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Mind Perception of Avatars: A Focus Group Study

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Abstract. Virtual Reality (VR) is increasingly used for collaborative learning in education. To navigate these virtual learning environments, people use avatars. Understanding how people perceive avatars, and treat them humanly, is crucial for designing inclusive virtual learning environments. This study examines the ways in which students attribute and detract mental states to avatars based on their characteristics, through the process of mind perception. To do so, six focus groups were conducted, during which students designed avatars that varied on two dimensions of mind perception: (1) agency or (2) experience. This was followed by group discussions on the characteristics of these avatars associated with agency and experience. Avatars were attributed low experience and agency, when designed as nonhuman entities (e.g., robots or animals), depicted with incomplete bodies, unrealistic appearances, negative appearances, and suggested side character roles. Conversely, avatars attributed with high experience and agency typically showcased human-like figures with unique personal styles, realistic representations, positive appearances, and convey a strong sense of individual identity and storyline centrality. This implies that VR developers, teachers and educationalists should take these characteristics into account to design inclusive collaborative learning environments.

Keywords: Avatars · Mind Perception · Agency · Experience · Collaborative Learning

1 Introduction

In education, the use of virtual reality (VR) for collaborative learning is increasing, fueled by the forced transition to online education during the COVID-19 pandemic [1]. Applications vary from virtual onboarding programs (e.g., www.rbs-hubs.nl), training for soft skills such as communication, empathy, and cooperation (e.g., https://thesimulationcrew.nl/), to holographic teachers in the classroom [2]. VR has been shown to

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increase engagement [3], spatial learning [4], and experiential learning [5]. As such, VR can be a valuable means of facilitating and enhancing collaborative learning [6].

To navigate these virtual learning environments, people use avatars [7]. These are visual representations of individuals used to represent their identity and to enable interactions [8]. An avatar serves as the representation of an online user's physical self, enabling them to engage in the activities of the virtual world by crafting, personalizing and manipulating the 'self' [9]. Avatars are formed through a combination of conscious personal choices and the technological affordances of virtual worlds. Apart from customizable features like hair color, clothing and body type, virtual environments provide users a wide range of options to represent themselves, ranging from more to less realistic avatars (e.g., abstract characters such as a cartoon or block-like figure versus photorealistic characters), as well as options that allow users to represent themselves as entities beyond human appearance [10]. Examples include the choice to be represented by non-human forms such as an animal, a robot, or fantasy figure. As such, digital spaces afford the experimentation of completely new identities [11].

Being represented by an avatar can potentially dehumanize the person behind the avatar, leading to adverse effects on communication and collaboration. Such negative downstream consequences are likely to arise, when people project non-human characteristics of the avatar onto the avatar owner. Initial evidence for such a process is provided in a recent study by Schouten and colleagues [12]. The study shows that when a person communicates through a non-human avatar, such as a telepresence robot, their communication partner has been shown to project more robot-like characteristics onto that person [12]. Broader research on dehumanization also shows that when human attributes are detracted and individuals are reduced to objects, they are denied humanness [13]. Dehumanization has negative consequences, such as reduced pro-social behavior (e.g., helping others) and increased anti-social behavior (e.g., aggression) (for an overview [14]. Therefore, reducing dehumanization is pivotal for designing an inclusive virtual learning environment [15].

How and why certain entities are perceived as more or less human is explained by mind perception theory. This theoretical framework explains how people attribute mental states and capacities, including emotions, intentions, desires, knowledge, and the ability to think and feel, to others—whether they are real people, fictional characters, or digital entities like avatars [16]. These attributes can be categorized along two dimensions: experience and agency. Experience is defined as "the perceived capacity for sensation and feelings" [17]. This dimension encompasses a broad spectrum of states that enables one to feel or sense, including the ability to experience bodily sensations like hunger and pain but also more complex emotional states such as pleasure and consciousness. Agency is defined as the perceived capacity for "intentional action" [18]. This includes a wide range of qualities that enables one to act and intend, like self-control, judgment, moral reflection and the ability to communicate and remember.

