**Table 2**

*Traits considered “stereotype” or “sexist”*

Traits	Clothing description	General Appearance
Romantic	Crop tops	Long hair
Party-animal	Short dress	Strong make-up
Clumsy	Short pants	Tanned skin
Flirty	(short) Skirt	Toned body type
Impulsive	High heels	Skinny body type
Erratic	Jewellery	Wide chest
Materialistic	Glitter	
Non-committal		
Mean		
Jealous		
Snob		

*Note. Every Avatar containing one of these descriptions received one point on the Sexist Avatar Scale (SAS).*

### *Narratives*

The narratives that were used during this research were created with keeping a modern and recognizable environment in mind, for the participants. Since this study will be conducted at a university, this was also implemented in the narratives. For the "sexist" narrative, a story about a university girl named Emily, items from the ASI were implemented in the narrative so that they would convey sexism. For example, one of the items of the ASI that was applied in the narrative is "Women exaggerate problems they have at work.". The item is incorporated into the narrative in the following way, "Emily felt like the challenges she had to face were too hard, although many thought she was exaggerating, which caused some annoyance with her peers.". In this example, Emily complains about the difficulty of the tasks she has to do to be included in the fraternity, while her peers think she is exaggerating. This shows the essence of the item from the ASI that people are sceptical when women express their problems. Another example is the incorporation of the item "Women are too easily offended." This item was incorporated through a description of the relationship between Emily and her boyfriend, "...her tendency to be easily offended caused some problems in her relationship..." This item was used in this way to portray that woman are often sensitive when it comes to being offended, this aligns with the item as presented in the ASI.

The neutral narrative was about a girl named Sophie, the story was made so that most of the elements in the story still were similar to the sexist narrative. The name Emily was changed to Sophie in order to avoid confusing the participants. However Sophie is practically introduced the same as Emily as both, avatars are young women leaving their small towns for university life, where they end up joining a prestigious fraternity. Differences in the narrative were made to compensate for the use of the ASI items in the sexist narratives. These changes have the goal of shifting the focus away from gender stereotypes and sexism. Both the sexist and neutral narratives that participants got to read are fully presented in Appendix A, together with a full explanation of all the incorporated items in the sexist narrative.

### *Game set up*

The questionnaire was conducted on a laptop provided by the researcher present. For the avatar creation process, the video game Sims 4 was used, published and developed by video game company Electronic Arts (EA). The Sims 4 was chosen since both researchers were familiar with the game and already had a copy of the game on their laptops. Besides that,

the Sims 4 allows for a relatively popular and easy user interface while creating avatars, in addition, it allows participants to also add personality traits to the characters. During the process of avatar creation, the screen was recorded so that the participant's choices could be looked back at, also the audio was recorded so that transcriptions could be made for the results at a later time.

## **Procedure**

The study consisted of several steps. Participants were given a laptop by the researcher, on which they could start the questionnaire. First, this online questionnaire presented a consent form, followed by questions on demographics and previous experience playing video games. Next, participants had to answer a questionnaire that was about engagement with a narrative. After this was answered, the sexist and neutral narrative followed in random order. Participants received the first narrative both on the computer screen and on paper. After the participant read the first narrative, Sims 4 was opened on a different tab and the screen and audio recording were started, the participants were asked to create an avatar that they felt would fit well in the narrative. During the process of the avatar creation the thinking aloud method was used. The participant was asked by the researcher to name and explain their choices while making the avatar as much as possible. On occasions where participants remained silent or did not explain their choices, the researcher would ask the participant again to explain their choice or ask about it in further detail. For example, if a participant chose to not change the hair of the avatar and provided no explanation for this, the researcher present would ask the participant for their motivation for not changing the hair and why they thought I did not need to change. When participants started the process of avatar creation they were met with multiple customizable features which are shown in Figure 1. Participants were able to change bodily features, clothes, facial features, hair, skin tone and accessories. Additionally, if participants felt that they were able to they could assign character traits they thought would fit the avatar. If the participant indicated that he was satisfied with his avatar, the second narrative was presented and the same steps were followed again. Afterwards, the participant had to complete another questionnaire on sexist statements and assess the extent to which these corresponded to their own opinions. Finally, the participant was informed about the true purpose of the study and given the option to have their data deleted. After the study ended, the participant was thanked for participating.

## Figure 1

### *Customizable features in avatar creation*



*Note: This figure demonstrates three customizable features during the avatar creation procedure. A allows the participant to change body features, clothes and accessories. B allowed the participant to change facial features, including hair, skin tone and accessories. C allowed the participants to select character traits for the avatar.*

## Quantitative data analysis

The data analysis was performed utilizing R and R Studio, along with the necessary packages to perform analytical tests. Participants who did not provide consent or complete demographic information were excluded from the analysis. Moreover, only data from participants who responded to all items in both questionnaires were considered for the data analysis. The participants' scores on the narrative engagement scale and the ASI were all scored using a Likert scale respectively. This data was first used to obtain descriptive statistics. The demographic variables were inspected using a frequency table, while the mean and standard deviation were calculated for both questionnaires.

## Qualitative data analysis

Qualitative data has been collected through the thinking aloud method during the avatar creation, this has been done twice one time for both narratives and avatars created. After transcribing all the recordings into a written format, the researchers read up on this data to become familiar with the data, in which an overall picture of the data is formed. After becoming familiar with the data a coding scheme will be developed for all responses participants gave regarding their reasons for choices during the creation of the avatar in relation to the narrative. To code the data the method of qualitative content analysis was chosen, this was due to two reasons, The first of which is that qualitative content analysis is flexible and provides both an inductive and deductive approach. Secondly in case of data

which requires some degree of interpretation qualitative content analysis is preferred (Cho & Lee, 2014). Therefore an inductive qualitative content analysis was used since code categories and themes were produced directly using the obtained data from this study (Cho & Lee, 2014).

To analyse the qualitative data, several steps of coding have taken place. For the first step, both of the researchers individually started the coding process by reading through all the responses and identifying codes that captured the meaning of different segments. For the second step, both the researchers individually, coded all the data, this did not yet take into account possible themes. This led to the creation of many individual codes with low frequencies. After this was done, both researchers got familiar with both code books and compared them to each other code books. The researchers together analysed patterns and themes that emerged from both of the code books and combined both into one codebook. Both of the code books were then shared with other independent researchers to make sure the codes were peer-controlled and avoided any potential biases that may have affected the coding, if any problems arose the coding books had to be adjusted accordingly. If no problems arose anymore, the penultimate step was for both researchers to start coding the data individually with the agreed-upon code book. The final step was for both researchers to again compare the code books together and make sure both researchers had the same frequency of codes.

### **Mixed methods data analysis**

The quantitative results from the ASI and the NES were combined with the qualitative results, such as the avatar creations. This was done to form a possibly better picture of the connection between results from ASI, the NES and the avatars created. The correlation between ASI and NES scores was analysed with qualitative results of the avatars such as specific traits the avatars were assigned, examples being short clothes, lots of make-up or stereotypical personalities. Each avatar of the participants was recorded and traits and characteristics were noted. Based on the SAS, avatars received points, which were later used for analysis. Scores of the participants on the ASI and the NES will also be recorded. Pearson correlations will be conducted to see possible correlations between the scores of the ASI and the NES with the SAS. By employing both quantitative and qualitative methods, an analysis can be made about the correlation between ASI and NES scores and avatar characteristics.

## Results

### Preliminary Analysis

#### *Narrative engagement scale (NES)*

Since a significant part of this study depended on reading and therefore understanding a narrative, a questionnaire was administered that measured the extent to which participants were interested and empathized with a narrative. Since the NES is made up of four subscales measuring different parts of narrative engagement a factor analysis was performed. These four subscales are Propensity for presence, Emotional engageability, Propensity for suspense/curiosity, and ease of accepting unrealism (Bilandzic et al., 2019). By doing so, the aim is to prove that the implementation of the NES measured the correct concepts as intended by the theoretical framework of the NES and that respondents interpret and respond to them in a manner consistent with the theoretical framework. The factor analysis resulted in the following output. All four factors had a sum of squared loadings greater than 1, which according to Kaisers rule all four factors are worth keeping. Additionally, the cumulative var showed that a total of 57.7% of the variance was explained by the four factors, a full overview of the explained variances for each of the four factors can be seen in Table 3. Resulting of the factor analysis, items predominantly loaded highest on the right factors, however, some overlap was observed, suggesting a degree of cross-loading.

Finally, the resulting p-value, testing the null hypothesis whether the specified number of factors in the model, in this case four, is sufficient to capture the full dimensionality of the data set was non-significant ( $p = 0.169$ ). This means that the null hypothesis can not be rejected. Since a factor analysis has been done, the data also has to be checked for a normal distribution. A Shapiro-Wilk normality test was used, which tests the null hypothesis of whether the data deviates from a normal distribution. This test resulted in a p-value of 0.18, which is greater than 0.05, which means we can therefore conclude that the data does not significantly deviate from a normal distribution. Finally, Cronbach's alpha was calculated to test the internal reliability of the items of the NES. The results suggest that with a Cronbach's alpha of 0.77 and a standardized alpha of 0.74 that the items are reasonably interrelated and therefore measure a common construct. Values of Cronbach's alpha remained fairly stable when testing the reliability if an item was dropped. Cronbach's alpha ranged from 0.73 to 0.79, indicating that all items are reasonably equal when it comes to reducing or improving the reliability of the NES.

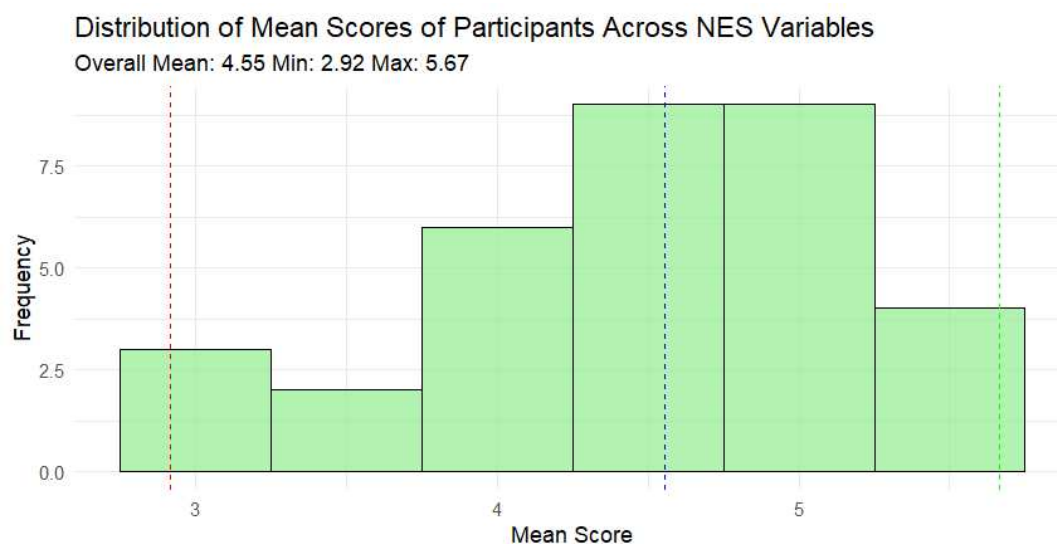


The questionnaire consists of 12 questions on a Likert scale of 1 to 7. The higher the final score the more a participant indicates to be able to empathise with a narrative. A maximum score would mean a participant self-reported that they are always fully engaged within any story or narrative, a mean score of 3.5 would indicate the person is averagely engaged with the narrative. The results from the study conclude that across all participants a mean of 4.55 was reported, which is above average. The lowest mean score to be recorded was 2.92 and the highest score was determined to be 5.67. A distribution of all the mean scores can be seen in Figure 2. Additionally, to further aid the visual representation of the data, figure 3 provides an overview of the distribution of the mean score for the four subscales of the NES.