According to mind perception theory, people can perceive agency and experience in human but also non-human entities, albeit with noticeable variations in the extent of agency and experience ascribed. Some entities are ascribed little agency and experience (e.g., a dead person), others little agency but high levels of experience (e.g., certain animals such as chimpanzees and pets), high agency but little experience (e.g., supernatural entities with power, such as God), or high scores on both agency and experience (e.g., an adult human [16]). The conclusion of this research is that people need to attribute both agency and experience for something or someone to be perceived human.

How people perceive avatars in terms of experience and agency is not yet fully understood. Avatars are represented by human beings, but can take any form: human and non-human. Hence, it is imperative to understand the exact characteristics that contribute to these perceptions of experience and agency, especially in light of prior research showing that (de)humanization carry significant ramifications for interpersonal interaction. Individuals employ perceptions of agency and experience to comprehend or engage with entities, demonstrating a greater inclination to establish social bonds when they can ascribe specific characteristics of a human mind to someone or something [17]. With the increasing importance of virtual environments, understanding mind perception of avatars is thus crucial to understand how users interact with and respond to these digital representations.

Based on mind perception theory, the aim of our study is to explore how students perceive and attribute mental states of experience and agency to avatars, and what role avatar characteristics play. To systematically explore these dynamics, we conducted 6 focus groups involving university students. Through qualitative analysis, we seek to uncover nuanced insights into participants' perceptions, shedding light on the nuanced interplay between avatar characteristics and mind perception in virtual environments. This research contributes to a deeper understanding of the psychological processes underlying avatar-mediated communication, with potential implications for the design and optimization of virtual learning environments to enhance user experience and social interaction. The lack of comprehensive research in this area highlights a significant gap in our knowledge. To address this gap, we formulated the following research questions:

RQ1: What characteristics of avatars do students associate with experience?
RQ2: What characteristics of avatars do students associate with agency?

2 Methodology

The goal of our study is to investigate which avatar characteristics students associate with agency and experience. To attain this goal, we used a qualitative focus group design which consisted of two stages. First, students designed an avatar that varied in level of agency or experience. Second, students discussed the characteristics of these avatars that were associated with agency and experience. We conducted six focus groups, each comprising six to nine participants, in December 2023, following ethical approval from the local Institutional Review Board. Each focus group was moderated by a researcher. These six researchers underwent training, consisting of two meetings, to familiarize themselves with the study's objective and the focus group guide (see Appendix A).

2.1 Participants

All participants were third-year Communication Studies students of the Rotterdam University of Applied Sciences. At the beginning of the three-week course on Immersive Content, 85 students were invited to participate in a workshop on avatar creation and evaluation. Every student involved in the course took part in the workshop, but only those who consented to participate in the study had their data included. Forty-nine participants were recruited for the focus groups (Age $M = 21.4$, $SD = 0.21$; min: 19, max: 26; Female = 83.7%, Male = 16.3%) by giving their informed consent. These participants were divided into six groups, moderated by a trained researcher. All participants knew each other by name, allowing them to easily respond to each other.

2.2 Procedure

The procedure consisted of two stages: an avatar-creation stage, and the focus group discussion. The first (plenary) stage started with an explanation of the theoretical conceptualization of mind perception theory, and students were provided with the definitions of agency and experience. Subsequently, students were introduced to three avatar creator tools, each varying technological affordances, namely Heroforge, ReadyPlayerMe and Reblium. Next, participants were asked to design different avatars for one of four different possibilities: an avatar that was (1) low on agency and low on experience, (2) high on agency and low on experience, (3) high on agency and low on experience, and (4) high on agency and high on experience. Participants were randomly assigned to two of the possibilities. After designing avatars for the two assigned possibilities in 40 min time, each participant received a printed screenshot of their avatars (total avatars $N = 98$) and was invited to bring these to the group discussion.