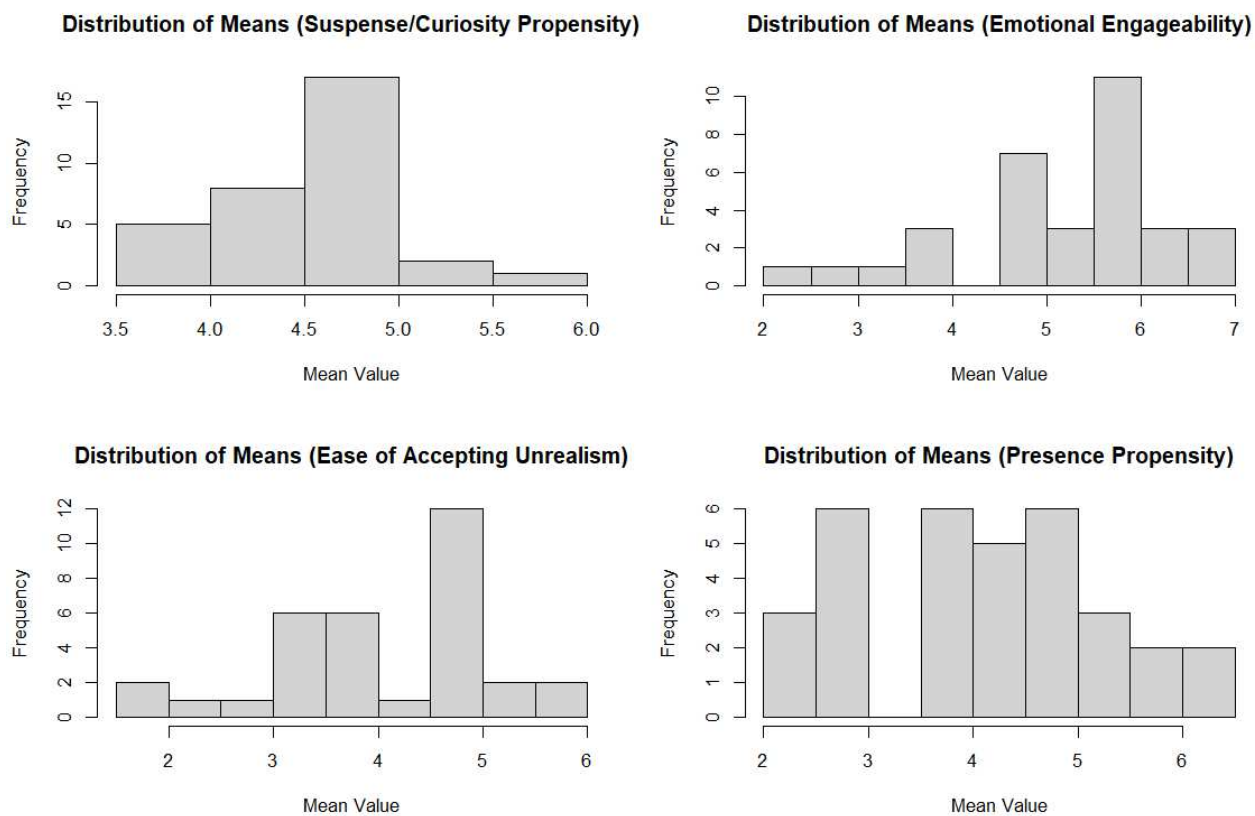
Based on these results it can be concluded that most people were narratively engaged with the created narratives. Further proof indicating that participants were engaged with the narratives and were fully aware of its context is that after reading both narratives, some participants stated that the narratives felt like they were similar regarding the main storyline.

### **Figure 2**

*Distribution of the total Narrative Engagement mean Scores.*



*Note: the red line indicates the minimum score, the blue line the overall mean and the green the maximum score*

**Figure 3***Distribution of the total Narrative Engagement subscale mean Scores***Table 3***Explained variances of the NES*

<b>Factor</b>	<b>SS Loadings</b>	<b>Proportion Var</b>	<b>Cumulative Var</b>
<b>Propensity for suspense/curiosity</b>	2.219	0.185	0.185
<b>Emotional engageability</b>	1.775	0.148	0.333
<b>Ease of accepting unrealism</b>	1.562	0.130	0.463
<b>Propensity for presence</b>	1.372	0.114	0.577

### *Ambivalent sexism inventory*

The final part of the research consisted of a questionnaire measuring sexism in participants. The questionnaire used for this was the ambivalent sexism inventory (ASI). First, a Shapiro-Wilk normality test was performed to test for normal distribution, the results indicated a significant p-value of 0.01, which means that there is evidence that implies the data significantly deviates from a normal distribution.

In the next step, it was checked with the use of a factor analysis whether the two subscales, of benevolent and hostile sexism, that make up the items of the ASI, were implemented and tested successfully. However, since the data is not normally distributed results from this factor analysis may not be as accurate. By doing so, the aim is to prove that the implementation of the ASI measured the correct concepts as intended by the theoretical framework of the ASI and that respondents interpret and respond to them in a manner consistent with the theoretical framework. The factor analysis had the following results. The factor analysis was tested on two factors one for benevolent sexism and one for hostile sexism, both factors had a sum of squared loadings greater than 1, which according to Kaisers rule all four factors are worth keeping. Additionally, the cumulative var showed that a total of 46.6% of the variance was explained by both factors, a full overview of the explained variances can be found in Table 4.

Additionally, the resulting P-value, testing the null hypothesis whether the specified number of factors in the model, in this case, two is sufficient to capture the full dimensionality of the data set was non-significant ( $p = 0.177$ ). This means that the null hypothesis can not be rejected and thus the two factors fit the model.

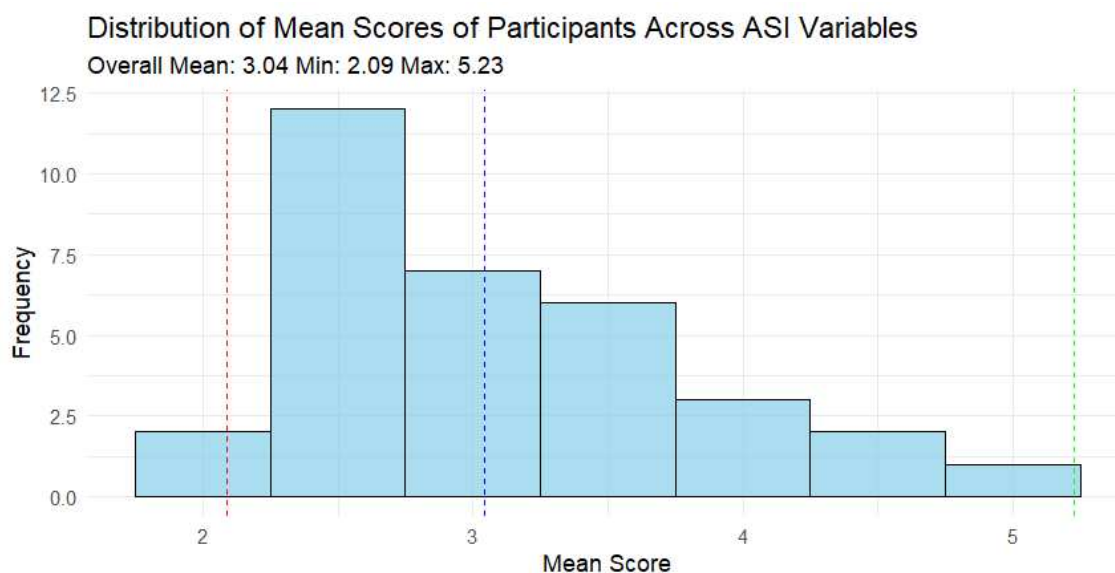
Finally, The items of the ASI were tested using Cronbach's alpha to assess the internal consistency of the items. Following the analysis the Cronbach alpha was revealed to be 0.90 with a standardized alpha of 0.9, this demonstrates that the internal consistency of the items can be concluded to be excellent and proves that the items are highly interrelated and measure the same underlying construct. Furthermore, Cronbach's alpha remained reasonably stable when conducting analysis on the consequences of dropping each item, Cronbach's alpha remained stable ranging from 0.88 to 0.91, demonstrating that there is not a single item that dramatically influences the reliability of the scale.

The questionnaire consists of a total of 22 items. Questions are answered using a Likert scale from 1 to 6. The questionnaire consists of 11 items dealing with hostile sexism

and 11 items dealing with benevolent sexism. The higher a participant scored on this questionnaire the more this indicates higher adherence to beliefs of sexism. Before being able to conduct analysis with the ASI, some items need to be recoded since these are reverse-coded items. It concerns the items 6,7,9,15,20, and 22. The results from the study conclude that an overall mean score across all participants is 3.04, this indicates that overall participants did not report above or below-average scores on the ASI. The median which compensates for outliers is concluded to be 2.86, which is slightly below average. The lowest score to be recorded was 2.09 and the highest score was determined to be 5.23. A distribution of all the total scores can be seen in Figure 4. To conclude since the ASI is made up of both hostile and benevolent sexism, the distribution of the means for these two subscales is shown in Figure 5.

#### **Figure 4**

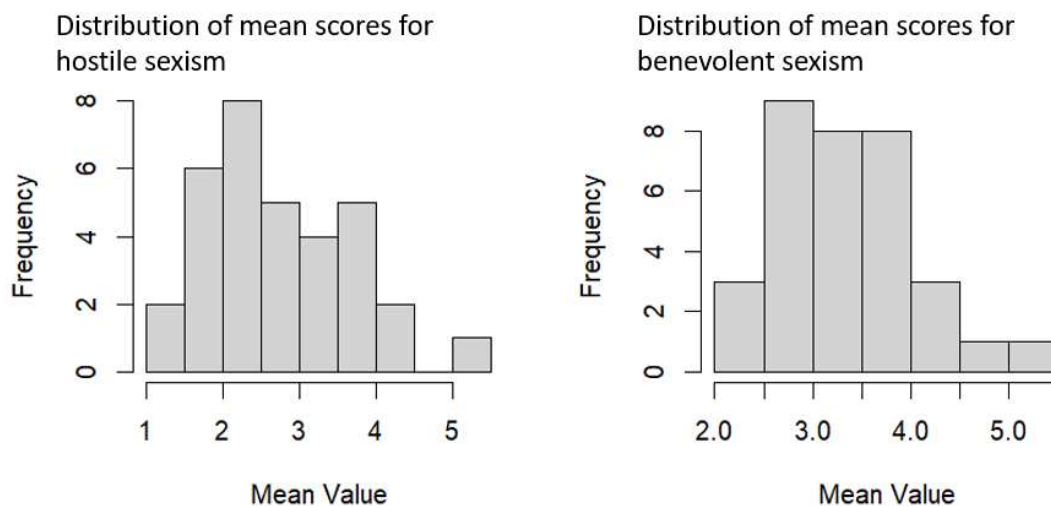
*Distribution of the total Ambivalent sexism inventory mean scores*



*Note: the red line indicates the minimum score, the blue line the overall mean and the green the maximum score*

**Figure 5**

*Distribution of the total Ambivalent sexism inventory subscale mean scores*

**Table 4**

*Explained variances of the ASI*

<b>Factor</b>	<b>SS Loadings</b>	<b>Proportion Var</b>	<b>Cumulative Var</b>
<b>Hostile Sexism</b>	6.801	0.309	0.309
<b>Benevolent Sexism</b>	3.453	0.157	0.466

## **Qualitative results**

### ***Themes and Codes Explained***

The following section explains the codes and includes a quote that best reflects the idea of the code. The code groups and codes are divided between three themes, these themes are appearance, personality and comparisons. Some codes are inspired by comments from participants. These codes will be enclosed in inverted commas. Finally, an overview with all

themes, code groups, codes, explanations, quotes and frequency divided over both avatars is available in Appendix B.

### *Appearance*

First, we discuss the theme named as appearance. This theme is mainly about opinions or expressions participants made about the appearance of the avatar they were creating or what idea they had of the avatar in their minds. In addition, possible stereotypical looks are also distinguished here. The first category in this theme is innocent appearance. This category consists out of one code. This code is the “Girl next door”, this code was applied the moment the participant described the avatar in a way that the appearance should come across as someone innocent. The code was used if the participant mentioned that the character reminded them of a girl they might run into on their street, this often meant that the looks of the avatar weren’t described as being attractive but more as being cute or neutral, additionally the avatar was described as someone confidential and innocent. This code was included so it could provide an overview of which avatar according to the participants came across as innocent. An exemplary quote that captures the idea behind this code is “For me, she seems very innocent and not that kind of a girl that would do tattoos. So she's kind of like... I don't know, like next door?”

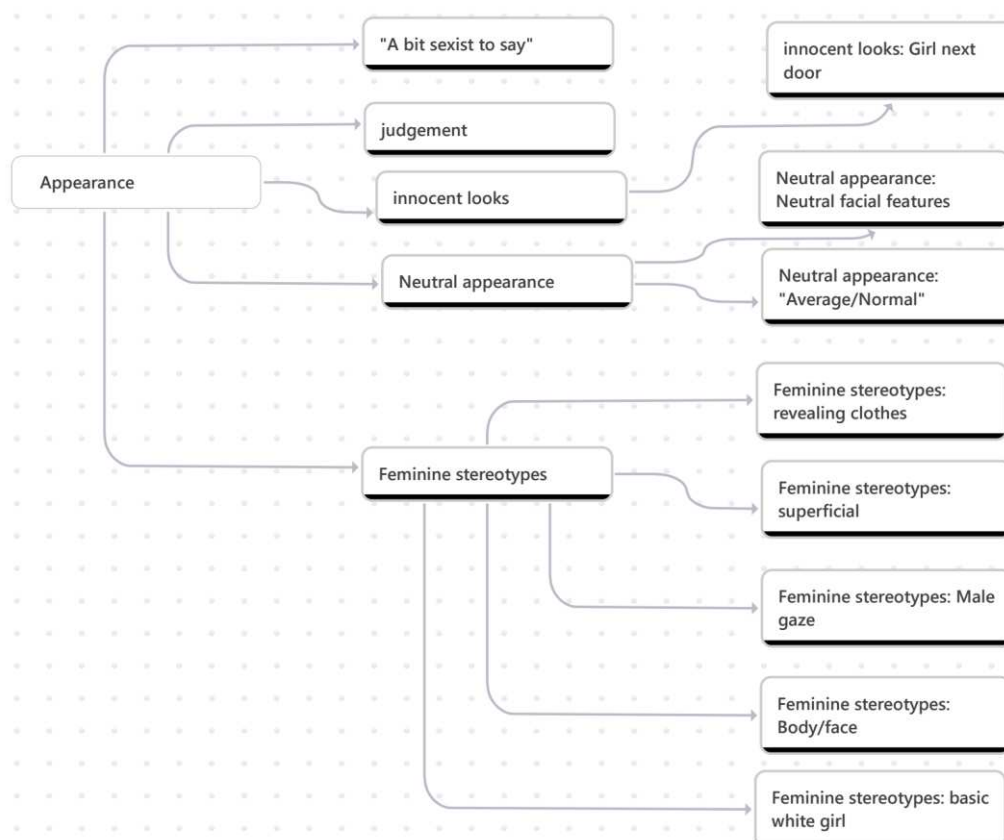
The category, of neutral appearance came into play when the participant described that the avatar looked normal or could not name distinctive features for certain physical attributes. In this category, there was often a lack of strong positive or negative descriptions about the avatar. An example of a quote from this category is "Not too slim, not too big. Yeah, like a normal average body". This category was used so it could provide an image of which narrative provided the least strong responses based on appearance. Facial features were used as a separate code in this category since facial features also included details such as make-up or accessories. This code was used when participants described their avatar as someone who did not use too much make-up or someone who has accessories but didn’t do it to stand out. A quote that represents this code is “Probably, like standard makeup up nothing that stands out too much, probably some eyeliner. Also some lipstick but not too strong, just to fit in with the other girls”

Finally, the category feminine stereotypes. This category was used whenever a participant described an avatar with an appearance corresponding to a stereotypical appearance in the case of women. Only stereotypes concerning women were taken into

account since both avatars were women. This category was separated into different codes since different types of feminine stereotypical appearances were mentioned, first of the code body this code was used when avatars were described as having stereotypical appearances when it came to physical attributes, such as addressing feminine facial structures or body types, a quote that highlights this is "When she applied for membership, she's probably hot, like modern-day standards hot. That's what I'm assuming". The code male gaze was used to emphasize descriptions of the avatar influences by the male perspective, which often was about highlighted features that appealed to man. The following quote is an example of this code " She is wearing a character-emphasized dress and high shoes, because I have the impression that she quickly got a status from the boys and that she was stamped quickly and is seen as an object.". The code revealing clothes is about descriptions of the avatar wherein the participants mention that the avatar wears clothes which may show some skin or are meant for being provocative or showing off. Examples may include crop tops or short skirts. The code superficial, this code is about participants describing the avatar with only a narrow focus on outward appearances, a quote which is example of this code is "I think she doesn't have any body hair. I think she's very feminine and seductive. That's why she's wearing red clothes and red high heels." This code was selected since providing an overview of which avatar seems most stereotypical according to participants, is an important aspect in answering the research question. Last is the code "basic white girl", this code explains description of an avatar which fits into the stigma of a typical white girl. This may be by participants outright stating that their avatar is a white girl or by mentioning interests or behaviours that are most commonly associated with white girl stigmas. A quote that provides an example of what is meant with this code is " Maybe this will also fit the kinda rich arrogant white girl stereotype". To conclude a visualisation of the codes in the theme of appearances can be found in Figure 6.

**Figure 6**

*An visualisation of the codes in the theme of appearance*



### ***Personality***

The personality theme is similar in some ways to that of appearance however, this theme is about participants' expressions, reactions and or comments about character traits of the avatars they had to create. This theme consists of several categories with codes. The first category is positive personality traits, which specifies certain characteristics of positive personality traits. This category dealt with participants' comments or thoughts when talking about personality traits that are generally perceived as good. This category consists of three codes, the first one being academic. The code academic is about positive personality traits that are described to the avatar that would be beneficial in a academic environment, examples may be organized, smart or ambitious. Secondly the code openminded was used when participant described that their avatar was open to new ideas and experiences. Finally the code social was used when avatars were considered to be good in social situations, examples may include avatars that were considered funny, nice or cheerful. This code was also not limited to descriptions of the avatars possessing characteristics that would be considered beneficial for



being social. A quote that can provide an example of this code is “And also cheerful. She can be happy for her friends when they achieve something. Ambitious.”

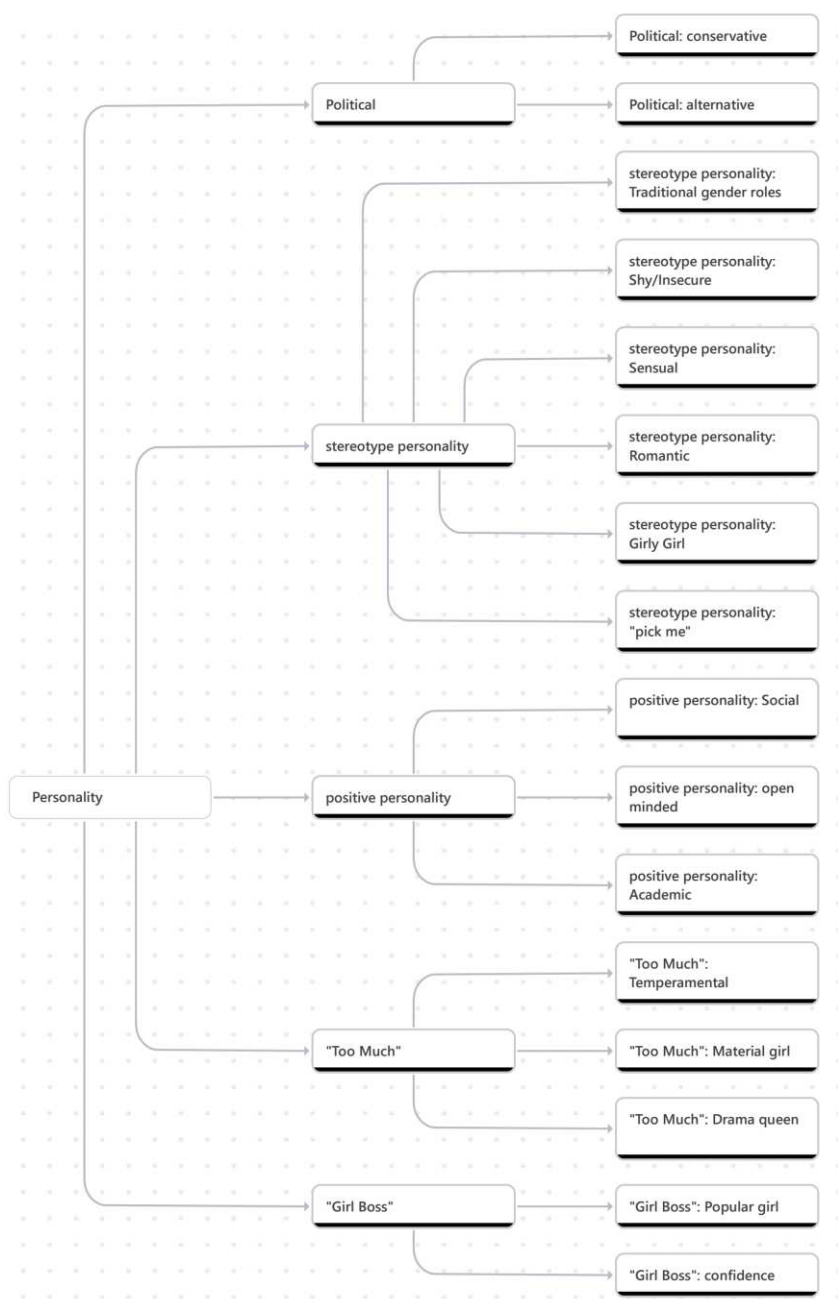
Then next the category described as "girl boss". This category is about moments when participants describe their avatar as a girl or woman who is independent or confident. The codes of this category are confidence and popularity. This category was often used where a participant expressed appreciation or respect for their avatar, an example of a quote from this is "but she knows her own worth she is really like okay this is me not really needing to impress people". This category was useful in showing what narrative inspired participants into imagining an confident and popular woman. The category “Too much” in this theme is used to describe moments where a participant would describe the avatar with traits that can be seen as excessive in certain situations. The codes from this encompass some of the traits that one might consider as too excessive, such as drama queen, a avatar that is described as overly dramatic and seeks attention by doing so. A quote that describes the code of drama queen is “So uhm tops I think based on the story she seems a little dramatic”. “Material girl” is another code from the “Too much” category that encompasses descriptions of avatars that are only out for either money or other wealth inducing possessions. In the following quote a avatar is described in a way that would make it an example of the material girl code “ For example, that she only hangs out with people who have a bit more money and don't want to talk to others who don't give the impression.”. To conclude the code “Temperamental” describes avatar that may seem a bit emotionally unstable, often being easily upset or over reaction to minor problems. A quote from this code is " I get the fact that she's not very nice person, but very selfish and very self-centred So I want to give her something that makes her Seem a bit like that."