In the second stage, participants discussed the avatars in six different focus groups. Participants were randomly assigned to a focus group. After informing participants that the focus groups would be audio recorded, the facilitator introduced the study aim and explained the protocol for the focus group. On the table, the two axes of agency and experience were laid out. Then, participants were asked to collectively position the avatars they brought along on the two axes, aiming for the greatest possible consensus. Participants were asked to think out loud and discuss the reasons for placing each of the avatars along the axes. The facilitators used directed follow-up questions to ask for clarification or to discuss certain choices. As soon as a consensus was reached, a picture was taken of the positioning of all avatars on the axes. Afterwards, digital audio recordings were immediately reviewed for compliance with the protocol and completeness, and then transcribed verbatim by trained researchers.

2.3 Data Analysis

The transcripts were analyzed by conventional content analysis [19], also described as inductive category development [20]. Three of the authors coded the focus group transcripts, and each focus group was coded by two coders. Disagreements were resolved through discussions. Data was coded in Atlas.ti version 24.0. Pertaining to the goal of the paper, we coded the transcripts to identify avatar characteristics that were related to low or high agency or experience. We coded whether the quote discussed low experience (E−), high experience (E+), low agency (A−) or high agency (A+).

In the inductive code category development process, we discovered a distinction between participants' comments on observable avatar characteristics and perceptions regarding the avatar design. Therefore, we coded observable characteristics referring to a property of the avatar that can be identified by looking at the avatar with a code that started with “Pr:”, followed by the (observable) property. Examples are hair, clothing, entity, form and size. We coded participants’ perceptions of the avatar using “Pe:” followed by the perception. Perceptions are impressions of the beliefs, attitudes and personality of the avatar that cannot objectively be identified from the avatar’s characteristics. Examples are “has its own identity”, “has a negative appearance”, “is going on an adventure”, “seems like a side character”.

We used open coding to code the properties and perceptions of the avatars [20]. That is, other than the above rules, we had no predetermined codes related to properties and perceptions of the avatars. In the first stage, we identified 153 codes for properties and 234 codes for perceptions. Through discussion, we classified these different codes in 8 overarching themes related to the properties of the avatars and 9 themes related to perceptions of the avatars (see Table 1). We then conducted a co-occurrence analysis to identify which themes were associated with low or high agency or experience.

Table 1. Overarching themes for properties and perceptions, derived from open coding.

Characteristics	Overarching themes	Examples codes
Properties	*Entity*	
	Human	*real person, human body, human*
	Robot	*robot, robot bunny*
	Animal	*rabbit, ape, bear, teddy bear*
	Fantasy	*centaur, mermaid, mutated animal*
	Body detail	
	Incomplete body	*body absent, face covered, no hands*
	Eyes	*non-human eyes, strange eyes*
	Personal style	
	Fashion	*fashionable clothing, accessories,*
	Beauty	*make-up, purple hair, hair in a bun*
Perceptions	*Realism*	
	Unrealistic	*not credible, non-visible in daily life*
	Realistic	*looks real, resemblance to real person*
	Image	
	Positive appearance	*confidence, friendly appearance*
	Basic appearance	*standard look, basic, standard pose*

(*continued*)

Table 1. (*continued*)

Characteristics	Overarching themes	Examples codes
	Negative appearance	*no appearance, looks angry*
	Identity	*personality, can identify with*
	Character	
	Main character	*main character, movie character*
	Side character	*side character, non-playing character*
	Story	*shopping, part of a gang, goes to festival*

3 Results

Based on the analysis of the transcripts of the focus groups, conceptual indicator models have been constructed to answer the research questions regarding what characteristics of avatars do students associate with experience (**RQ1**; see Fig. 1) and what characteristics of avatars do students associate with agency (**RQ2**; see Fig. 2).

3.1 Experience

As shown in Fig. 1, participants attributed avatars less capacity (i.e., low experience) or more capacity (i.e., high experience) for sensation and feelings, based on entity, detail, personal style, realism, image, and character.