Finally, the category “stereotype personality”, this code deals with stereotypical personality traits regarding women's personality traits. These are often about personality traits that fit traditional gender roles, think here of women being nurturing, sensitive or insecure. This category exist of multiple codes, but one of the most prominent is the code “Girly girl”. This code indicates interest or mannerisms described by participants about their avatar that tend be seen as very feminine, such as having a sense of fashion or painting their nails. Another code from this category is "pick me". This is a code that deals with moments when the avatar is described as a girl who tries very hard to look good to men. A quote that portrays these stereotypical personality traits is "She knows how to dress and is always in tune. She also wears nail polish that matches her top. And... She even wears the same nail polish on her

feet because she's very well-groomed.". Additionally we have the code of romantic, which talks about moments the participant implies that the avatar is prone to showing romantic affections towards others, and the code of insecurity, which is about avatars which tend to lack confidence when it comes to social situations. Next is the code called sensual, this code explains instances of avatar descriptions who are stated to behave seductive towards other, especially males. This behaviour may include direct statements of the avatar conducting seductive behaviour or the avatar possessing seductive traits or interest. Lastly the category Political views which is divided into the codes political alternative and political conservative. The code alternative is about descriptions of a avatar with mostly liberal opinions. While the conservative subcode is about description of a avatar with mostly right-wing conservative opinions. To conclude a visualisation of the codes in the theme of personality can be found in Figure 7.

**Figure 7**

*A visualisation of the codes in the theme of appearance*



### ***Comparison***

The theme Comparison has been used for instances in which participants compare their avatars to other fictional or existing avatars or persons. This theme consists of two codes, these are comparisons to other avatars, which are comparisons made to either one of the other avatars that the participants were instructed to create. Comparison to another avatar was therefore also influenced by the order in which the participants created the avatar and read the

narratives. A quote from the comparison code that provides an example of a comparison between Emily and Sophie is “Oh, that's a little bit too much. Yeah. She's a bit bolder compared to Emily.”. The second code in this theme is references to pop culture. This code indicates moments where references or comparisons are made to figures from movies or series from modern pop culture. Comparisons to pop cultural figures could be used for both appearance and personality similarities. A quote that gives an example of this code is “Like Regina George. Yes, exactly. Like someone who likes to talk about other people behind their back.”. An overview of all codes with explanations, quotes and frequencies can be found in Appendix B.

### **Results of the codes**

To explore how the narratives had an impact on the participants during the creation of the avatars, we are now going to look at a few codes that may well capture the difference here. Emily's narrative contained items from the ASI, these items were incorporated into the narrative so that this narrative would imply sexism. Additionally, Sophie's narrative has been made as similar as possible to Emily's except for the single difference that the items from the ASI have been replaced by neutral elements. According to participants, the stories were very similar, as evidenced by this quote from one of the participants "I mean, I feel like it's very similar to before, like the outgoing story is the same, but the whole way the character seems is completely different.". The codes selected for analysis provide the best overview to see if the narratives influenced the avatar creation process in terms of sexist stereotypes. Additionally to conclude whether the difference between the narratives is significant a Chi-Square test will be conducted For a full overview of all the codes and their distributions see Appendix B.

The first category looked at is the feminine stereotypes of the appearances theme. These codes are looked at because it gives a good idea of the extent to which both characters conform to the appearance of a stereotypical woman. All five codes in this category were in Emily's favour. All codes in this category were tested for a significant difference, this showed that all codes had a p-value that was below the limit of  $p=0.05$ . This means that Emily was significantly more likely to be coded on a female stereotypical appearance. A summary of the results of this category can be found in Table 5. The results suggest a support for hypothesis 1, however some of the codes differences did not seem to be statistically significant. The code judgements was also analysed using Chi-Square test, since this code is about judgements made by participants made on their own assumptions or feelings, this code might show that one of the narratives may cause more judgements about the avatar than the other. This code

was used 28 times for Emily and 17 times for Sophie, however the Chi-Square test provided a non-significant result ( $X^2 = 2.69$ ,  $p = 0.10$ ). Meaning that there is not a significant difference in judgements in avatars that might be caused by the narrative. The code “a bit sexist to say” was only coded once in favour of Emily, and was therefore too unable to be analysed. To possibly reject or accept hypothesis 1, the codes of the personality theme also need to be analysed.

**Table 5**

*Frequencies and Chi-Square test results for the category feminine stereotypes*

<b>Code</b>	<b>Emily's</b>	<b>Sophie's</b>	<b>Chi<sup>2</sup></b>	<b>P-Value</b>
<b>Body</b>	109	61	13.553	$p < 0.01$
<b>Basic White Girl</b>	23	7	8.5333	$p < 0.01$
<b>Male Gaze</b>	5	0	5.000	0.03
<b>Revealing Clothes</b>	44	7	26.843	$p < 0.01$
<b>Superficial</b>	45	10	22.273	$p < 0.01$

*Note: All codes had the same DF of 1*

From the personality theme the category “girl boss” was analysed. This category consisted of the two codes popularity and confidence. This code was selected for analysis, since both these codes were in favour of Emily (Appendix B), and popularity and confidence may give an insight into how social standings might be influenced by a narrative. The results from the analysis provided that there is no significant difference in either popularity ( $X^2 = 2.12$ ,  $p = 0.15$ ) or confidence ( $X^2 = 0.21$ ,  $p = 0.65$ ), meaning that the narrative did not influence perceptions of popularity or confidence. Then for the category “Too much” which has three codes, drama queen, material girl and temperamental. These codes can be described as negative personalities, therefore these codes will be analysed to see whether the narrative had influence on how participants viewed the personalities of their avatars. On the contrary, the category positive personality also possesses three subcodes. These codes are academic, open-minded and social. These codes indicate instances where participants described their avatars as possessing traits that would be considered as beneficial. Unlike the “Too much” category, here all three subcodes favour Sophie. Hence, it is interesting to see if these differences are also significant. The results from the Chi-Square test indicate that these differences are all significant as can be seen in Table 6. This indicates that Emily is significantly coded in negative personality traits, while Sophie consistently is coded significantly more for positive personality traits.

The results from both the personality and appearance codes suggest that hypothesis 1 can be supported. The character Emily, representative of the sexist themed narrative showed higher scores on codes related to female stereotypes. In this narrative, both hostile and benevolent sexism were present so stereotypes that were coded could be both hostile and benevolent. Codes that Emily was significantly coded more, were codes such as "revealing clothes," "superficial," and "male gaze". The differences between these two avatars and therefore between the two narratives were tested and found to be significant, this suggests that the avatars' creations may be influenced by a sexist narrative, therefore supporting the hypothesis. In conclusion, there is some evidence that the narratives may have had some influence on how the avatars were perceived and created by the participants. An overview of images of the created avatars as well as tables summarizing the physical characteristics of the avatars is provided in Appendix C.

**Table 6**

*Codes of categories "Too much" and positive personality*

<b>code</b>	<b>Emily Quotes</b>	<b>Sophie Quotes</b>	<b>Chi<sup>2</sup></b>	<b>p-value</b>
Temperamental	37	9	17.04	p < 0.01
Drama Queen	12	2	7.14	0.01
Material Girl	13	2	8.07	p < 0.01
Academic	25	39	3.06	0.08
Open Minded	1	14	11.27	p < 0.01
Social	10	25	6.43	0.01

### ***Avatar creations***

During the creation of the avatars, participants had a wide choice of customisable clothing styles or character traits. The choices participants made in this gives a picture of how the participant formed an image of the avatar using a narrative that explains a fictional role-playing game. By looking at the different choices made by the participants and the differences between Emily and Sophie, we can get a better idea of what influence the narratives had on the participants. Some examples of descriptions of created avatars are shown in Tables 7 and 8. The examples chosen here for tables 7 and 8 were chosen because they give a good impression of the difference between Emily and Sophie but also the difference between the same avatars, showing that participants also let their own preferences and perceptions influence the creation process. To be able to quantify the results of the avatar creation, avatars

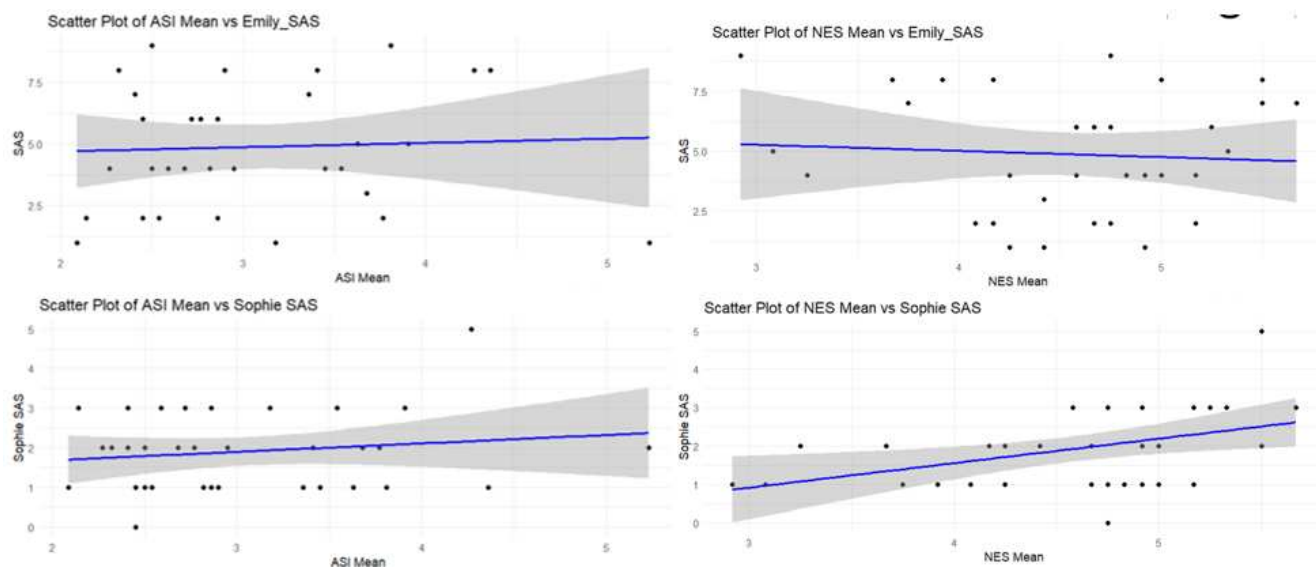
were scored on the SAS scale. Based on the SAS scale a difference between avatars Emily and Sophie became clear. The mean of the SAS score for Emily was recorded to be 4.88 (SD = 2.48), while the mean Sophie SAS score was 1.91 (SD = 1.01). A paired sample t-test was conducted to compare the SAS scores of Emily and Sophie. The analysis revealed a significant difference between the two conditions,  $t(32) = 6.38$ ,  $p < 0.01$ . The mean difference between SAS and Sophie SAS scores was 2.97, with a 95% confidence interval ranging from 2.02 to 3.92.

In addition to comparing the SAS scores of the avatars to each other, the relationships between participants' attitudes towards sexism, as measured by the ASI and their engagement with the narratives, as measured by the NES, will also be examined. This will be done to possibly accept or reject hypotheses 2 and 3. To test the second hypothesis, a Pearson correlation analysis between the NES scores and the SAS scores was conducted, first, the relationship between the NES scores in the SAS scores for Emily was examined. This revealed a weak negative correlation  $r(31) = -0.07$ , which turned out to be not statistically significant ( $t = -0.40$ ,  $p = 0.69$ ). The 95% confidence interval resulted in a correlation coefficient ranging from -0.41 to 0.28. The correlation between the NES score and the SAS score of Sophie resulted in a moderately positive correlation  $r(31) = 0.43$ , which was found to be statistically significant ( $t = 2.67$ ,  $p = 0.01$ ). The 95% confidence interval for this correlation ranged from 0.10 to 0.68. A scatterplot of the correlation between the NES score and the SAS score for Emily and Sophie can be found in Figure 8. Based on the results of the analysis we fail to support the second hypothesis, the results have indicated that the scores of the NES were not significantly correlated with the creation of more sexist or stereotyped avatars when creating an avatar based on the sexist narrative of Emily. However the results do suggest a significant moderately positive correlation between the NES scores and SAS scores for avatars based on the narrative of Sophie, but this influence is not specific to a sexist context.

Finally to test the third hypothesis a Pearson correlation was conducted to measure the relationship between the ASI mean scores and the SAS scores for both Emily and Sophie. For the SAS scores of Emily, a weak positive correlation was found  $r(31) = 0.05$ , which was found to not be statistically significant ( $t = 0.28$ ,  $p = 0.78$ ), with a 95% confidence interval for the correlation coefficient which ranged from -0.30 to 0.39. For the SAS score of Sophie, a weak positive correlation was found  $r(31) = 0.15$ , which was also found to be not statistically significant ( $t = 0.870$ ,  $p = 0.391$ ), and the 95% confidence interval ranged from -0.20 to 0.47. A scatterplot of the correlation between the ASI score and the SAS score for Emily and Sophie

can be found in Figure 8. From the correlation between the ASI mean scores, and the SAS scores for both Emily and Sophie, it can be concluded that hypothesis 3 can be rejected. The data did not show a significant correlation between scores on the ASI and sexist adaptations in avatar creation as measured by the SAS. Therefore the hypothesis has to be rejected. For an overview of some visuals of the example avatars of tables 7 and 8 and the entire table with all avatars design choices, ASI, NES and SAS scores can be viewed in Appendix C.

**Figure 8**



**Table 7**

*Example avatars - Emily*

Emily	Gender Identity	Sex	ASI Mean	NES Mean	Traits	Clothing description	General Appearance	SAS
Z3	Female	Female	3.45	4.92	Loner, Bookworm, athletic, romantic, intelligent	Yellow floral dress, sneakers	Long blonde hair, tanned skin, sunglasses	4
Z11	Male	Male	3.63	3.08	Open-minded, talkative, evil, mean, jealous	Light blue crop top, ripped jeans, sneakers	Long wavy red hair, tanned skin, strong make-up, glasses	5



L17	Female	Female	2.90	3.92	Materialistic, Party-animal, talkative, social, Erratic	Short red dress, Red high heels, Jewelry	Long bleached blonde hair, Strong make-up, Pale skin tone	8
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**Table 8***Example avatars - Sophie*

Sophie	Gender Identity	sex	ASI Mean	NES Mean	Traits	Clothing description	General Appearance	SAS
Z3	Female	Female	3.45	4.92	Athletic	White tank top, black shorts, pink sneakers	Black hair in ponytail, tanned skin tone, athletic body, natural make up, sunglasses Red short wavy hair, no glasses,	1
Z11	Male	Male	3.63	3.08	Bookworm, smart, good, loner, genius	White top, blue pants, white shoes	natural make up, chubby body type, tanned skin tone	1
L17	Female	Female	2.90	3.92	Academic, ambitious, book worm, loyal	Grey jeans, Purple tshirt, Purple chucks, jewelry	Short blonde hair, Natural Make up, Pale skin	1

**Hypothesis testing**

For this study, three hypotheses were formulated. These three hypotheses have the goal of answering the research question, How do sexist narratives in video games, influence players' perceptions and representations of gender, and how do these perceptions impact avatar customization choices?

H1: Exposure to narratives containing forms of both benevolent and hostile sexism will inspire and result in more sexist traits during avatar creation than narratives that do not expose the user to sexism.

The first hypothesis posed for this study was that participants who read the sexism based narrative would thereby also create avatars that are more sexually themed than participants who read the neutral narrative. The results from the coding suggest that this hypothesis can be supported, and therefore can not be rejected.

H2: Participants with a higher score on the narrative engagement scale are more influenced by the sexist narrative and therefore also make a more sexist or stereotyped avatars.

The second hypothesis was about, higher narrative engagement, which would result in more sexist stereotypes avatars when reading the sexist narrative. Based on the results of the analysis this study fails to support H2, a statistically significant moderate positive correlation was found, but this was not specific to the sexist content.

H3: Participants who are more biased regarding sexism, as measured by the ASI, will be more likely to go along with traditional gender stereotypes in their avatar adaptations.

The third hypothesis was about participants who score higher on the ASI creating more sexist stereotyped avatars. However, the results did not provide statistically significant data and therefore this study fails to support H3.

## **Discussion**

This study aimed to find out how a narrative, which implied elements of both hostile and benevolent sexism towards the female gender may impact the creation of a videogame avatar. To answer the research question, " How do the narratives surrounding avatar creation in video games influence players' perceptions and representations of gender, and how do these perceptions impact avatar customization choices?". Both quantitative and qualitative research were conducted. Results from both research methods will be discussed and it will be evaluated how these results answer the proposed research question.

### **Interpretation of findings**

For this study, three hypotheses were formulated. The first hypothesis posed for this study was that participants who read the sexism based narrative would thereby also create avatars that are more sexually themed than participants who read the neutral narrative. The results from this study support this hypothesis. First, it may be important to note that participants often stated after ending the study that they felt both narratives were similar to each other. The character Emily, representative of the sexist themed narrative showed higher scores on codes related to female stereotypes. In this narrative, both hostile and benevolent

sexism were present so stereotypes that were coded could be both degrading and benevolent. The differences between these two avatars and therefore between the two narratives were tested and found to be significant, this suggests that the avatars' creations may be influenced by a sexist narrative. In this case, it suggests that the sexist narrative may cause sexist stereotypes and opinions to be adopted by the participant and thus reflected in the avatar, even when participants state they aren't aware of the differences between the narratives. For example, after reading the sexist narrative a participant has an avatar in mind that conforms to the image of a woman where the emphasis is on having an attractive appearance or wearing suggestive clothes. Suggesting that after reading the sexist narrative, the participant was more concerned with creating an avatar that conforms to traditional feminine ideals, without being aware of the fact that this is due to the narrative. While after reading the neutral narrative a different character was created, which turned out to be less stereotypical, while the participant felt that the narratives were similar. An overview of these design choices is provided in Appendix C.

However, the narratives did not only affect the avatars' physical appearances. The results of the avatar creation process showed that participants who created an avatar after reading the sexist narrative also made the personality of their avatar different compared to an avatar based on the neutral narrative. Emily based avatars were more likely to have negative personality traits imposed on them. These results suggest that sexist narratives not only influence how participants perceive the appearance of their avatar but also their personality traits. The personality traits assigned to the avatar of the sexist narrative suggest that by reading the narrative of Emily, participants had formed a stereotypical idea of women who are less rational or emotionally unstable. These results indicate that narratives in the media, in this case, video games, thus influence not only how people form an image of the appearance of a female avatar but also how this avatar should behave. Since the possible personality traits that participants could choose from were limited an overview has been provided of all chosen personality traits for the avatars in Appendix D.

The differences in personality goes both ways, negative personality traits are more often coded for the avatar based on the sexist narrative and positive personality codes occur more often on the avatar coded on the neutral narrative. Although the neutral narrative was developed without the intention of assigning positive or negative personality traits to the avatar, there is still a significant difference between the two narratives. This may be explained by comparisons since all participants read both narratives but in random order, it may be that

participants who first read the sexist narrative and only then read the neutral narrative, have the feelings and emotions from the sexist narrative influence their perception of the neutral narrative and therefore assign other personality traits to the character of the neutral narrative (Mar et al., 2011).

In addition, there were more differences between the neutral narrative and the sexist narrative. Avatars that were created based on the neutral narrative were less likely to have typical female characteristics or appearance attributes. In addition, these avatars were also significantly less likely to be assigned negative traits. Descriptions of avatars from the neutral narrative were more varied. This may be because the neutral narrative gave more room for the participant's interpretation, and thus greater variates between participants showed in the results. These results suggest that when participants are not influenced by a narrative with sexist expressions, the avatars created are more balanced and less tied to gender norms and values. However, differences between the neutral narrative and the sexist narrative remained most visible in the negative codes. The differences in frequency of the negative personality traits points to the impact a narrative can have on forming an image for an avatar. Studies like Johnson et al., (2014) provide results that prove that narratives can be used to reduce bias towards certain ethnic groups, however, this study suggests that narratives can also worsen biases, in this case towards the female gender.

The results from the avatar creation were also used in a mixed methods analysis, this was done by using the SAS scale. The comparisons made through the SAS score show that there is a difference between the avatars made based on the two different narratives. This is in conjunction with the results of the "thinking out loud" process. So both the participant thinking out loud process and avatar creations suggest that the sexist narrative did influence the shaping of the avatars. These results suggest a possible connection between how people say and think and what they end up creating. This may provide additional credibility to the thinking-aloud method.

In addition, an analysis was also conducted based on the ASI and NES scores, through Pearson correlations, an overview was given about the relationship between the ASI and the NES, with the creation of sexist avatars. A weak positive correlation between the ASI and the SAS score was not found to be significant. This result suggests that even if participants have sexist opinions, this does not necessarily have an impact on the creation of an avatar, in both Emily and Sophie's narratives. This may be influenced by unknown factors which mitigate or override personal sexist beliefs during avatar creation.

Therefore a second analysis was performed to examine the influence of narrative engagement on the avatar creations. The results of the relationship between the NES and SAS scores show that to what extent a person is engaged in a narrative may play a role in how a participant creates their avatar, but these results suggest that this is not specifically true in the case of the sexist narrative. The significant correlation between NES scores and SAS scores for Sophie suggests that participants who are more engaged with the narrative are more likely to create avatars that are sexist or stereotyped, regardless of the narrative's content. However, these results may have been influenced by the order in which participants read the narratives (Mar et al., 2011).

Regarding the research question, the results of this study show clear evidence that narratives used to clarify the story of a video game can have an impact on how players form their perceptions and opinions about female avatars and their roles and appearance in the video game. The sexist narrative created avatars that conformed more to traditional gender roles or stereotypes, in both their physical appearance and inner characteristics. This evidence supports the research question by showing that a narrative can have a significant impact on how players shape their avatar and the way the reasoning behind it is shaped, regardless of sexist beliefs or narrative engagement.

### **Theoretical contribution**

The results of this study can also be compared with the results of other research on the same topics. As in the work of Dill & Thill, 2007, this research has shown that women in the media are often portrayed in submissive roles or in ways that clearly show their physical attractiveness. However, the study by Dill & Till, 2007 focuses mainly on images from the media. The results of this study show that even narrative and visual representations can have an impact on the way images and opinions are formed about gender. It is important to note that this seems to be even the case when participants do not seem to notice the difference between the narratives since multiple participants stated that they found the two narratives very similar. Studies which had an emphasis on narratives also agree to a certain degree with the findings in this study. As this study has shown, participants who had to create an avatar based on a narrative that was sexist in tone also created avatars that had more characteristics that matched that of traditional gender norms and stereotypes. These results are consistent with findings from other studies that have tested the influence of media narratives on gender stereotypes (Fredrickson & Roberts, 1997; Bowey et al., 2017).