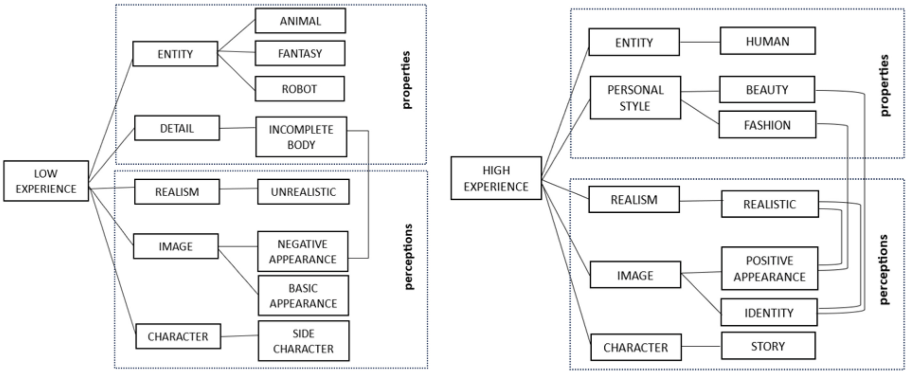

Fig. 1. Conceptual indicator model, linking experience to avatar characteristics.

Entity. Entity can be categorized into avatars represented as a) a human, b) a robot, c) an animal, and d) a fantasy figure (e.g., a centaur or mermaid). The degree of experience that participants attributed to avatars as animals and avatars as fantasy figures seemed to be depending how it relates to other avatar entities. Human-like avatars were attributed more experience, as those avatars were inherently seen as related to the human ability to have feelings, while animals and fantasy figures were attributed to a lesser extent.

RX[1]: I would also slightly lower the experience for that centaur; it never surpasses a virtual human.However, a robot was consistently attributed low experience. Robots were seen as entities that cannot feel emotions.
RX: A human has flesh and blood. You can see that, but this [robot] is actually just a piece of metal. You can't feel anything with it. It's just cold.

Detail. Avatars varied in the extent to which details of the body are visible. For example, an avatar might only have a head and no body, or the face might be partially covered by a mask, obscuring details of the mouth or eyes. Participants saw the absence of body details as a signal of low experience.

RX: You don't see the whole body. For all you know, she could be standing like this or like that. Or, I don't know, very insecure. You just don't know. You can't judge based on something you don't see. Moreover, the absence of body details was linked to negative appearance.
RX: Simply because he doesn't have eyebrows. Well, I might find him looking even dumber.

Personal Style. Avatars represented in fashionable clothing, colorful hair, or makeup, with accessories, were attributed high experience, far more than avatars with a basic outfit. The expression "clothes make the man" also seemed to be applicable in the virtual context, since the way an avatar was styled affected how participants attributed the extent to which an avatar had the capacity for sensation and feelings. Moreover, participants linked fashion to having an identity and positive appearance.

RX: It's more of a pronounced character. There's really a personality behind it. Self-expression, wanting to show oneself and maybe not wanting to go along with everything that's normally seen as normal. I[2]: And where do you derive that from?
RX: Hair color, size, striking clothes, colors. That's what I think.

Realism. Participants indicated that the degree of realism is an important aspect of whether an avatar is attributed experience. If an avatar was realistic, closely resembling how things appear in the real world, it was linked to the capability to have feelings. As opposed to lesser realistic avatars, such as more fantasy or cartoonish avatars, which were attributed low experience. More realistic avatars were also assigned to have some kind of individual identity.

RX: Because it's still more human-like. And I do feel that with the face, you already have an idea of how someone is. For example, when I see this character, I would feel less... I find this one more cartoonish.

[1] RX stands for a quote of one of the 49 focus group participants.
[2] I stands for one of the six interviewing researchers.

Image. Participants frequently mentioned the appearance of the avatars in relation to experience. Avatars could have a negative appearance (e.g., "she doesn't look very smart"), a basic appearance (e.g., "very neutral, simple avatar"), or a positive appearance (e.g., "she looks hip"). Participants linked negative and basic appearances to a lesser capacity for sensation or feelings, while linking positive appearance with a greater capacity for sensation or feelings. Besides a positive appearance, participants repeatedly mentioned that an avatar seems to have its own identity. This was mostly linked to fashion and realism.