This study also found that a narrative could influence how participants created the personhood of their avatar. Avatars created based on the sexist narrative were more often described as having negative personality traits. These results overlap with Fredrickson and Roberts' (1997) study, which suggests that media representation of women may cause women to stereotype themselves and behave accordingly, such as self-objectification. Despite an excessively large proportion of participants who were women, female avatars were still significantly more likely to be assigned negative personality traits when participants read the sexist narrative, which to some extent confirms Fredrickson and Roberts's (1997) findings. In addition, this study confirms the results of Bowey et al. (2017) and expands on them. According to Bowey et al.'s (2017) study, a narrative has the ability to transmit cultural norms and values to the player of the play that may perpetuate or create sexist beliefs. This study confirms this statement and expands on it through comparison with a neutral narrative.

These neutral narratives saw descriptions of avatars that were more diverse and less stereotypical. These results suggest that when people are not influenced by sexist or stereotypical narratives, people create their avatars with a greater variety of attributes and traits and thus existing stereotypes or sexist views are less reinforced or maintained. Additionally, the results of the NES suggest that the content of a narrative may play an important role in how engagement may have an impact on avatar design, even if the narrative is neutral. This is seen as the NES scores were significantly correlated with the SAS scores for Sophie, however, they were not for the SAS scores of Emily. This contributes to the understanding of how the context of a narrative may impact people when they are interacting with digital media, like video games (Thon, 2016).

Finally, it has been discussed how the narrative may impact the avatar creation and how it may have an influence on sexist beliefs and stereotypes of people. Results of this study suggest that narratives have an even greater impact on avatar creation than the personal beliefs about sexism from the participants themselves. The results of the correlation between the ASI and the SAS scores for both of the narratives were found to be insignificant. This may challenge the assumption that people who have more sexist beliefs will also create more sexist avatars. This therefore supports a potential disconnection between internal biases and the will to act these out in virtual environments, which contradicts to findings of Bustos-Ortega et al (2023), who discussed multiple studies, stating that sexist attitudes act as a predictor of sexism in online video games. These contradicting results may contribute to the theoretical framework about what inspires sexist manifestations in video gaming.

## **Practical implication of findings**

The results of this study may lead to new insights into video game development and provide new guidelines for video game developers. As the results suggest, the narrative of a video game does affect how the player forms certain images and thoughts. This would imply that video game developers should realise that the narratives created for games can therefore have consequences. Video game developers will have a responsibility to ensure that these narratives do not use stereotypical or potentially discriminatory narratives in video games. Through a carefully created narrative, it might be possible to encourage openness and reduce harmful stereotypes or sexism. In addition, video game developers will have the opportunity to give players a new perspective on certain opinions and points of view. More inclusive narratives would allow for better game experiences for all players (Perreault et al., 2021). So this approach could not only offer a better game experience but also allow players to explore a wider range of characters and storylines.

The influence of narrative is once again emphasized by the results of the NES and ASI. The results suggest that in the case of sexist narratives, these may have a greater impact on developing avatars, than underlying perspectives on sexism and stereotypes. There is a possibility that this is also true in other cases, requiring video game developers to be wary of underlying motives in narratives. In addition, applying techniques aimed at enhancing engagement with the narrative of the video game, also comes with the need to be aware, that higher engagement, in some cases, is capable of reinforcing stereotypes (Arendt, 2023).

Additionally what we have seen from the results is that even the neutral narrative still can cause some kind of stereotype. Although more variation was seen in the avatars that were based on the neutral narrative, certain codes were significantly more used for the neutral narrative. Codes such as “girl next door” or “academic”. Although these codes are not necessarily connected to stereotypes connected to the female gender, they still define some characteristics that can when taken into the extreme create possible stereotypes. “girl next door” for instance, although this code does not seem to have any negative or positive meaning to it, it still can reinforce certain characteristics in the avatar such as approachability, modesty, and simplicity. This can cause persons to define avatars solely by these traits and therefore limit more diverse perceptions of a female avatar (Fox & Bailenson, 2009). The same can be said about the code academic. Although this code is not meant to be a stereotypical trait of a

female avatar it still can, for example, cause certain traits related to academic success to overshadow other possible variations in personality, thus creating an avatar with less character depth that the narrative tries to provide.

However, the implications of these results go beyond video game developers and players. These results suggest that narratives need not only to have an impact when it comes to video game avatars. Narratives have the potential to influence the way people form opinions and perceptions of others (Hoeken, 2017). This is also reinforced by participants stating that they felt the stories were similar but still ended up making significantly differing characters. However, video games are a form of media that is fairly new in which the player himself has the ability to influence the narrative, this ensures that players feel more integrated into the video game and that narratives can therefore have more influence on opinions and beliefs in the real world (Bowey et al., 2017). This creates attention to the realisation that narratives can not only influence the video game world but also make an impact on opinions outside of video games which can lead to the expression of sexism and stereotyping in real life (Dill & Thill, 2007).

Additionally, narratives and the avatars associated with it can be used to induce emotions and perceptions to the player. The use of interactive narratives, where the player is free to make choices within the narrative, for example, allows players to better understand the narrative and also take on some of the emotions and perceptions that the narrative portrays for the avatar (Toh, 2022). For video game developers but also developers of other forms of media such as films or television, this indicates that they need to be thoughtful when writing narratives. Finally using narratives in video games may also act as an intervention in reducing stereotypes and sexism. As the results of this study indicate, in some areas, a narrative can create significant differences in how people form perceptions about avatars. Using a narrative can also potentially ensure that certain stereotypes are reduced. By creating narratives in video games that promote empathy and contradict stereotypes, it is possible that these video games could facilitate more inclusive perceptions and opinions among users (Minson, 2018).

### **Limitations and future research**

Although this study has yielded some significant results, some limitations have emerged in this study. For starters, there was a relatively small sample size of 33, a larger sample size could have offered more insights based on the hard-on thinking during avatar creation and thus potentially add more codes to the study. Added to this, an overwhelming



majority of the participants in this study were female. Because the majority of participants were women, it is difficult to say whether the results would have been the same if more men had participated. This limitation is especially important since both avatars created by the participants were of the female gender, because of this there is a possibility that women and men differ in the way they dress their avatars and or what personality traits are assigned.

There is also a limitation in that the conduct of the study along with the recordings of the thinking out loud while creating the avatar was done by two researchers of different genders. Although efforts were made to keep the conduct the same, it is possible that participants were influenced by the gender of the researchers present while conducting the study. It could be possible that participants omitted stereotypical statements about women when a female researcher was present, or that participants were less comfortable with certain statements in the presence of a male Researcher. This could be solved by placing researchers not visible in the room, using a two-sided mirror and an intercom, so that the participant is not aware of who the researcher is and is, therefore, less influenced. Another possibility is to have two researchers of different genders in the room during the recording of the results.

Finally, during coding, efforts were made to ensure that the researchers did not show conformational bias while coding the transcripts of the loud on thought. Since the researchers were aware of which avatar was based on a neutral or sexist narrative, there was a chance that the researchers would show confirmation bias during coding, thus influencing the results. To avoid this as much as possible, the transcripts were mixed up and then redistributed among the researchers to ensure that the researchers no longer knew which transcript belonged to which avatar. Coding of the transcripts could be improved by having several researchers coding the transcripts who themselves were not part of the study and are therefore unaware of which avatar is based on which narrative.

Future research on this topic could reveal more about the influences of narratives on avatar creation, this would require a larger and more diverse sample so that more insights from participants could be included and therefore a wide variety of codes could be made. Additionally, since results from this study provided a significant correlation between the NES and the SAS score for Sophie but not for Emily, future research may perform more analysis on how differences in narratives may lead to differences in narrative engagement. Finally, the focus of this research was on the influence of a narrative on a female avatar, future research on the influences of a narrative on the creation of male avatars, may provide valuable additional information.

## **Conclusion**

In conclusion, the results of this study provide strong evidence to argue that narratives in video games have the potential to significantly influence how the player develops their avatar and the reasons given for doing so. Sexist narratives create avatars that are more likely to conform to traditional gender norms and harmful stereotypes about women. Neutral narratives, on the other hand, allow for a greater variety of attributes for these avatars without conforming to sexist stereotypes. These results show the importance of carefully developing narratives in a video game and the responsibility video game developers should take in this regard. It indicates that narratives for video games can best use inclusive and balanced elements in shaping user perceptions and behaviour. Finally, this study contributes to understanding how narratives in media influence perceptions of gender norms and perceptions and provides a foundation for future research and practical applications in game design.

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## Appendix A

### Sexist Narrative

*Participant would be asked to create the avatar of Emily.*

**Below you will find a description of a narrative from an unnamed roleplaying videogame.**

In this roleplaying game you play as Emily, A young girl from a small town who leaves her friends behind, ready for life on a university campus.

On the lively campus of Oakridge University, where many students hope to prove themselves, lies the Kapa fraternity, known for its prestige and influence. Among the many eager freshmen is Emily, a young woman hoping for a good time at this university.

When first applying for membership she was pleasantly surprised when *it felt like many of the (male) members were ready to put her on a pedestal*. However first she had to take part in a with challenges filled introduction ritual, however *Emily felt like the challenges she had to face were to hard, although many thought she was exaggerating*, which caused some annoyance with her peers.

After a week of the hazing period, she met Luke, the leader of the fraternity. For Luke this encounter with Emily felt like love at first sight and he makes it his goal to go on a date with her.

She and Luke quickly developed a relationship however, this lead to some heavy critique from her peers, *since they feel like Emily is using Luke, and his position in the fraternity to get her way*. As Emily is facing backlash from her friends, *her tendency to be easily offended caused some problems in her relationship, she feels like Luke as her boyfriend should protect her*. Luke tries to stop the backlash and reconcile with Emily, *but Emily does not seem to*

*appreciate all that Luke is doing for her.*

As the tensions on the camps keep rising, Emily's plans for a good time seem to be in jeopardy. Will Emily be able to keep her hopes of the college experience of her dreams alive?

**Table 9**

*Explanation of incorporated items in sexist narrative*

Questionnaire		
Item	Narrative Reference	Explanation
Women exaggerate problems they have at work.	"Emily felt like the challenges she had to face were too hard, although many thought she was exaggerating, which caused some annoyance with her peers."	Emily is depicted here as a woman who thinks the challenges she has to do are too difficult, while everyone else thinks she is exaggerating. To fit the narrative problems at work are replaced with challenges of the hazing.
Women are too easily offended.	"...her tendency to be easily offended caused some problems in her relationship..."	The stereotype that women are often too offended is reflected here in the relationship between Emily and Luke. Emily's reaction towards her boyfriend Luke, matches the item in question.
Women seek power by getting control over men.	"...her peers...feel like Emily is using Luke, and his position in the fraternity to get her way."	This part of the narrative reflects the item that women seek power by controlling men. This is demonstrated by the fact that Emily's peers have the idea that she is only with Luke to take advantage of his influence in the fraternity

Most women fail to appreciate all that men do for them. "...Emily does not seem to appreciate all that Luke is doing for her."

A good woman should be set on a pedestal by her man. "...many of the (male) members were ready to put her on a pedestal."

Women should be cherished and protected by men. "...she feels like Luke as her boyfriend should protect her."

This item is applied in the narrative by showing Luke doing his best to stand up for Emily and trying to protect her, from the criticism she receives. However despite Luke's efforts, Emily is portrayed as a woman who does not think this is enough and therefore cannot appreciate it.

Showing that the males of the fraternity, all are eager to celebrates Emilys arrival at the fraternity, reflects the belief that a good woman should be placed on a pedestal, as stated by the item.

Emily is portrayed here as a woman who is convinced that her man should do everything possible to protect her and make things as easy as possible for her, aligning with the questionnaire item.

## Neutral Narrative

*Participant would be asked to create the character of Sophie*

**Below you will find a description of a narrative from an unnamed roleplaying videogame.**

In this roleplaying game you play as Sophie, A young girl from a small town who leaves her friends behind, ready for life on a university campus.



On the lively campus of Greenville University, where many students hope to prove themselves, lies the Omega fraternity, known for its prestige and influence. Among the many eager freshmen is Sophie, young woman with dreams of achieving big things.

Upon applying for membership to the fraternity, Sophie finds herself pleasantly surprised by the friendly and supportive members of the fraternity. However, the initiation ritual proves to be more demanding than expected. However the once so supportive members of the fraternity weren't very sympathetic, leading Sophie to ask herself whether this fraternity is really something for her. Despite her concerns, she perseveres through the introduction period.

After the introduction period Sophie meets John, the leader of the fraternity. Sophie forms a close connection with John. Their bond grows as they help each other with the many problems that one faces during life on a university campus. However, Sophie's friendship with John causes some of the other fraternity members to become jealous and hostile towards Sophie.

Will Sophie be able to achieve her goals at this university while also keeping her friendship with John intact, while dealing with jealous and hostile fraternity members?



## Appendix B

**Table 10**

*Overview of the codes*

Theme	Category	Name	Explanation	Quotes	Emily	Sophie	Total	
Appearance	Feminine Stereotypes				247	197	444	
		Body	Stereotypical description for feminine body or facial features	It's a natural, but healthy face. Yes. With whiskers., High cheekbones	195	88	283	
		Basic white girl	Description of avatar which fits into the stigma of a typical white girl	Maybe this will also fit the kinda rich arrogant white girl stereotype <sup>[P]</sup> <sub>[SEP]</sub>	109	61	170	
			Coments made about the avatar in light of the male perception	She is wearing a character-emphasized dress and high shoes, because I have the impression that she quickly got a status from the boys and that she was stamped quickly and is seen as an object.	23	7	30	
		Male gaze			5	0	5	
		Revealing clothes	Descriptions of the avatar wearing short or revealing clothes	So I do see a longer top with her, but a really short pants or a short skirt. She wears a mini skirt.	44	7	51	
			Descriptions of the avatar mostly caring about their looks instead of anything else	That lets her stand out a little bit from the crowd. She tries to be a little bit different from the other people, I would say. But maybe also with the thought that she wants to please the men.	45	10	55	
		Innocent Looks	Superficial		20	39	59	
			Girl next door	Avatar described as being cute or innocent	For me, she seems very innocent and not that kind of a girl that would do	20	39	59

Theme	Category	Name	Explanation	Quotes	Emily	Sophie	Total
				tattoos. So she's kind of like... I don't know, like next door? Yeah.			
	Judgement		Judgements made by the participant based on their own assumptions		28	18	46
		Judgement	Judgements of the avatar based on assumptions	So she's in love with John? Maybe, probably. Yes, otherwise she wouldn't meet him that much	28	17	45
		"A bit sexist to say"	The participant states that he is going to say something they perceive sexist	Um... I chose a dress because I thought, um, well... It's a bit sexist to say, like, male gaze, but a lot of guys just started crushing on her right away, so... I think a dress towards more femininity.	1	0	1
	Neutral Appearances				16	66	82
		Average/Normal	Statements about the avatar describing it as normal or average	Mmmh, it has to be a little standard girl, a very normal girl, and I think in terms of skin colour, again it's just a white girl.	9	58	67
		Neutral facial features	Statements about the face of the avatar, which do not have any outstanding features.	I wouldn't change the face a lot, its just a very plain face which I think fits the character, so not really any outstanding features	8	9	17
<b>Comparison</b>	Comparison	Comparison	Comparison between the avatars	Oh, that's a little bit too much. Yeah. She's a bit bolder compared to Emily.	16	12	28
		Reference to pop culture	References or comparisons made to figures from movies or series from modern pop culture	Like Regina George. Yes, exactly. Like someone who likes to talk about other people behind their back. <sup>[P]</sup> <sub>[SEP]</sub>	5	0	5
<b>Personality</b>					228	203	431
	"Girl Boss"				60	50	110

Theme	Category	Name	Explanation	Quotes	Emily	Sophie	Total	
“Too Much”		Confidence	Statements about the confidence of the avatar during social interactions	She's self-confident. That's why I'd say she's a party animal. Because she gets along well with other people.	23	20	43	
		Popularity	Statements about the popularity of the avatar	What is something a popular girl will like, she wants to fit in so she listens to pop music	40	28	68	
					54	12	66	
	Positive personality		Drama queen	Descriptions of personality traits of the avatar that are associated with overly dramatic or attention seeking behavior	So uhm tops I think based on the story she seems a little dramatic	12	2	14
			Material girl	Descriptions of the avatar being focused on gaining money or wealthy possessions	For example, that she only hangs out with people who have a bit more money and don't want to talk to others who don't give the impression.	13	2	15
		Temperamental		Descriptions of the avatar being easily upset or emotionally unstable	Her tendency to be easily offended, causing problems. Maybe a little bit jealous. I think it's the only one that fits. Maybe childish?	37	9	46
					36	70	106	
	Academic		Descriptions of personality traits that are beneficial within the academic environment	Yeah, I think she does well at school and therefore she goes to a very good university, therefore she has to have knowledge	25	39	64	
		Open minded	Descriptions of the avatar being open minded and being open for new experiences	I think she's open-minded. And could get along with people. She has dark green eyes.	1	14	15	
	Social	Descriptions of the avatar possessing traits that are considered to be good in social situations	And also cheerful. She can be happy for her friends when they achieve something. Ambitious.	10	25	35		

Theme	Category	Name	Explanation	Quotes	Emily	Sophie	Total	
	Stereotype personality				105	92	197	
		"Pick me"	Descriptions of the avatar trying hard to gain the approval of others, especially males	Yeah, and also some lipstick, because yeah, I think she wants to be seen by other men, or at least other boys. So wearing lipstick would kind of maybe suggest something.	12	2	14	
		Sensual	Descriptions of avatars who are stated to behave seductive towards especially males	I think she doesn't have any body hair. I think she's very feminine and seductive. That's why she's wearing red clothes and red high heels.	29	12	41	
		Girly Girl	Descriptions of the avatar behaving in ways that are seen as typically feminine interests or behaviours	Also an open shoe I think, because she wants to show off her nicely painted toe nails there too, of course	18	7	25	
		Romantic	Descriptions of romantic behaviour or interest by the avatar	also romantic should be a trait of her, because yeah, I don't know, I kind of get that vibe from her in the story.	33	21	54	
		Shy/Insecure	Descriptions of the avatar that imply insecurities or shyness in social situations or about the character it self	She is a bit... She is a bit more reserved. I think. Okay.	13	21	34	
		Traditional gender roles	Characteristics, interests or goals of the avatar, putting the character in roles that are typically assigned to the female gender	Big happy family. She definitely wants to have the big love. And a lot of kids. And take good care of them.	10	33	43	
		Basic white girl	Description of avatar which fits into the stigma of a typical white girl		23	7	30	
		Personality political				12	15	27
			Political: Alternative	Description of a avatar with mostly liberal opinions		10	12	22

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<b>Theme</b>	<b>Category</b>	<b>Name</b>	<b>Explanation</b>	<b>Quotes</b>	<b>Emily</b>	<b>Sophie</b>	<b>Total</b>
		Political: Conservative	Description of a avatar with mostly conservative behaviours		2	3	5

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## Appendix C

**Table 11**

*Description of avatars "Emily"*

Emily	Gender	Sex	ASI	NES	Traits	Clothing	General	SAS
	Identity		Mean	Mean		description	Appearance	
L1	Male	Male	3.68	4.42	Open-minded, Talkative, Social, Creative, Healthy	Long black pants, White crop top, Sneaker	Long blonde Braids, Strong Make-up, No glasses	3
L2	Female	Female	3.91	5.33	Academic, romantic, Impulsive,	Blue short dress, Jewelry, black flats	Long brunette Hair, pale skin tone, natural make-up	5
L3	Male	Male	2.5	4.75	Party-animal, Talkative/Extraverted, Erratic, Clumsy, Impulsive	Short red dress, Red high heels, Jewelry	Long brunette pony tail, strong make up	9
L4	Female	Female	2.5	3.25	Romantic, Ambitious, Flirty,	Blacks short skirt, White blouse, Black cowboy boots	Middle brunette hair, slighty tanned skin, neutral make up	4
L5	Female	Female	4.27	5.5	Party-animal, talkative/Extraverted,	Short blue pants, Revealing pink Top,	Brunette Hair, tanned skin tone, wide chest,	8

				Romantic, hot-headed, ambitious	Blue heels with glitter	Toned body type, strong Make up	
L6	Female	Female 2.45	4.75	Party-animal, talkative, hot- headed, Friendly, Erratic	Long black flared pants, pink heels, Jewelry, denim jacket, white top	Short brunette hair with pink highlights, Strong Make up, tanned skin	6
L7	Female	Female 2.77	4.67	Smart, Clean, friendly,	Short grey skirt, Croptop, chucks, jewellery	Long blonde hair, tanned skin, strong Make up,	6
L8	Female	Female 2.41	5.5	Party-animal, Extraverted, smart, Clean, friendly	Denim ripped shorts, crop top, Jewelry, black heels	Brunette long hair, tanned skin, toned body, natural make up	7
L9	Female	Female 2.32	4.17	Romantic, flirty, Loyal, Hot-headed, creative	Short denim skirt, Heeled boots, revealing white top	Brunette long hair, Tanned skin, Strong Make-up, Tattoo,	8
L10	Female	Female 2.41	5.67	Athletic, Jealous, creative,	Black top, Short skirt, Heels, jewellery	Long blonde hair, Strong Make up, Tanned skin, Toned body,	7

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L11	Female	Female	2.59	4.58	Party-animal, cheerful, romantic, talkative, athletic	Skinny jeans, Boots, Crop top	Brunette middle hair, pale skin, Toned body, Natural make up,	4
L12	Female	Female	3.36	3.75	Friendly, talkative, cheerful, snob, dirty	Green short dress, Basic shoes, Jewelry	Long blonde hair, Tanned skin tone, Strong Make up, Toned body,	7
L13	Female	Female	2.72	4.58	Party-animal, Hopeless romantic, Friendly, perfectionist,	Long orange pants, Revealing white top, sandals	Long blonde hair, Tanned skin, Strong Make up,	6
L14	Female	Female	2.95	4.25	Family-oriented, hot headed, clumsy, materialistic	White short dress, Black high heels, Watch	Bleached blonde hair, tanned skin tone, natural make up	4
L15	Female	Female	2.86	5.25	Nature love, hot headed, self-assured, genius	Red short dress, Red high heels, Jewelry	Long black hair, Strong Make up, Tanned skin tone,	6
L16	Female	Female	3.54	5.17	N.A	Long beige pants, Yellow crop top, Sneaker	Long black hair, Tanned skin, Strong make up,	4