RX: And then that cheerleader [avatar] also has her own, pronounced… Yeah, also her own personality when you look like that. I: And what characteristics do you derive that from, that own personality?
RX: Well, her outfit and what she's wearing. Also, a bit how she stands, I think.

Character. Last, participants connected experience to the avatar being a story character. Avatars with low experience were often characterized as "side characters" or non-playing characters with no feelings.

RX: This resembles one of those characters that just follow along in a game, you know. You can tease them a bit. Like, you can just give them a shove or something. There's little emotion in them, and they don't mind if you do.

Participants often perceived a narrative behind avatars with high experience, envisioning them engaged in activities like working, shopping, or going on an adventure.

RX: Because it [the avatar] is a kind of festival-goer. It really gives character. And at a festival, of course, a lot of emotions come out.

3.2 Agency

As demonstrated in Fig. 2, participants attributed avatars less capacity (i.e., low agency) or more capacity (i.e., high agency) to intend and to act, based on entity, detail, personal style, realism, image, and character.

Entity. Participants regarded human-like avatars highly capable of acting and intending, as they often ascribed human capabilities such as free will and making your own choices to avatars who resembled human entities. Avatars represented as robots, animals and fantasy figures were regarded those abilities to a much lesser extent. Similar to experience, participants regarded human-like avatars highly capable of acting and intending.

I: Why do these avatars score high on agency?
RX: I think because they look the most human and well-groomed.

Furthermore, avatars as robots were experienced low in agency. Although participants perceived robot avatars capable to act, it is not based on free will.

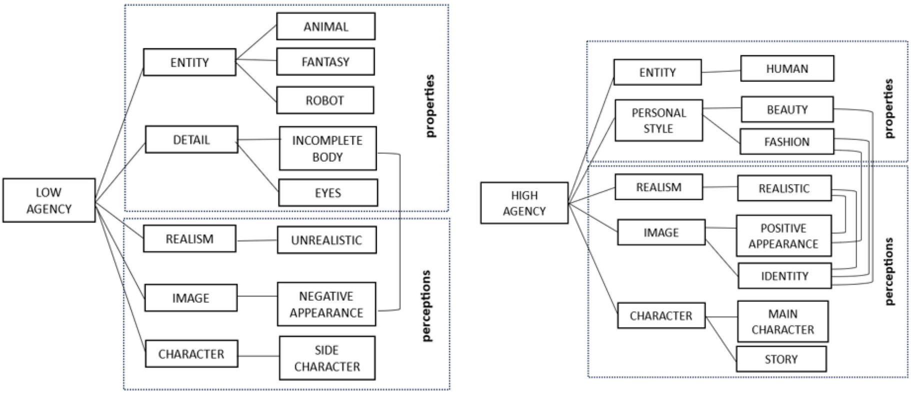

Fig. 2. Conceptual indicator model, linking agency to avatar characteristics.

RX: He has little arms that just do this and that's it, but he doesn't have free will, he's just programmed. He's just programmed to do things, he won't do things on his own.

Detail. Just as mentioned by experience, the degree to which details of the body were visible, seemed to matter in the attribution of agency. Participants saw the absence of body parts quite literally as the absence of possibilities to act.

RX: Because he doesn't really have hands to speak of. Or anything he can really do things with. Maybe he can walk, but that's about it.

The details of the avatars' eyes were not mentioned in relation to experience, but only in relation to agency. According to the participants, the gaze of an avatar made the avatar less capable of acting independently. For example, these avatars had a deviant eye color, or an empty stare.

RX: This avatar doesn't have its own will anymore and such. And also doesn't really have the choice to do things on its own. But it is still a human. But... From the inside, it's not human.
I: And are there specific character traits that indicate that?
RX: She has white eyes and also that strange robot thing on her head. A human that's been a little taken over by a robot.