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L17	Female	Female	2.90	3.92	Materialistic, Party-animal, talkative, social, Erratic	Short red dress, Red high heels	Long bleached blonde hair, Strong make up, Pale skin tone	8
L18	Female	Female	3.77	4.17	Genius, Loyal, funny	Long black pants, Black blazer, Striped shirt, Normal shoes	Bleached blonde hair, natural make up, curvy, pale skin	2
Z1	Male	Male	5.23	4.42	Aspiration, talkative, mean, moody	White shirt, blue jeans, sneakers	Brown short hair, 1 natural make up, tanned skin tone, glasses	1
Z2	Female	Female	2.86	5.17	N.A	Black t-shirt with skull, pink pants, boots	Long blonde hair, tanned skin, natural make up, no glasses	2
Z3	Female	Female	3.45	4.92	Loner, Bookworm, athletic, romantic, intelligent,	Yellow floral dress, sneakers	Long blonde hair, tanned skin, sunglasses	4
Z4	Female	Female	2.14	4.75	N.A	Brown long coat, gray top, black pants, brown shoes	Long blonde hair, tanned skin, no glasses	2
Z5	Female	Female	2.82	4.83	Party animal, outgoing, cheerful, talkative	Black crop top, black pants, sneakers	Blonde hair, natural make up, tanned skin, chubby body type, no glasses	4

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Z6	Male	Male	2.45	4.67	Ambitious, Cheerful, Creative	Blue sweater, white pants, sneakers	Short blonde hair, strong make up, chubby, no glasses	2
Z7	Female	Female	2.27	5.00	Materialistic, moody, jealous, ambitious, reliable	Magenta top, dark blue jeans, sneakers	Long blonde hair, pale skin, strong make up, no glasses	4
Z8	Female	Female	2.68	4.92	Hot-headed, party animal, romantic, talkative, childish	White jacket, blue top, floral leggings, black shoes	Long blonde hair, tanned skin, natural make up, no glasses	4
Z9	Male	Male	2.09	4.25	Ambitious, jealous, nature	Red plaid shirt, blue jeans, red sneakers	Long blonde hair,asian ethnic, natural make up, no glasses	1
Z10	Male	Male	4.36	5.00	Romantic, flirty, jealous, non- committed	Yellow crop top, pink mini skirt, blue heels	Long blonde hair,tanned skin , strong make up, no glasses	8
Z11	Male	Male	3.63	3.08	Open-minded, talkative, evil, mean, jealous	Light blue crop top, ripped jeans, sneakers	Long wavy red hair, tanned skin, strong make up, glasses	5
Z12	Male	Male	3.81	2.92	Romantic, flirty, jealous, non- committed	Pink top, blue jeans, beige shoes	Long blonde hair, skinny body type, tanned skin, strong make up, no glasses	9

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Z13	Male	Male	3.41	3.67	Party animal, jealous, mean, talkative	Black dress, bracelets, heels	Long black hair, 8 natural make up, tanned skin tone, no glasses
Z14	Female	Female	3.18	4.92	Ambitious, Cheerful, Childish	Orange jacket, beige top, green pants, flip-flops	Short brown hair 1 in ponytail, chubby body type, strong make up, pale skin, no glasses
Z15	Female	Female	2.54	4.08	Hot-headed, bookworm, outgoing, likes writing	Red jacket, black top, white pants, boots	Long black hair, 2 strong make up, pale skin, no glasses

**Figure 9**

*Example of Emily Avatar (Z10)*



**Table 12***Description of avatars "Sophie"*

Sophie	Gender	sex	ASI	NES	Traits	Clothing	General	SAS
	Identity		Mean	Mean		description	Appearance	
L1	Male	Male	3.68	4.42	Open-minded, self-assured, talkative, cheerful, creative	Green Sweat pants, Grey Sweatshirt jacket, Chucks	Black hair, Strong make up, Eyebags, Tanned skin	2
L2	Female	Female	3.91	5.33	Academic, Ambitious, self-assured, clumsy	Blue jeans, Yellow T-shirt, Flats	Blonde long wavy hair, Natural Make up, Tanned skin	3
L3	Male	Male	2.5	4.75	Academic, Self-assured, Creative, Ambitious,	Grey Sweatpants, Purple sweatjacket, sneaker	Brunette ponytail, Natural Make up, Eyebags, Tanned skin	1
L4	Female	Female	2.5	3.25	Likes writing, Loyal, ambitious, creative	Jeans, Revealing white top,	Brunette hair, Natural Make up, Tanned skin,	2

						Normal shoes		
L5	Female	Female	4.27	5.5	Open-minded, Talkative, ambitious, romantic, cheerful,	Grey Skinny jeans, Pink strapless top, Sandals	Blonde hair, Tanned skin, Natural Make up, Toned body	5
L6	Female	Female	2.45	4.75	Academic, Ambitious, positive, nerdy	Blue lose jeans, Black sweatjacket, sneaker	Brunette Hair, Natural make up, Pale skin	0
L7	Female	Female	2.77	4.67	Nerdy, creative, clean, loyal	Denim jacket, Red top, Blue jeans, Chucks	Brunette long wavy hair, Tanned skin, Natural make up,	2
L8	Female	Female	2.41	5.5	Vegetarian, creative, clumsy, Clean,	Long blue pants, Pattered Blouse, Chucks	Long blonde hair, Natural make up, Pale skin,	2

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L9	Female	Female	2.32	4.17	Romantic, loyal, clean, ambitious,	Short blue tennis skirt, White Tshirt, Sneaker,	Blonde Ponytail, Natural Make up, Tanned skin	2
L10	Female	Female	2.41	5.67	Smart, academic, clumsy, creative, non- committal	Blue jeans, Blue top, flats	Brunette hair, Tanned skin, Natural make up	3
L11	Female	Female	2.59	4.58	Friendly, talkative, ambitious, musicia,	Blue jeans, Revealing white top, sneaker	Blonde hair, Natural make up, Tanned skin	3
L12	Female	Female	3.36	3.75	Open- minded, slobby, talkative, cheerful, genius,	Beige pants, Striped poloshirt, Normal shoes	Long brunette wvy hair, Natural make up, Pale skin, Glasses	1
L13	Female	Female	2.72	4.58	Clumsy, healthy, academic, family oriented,	Green pants, White blouse, Sneaker, Jewelry	Brunette hair, Tanned skin, Natural make up	3

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L14	Female	Female	2.95	4.25	Academic, Food lover, loyal, materialistic	Long black skirt, White blouse, sneaker	Bleached hair, Pale skin Natural make up	2
L15	Female	Female	2.86	5.25	Loyal, Bro- type, Ambitious, family oriented	White pants, Pink pullover heels	Long bleached hair, Strong Make up, Pale skin	3
L16	Female	Female	3.54	5.17	N.A	Long green pants, Denim jacket and blue shirt, heels	Short blonde hair, Tanned skin, Strong make up,	3
L17	Female	Female	2.90	3.92	Academic, ambitious, book worm, loyal	Grey jeans, Purple tshirt, Purple chucks jewellery	Short blonde hair, Natural Make up, Pale skin	1
L18	Female	Female	3.77	4.17	Creative, loyal, musician	Long black pants, Green blouse, sneaker	Brunette long hair, Natural make up,	2

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							Tanned skin tone	
Z1	Male	Male	5.23	4.42	Academic, Good person, Genius	Beige top, white skirt, blue shoes	Long black hair, 2 no glasses, indian ethnic, natural make up, skinny body type	
Z2	Female	Female	2.86	5.17	N.A	Blue top, white pants, pink shoes	Long black hair, 1 no glasses, natural make up, chubby body type,	
Z3	Female	Female	3.45	4.92	Athletic	White tank top, black shorts, pink sneakers	Black hair in 1 ponytail, tanned skin tone, athletic body, natural make up, sunglasses	
Z4	Female	Female	2.14	4.75	Jealous,cheerful, Smart, outgoing	Purple floral dress, beige shoes	Short brown 3 hair, tanned skin tone, natural make up, no glasses	
Z5	Female	Female	2.82	4.83	Open-minded, perfectionist, Family person, good	Pink shirt, black pants, white sneakers	Curly brown 1 hair in ponytail, tanned skin tone, no glasses	
Z6	Male	Male	2.45	4.67	Materialistic, ambitious, hot	Blue jacket, blue plaid	Short black hair, 1 no glasses, pale	

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					headed, outgoing	skirt, black shoes, cap	skin tone, natural make up	
Z7	Female	Female	2.27	5.00	Talkative, outgoing, hotheaded, cheerful, open-minded	Black shirt, black skirt, white sneakers	Long brown hair, no glasses, tanned skin, natural make up,	2
Z8	Female	Female	2.68	4.92	Bookworm, Foodie, creative, loner, ambitious	White lace top, beige pants, purple shoes	Long blonde hair, no glasses, blue eyes, natural make up, tanned skin tone	2
Z9	Male	Male	2.09	4.25	Ambitious, hot headed, academic	Blue jacket, blue jeans, black shoes	black hair in two buns, no glasses, tanned skin., natural make up,	1
1Z10	Male	Male	4.36	5.00	Open-minded, good, outgoing, cheerful, talkative	Pink shirt, green pants, red shoes	Short black hair, no glasses, tanned skin, no make up	1
Z11	Male	Male	3.63	3.08	Bookworm, smart, good, loner, genius	white top, blue pants, white shoes	Red short wavy hair, no glasses, natural make up, chubby body type, tanned skin tone	1
Z12	Male	Male	3.81	2.92	Bookworm, creative, good,	Magenta top, ripped jeans, black shoes	Short black hair, no glasses, chubby body	1

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					outgoing, smart		type, natural make up, tanned skin	
Z13	Male	Male	3.41	3.67	Gloomy, vegetarian, romantic, gloomy, smart	Beige cardigan, white top, green pants, gray shoes	Long blonde hair, glasses, pale skin tone, no make up	2
Z14	Female	Female	3.18	4.92	Good, perfectionist, loner, loyal	Magenta top, blue jeans, pink shoes	Long black hair, no glasses, tanned skin, strong make up	3
Z15	Female	Female	2.54	4.08	Writer, good, loyal	Brown top, long white skirt, blue sneakers	Brown hair in ponytail, glasses, tanned skin, natural make up	1

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**Figure 10**

*Example of Sophie Avatar (Z10)*



## Appendix D

**Table 13**

*Frequencies of traits*

<b>Trait</b>	<b>Frequency_Emily</b>	<b>Frequency_Sophie</b>
Talkative	9	9
Ambitious	4	10
Creative	4	8
Loyal	2	8
Romantic	6	3
Cheerful	5	6
Open-minded	3	6
Clumsy	2	5
Friendly	5	0
Bookworm	2	4
Outgoing	2	4
Hot-headed	6	2
Smart	2	4
Extraverted	2	0
Clean	2	3
Materialistic	3	2
Party-animal	7	0
Jealous	5	1
Genius	2	2
Erratic	3	0
Mean	3	0
Athletic	3	1
Flirty	3	0
Social	2	0

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Healthy	1	1
Impulsive	2	0
Snob	1	0
Dirty	1	0
Hopeless romantic	1	1
Perfectionist	1	1
Family-oriented	1	2
Nature love	1	0
Self-assured	1	2
Funny	1	0
Aspiration	1	0
Moody	2	0
Loner	1	2
Intelligent	1	0
Reliable	1	0
Childish	2	1
Non-committed	2	0
Evil	1	0
Likes writing	1	1
Vegetarian	0	2
Sloppy	0	1
Good	0	5
Foodie	0	1
Bro-type	0	1
Family person	0	1
Good person	0	1
Writer	0	1

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