Personal style. Like experience, agency was attributed to avatars represented in fashionable clothing, colorful hair, or makeup, with accessories, far more than avatars with a basic outfit. Participants indicated that with pronounced outfits, the avatar appeared to have been thinking about its way of dressing by itself.

RX: Because he's wearing sunglasses. You can also tell from his clothing that he's capable of making choices. You see a man with glasses, clearly someone who loves fashion. His opinion is clearly expressed.

Realism. Participants mentioned realism in the context of high experience, but even more prominently when they were discussing which avatars they evaluated high in the context of agency.

RX: You can see that it's not a realistic avatar, you can still see that it's not a real person. So I would place it high [on agency], but not at the extreme point. Yeah, I think if there was a picture of a completely real person, that would be all the way at the top right [on agency].

Image. Similar to low and high experience, participants linked negative and positive appearance to low respectively high agency. Different from experience, basic appearance was not mentioned frequently in the context of agency.

RX: Because she walks confidently, it seems like she's heading towards a goal. And so she must have thought about that. And you can't have a goal without thoughts.

Identity was also repeatedly mentioned by the participants in relation to high agency—similar to high experience—which was mostly linked to beauty and fashion.

RX: And I also think this one really has character with the purple hair and the makeup as well. It seems to be a somewhat powerful character who also knows what they want, I think. And who embarks on their own adventure.

Characters. Similar to low and high experience, side characters were frequently mentioned regarding low agency, and perceived narratives behind the avatars was connected with high agency. Different from experience, agency also involved discussions about avatars as main characters.

RX: He does seem like a main character.
RX: Yeah, he looks like the savior of the community. He can do multiple things. He can fly and run. This one does have a spear or something.
I: And why would you then place him higher on the agency ladder?
RX: Because that kind of radiates… Yeah, radiates power. Victory.

In all, the overarching themes were fairly consistent between agency and experience (see Fig. 3), with a few exceptions (i.e., basic appearance only linked to low experience, eyes only linked to low agency, main character only linked to high agency).

4 Discussion

The aim of the study was to explore which avatar characteristics students associate with agency and experience. The results show that avatars were attributed low experience and agency, when designed as nonhuman entities (e.g., robots or animals), depicted with incomplete bodies, unrealistic appearances, negative appearances, and suggested side

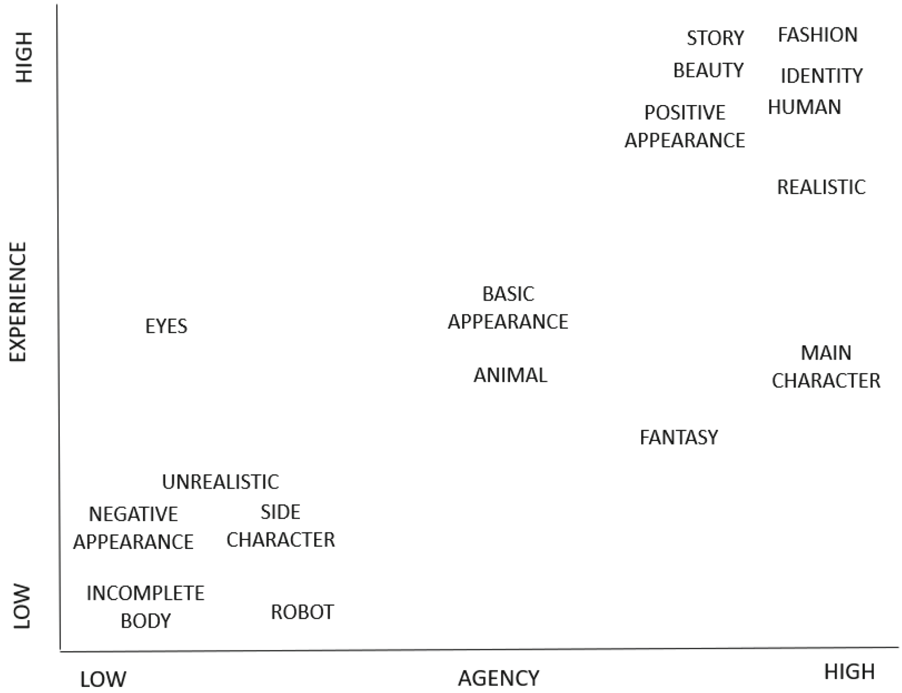

Fig. 3. Characteristics linked to experience and agency, based on the focus groups' transcripts, also including the pictures taken of the plotting schemes of each focus groups.

character roles. Conversely, avatars attributed with high experience and agency typically showcased human-like figures with unique personal styles, realistic representations, positive appearances, and convey a strong sense of individual identity and storyline centrality. As such, we make several contributions.

First, we contribute to the literature about the ethics of VR design by demonstrating that avatar characteristics do matter for facilitating an inclusive learning environment. Based on the basic principles of psychology and sociology, social relationships are reserved only for those to whom we ascribe human characteristics [21]. This study shows that a full and visible body is a rather essential condition in this perspective, according to students. This adds to prior research, already showing that co-presence (i.e., psychological connection of the mind, the sense of being together [22]) is lower when participants saw their partner with incomplete body parts [23, 24]. Furthermore, the results emphasize the significance of self-expression and projecting one's own identity. However, there are limitations concerning the extent to which this expression should occur in virtual learning environments. While VR provides opportunities for the exploration of entirely new identities [11], avatars should be realistic and human-like instead of representing a non-human race (e.g., fantasy character, alien or a white cube) to be perceived as capable of independent action and emotional experience. This is in line with the literature on anthropomorphism (i.e., the assignment of human traits to entities that may or may not be human [8]), indicating that looking human (i.e., high form of anthropomorphism) is judged more favorably (e.g., more credible and competent [8]). As such, these findings provide ethical guiding principles for designing inclusive VR environments taking students' perceptions into account.

Second, this study enhances the literature on mind perception theory by identifying specific characteristics related to experience and agency. While prior work on mind perception theory compares 13 different characters, such as a baby, a dead woman, a robot, oneself, and God [16], this study goes further by examining the common characteristics of 98 avatars. In addition to comparing entities, this study also evaluates characteristics such as clothing, realism, and the degree of visible body detail. More specifically, we discovered that characteristics associated with experience are largely consistent with those associated with agency, although the reasoning is slightly different (e.g., fashionable clothing is linked to high experience because it is a form of self-expression, and it is linked to high agency because it suggests that the avatar can make its own choices). By doing so, our findings contribute to the solidification of the model proposed by Gray and colleagues [16, 17].

Although this study sheds light on mind perception of avatars, this study comes with limitations as well. First, the participants of the focus groups were limited to Communication students, predominantly women (83.7%), with little to no experience with VR prior to the course on Immersive Content, from Western Europe. This could yield several biases. For instance, prior research indicates intercultural differences regarding to the extent to which people appreciate customized (versus uniform) avatars [25]. Moreover, also gaming experience appears to affect avatar choice [25]. Thus, the generalizability of the results is limited to students with similar background characteristics (i.e., West-European, female students, little to no VR experience). To strengthen the external validity of the results, future research should replicate this research design, using a more diverse student sample regarding gender, cultural background, and familiarity with VR. We suggest that future researchers conduct a comparative analysis using quantitative measures to examine the extent to which students' background characteristics affect the perceived agency and experience of avatars and their characteristics.

Second, this study was exploratory in nature, aiming to map out the characteristics of avatars associated with agency and experience. For this purpose, focus groups were a suitable method. However, to test causal relationships, future researchers should examine some of these characteristics in an experiment. In addition, it would be a valuable future research endeavor to further strengthen the literature on immersive learning by examining the extent to which differences in perceived agency and experience influence learning outcomes. This would build upon prior research regarding avatar representation and collaboration outcomes in virtual learning environments, comparing robot avatars with videocall [12], comparing photorealistic avatars with animated and no avatars [26], and comparing self-avatars with uniform avatars [27].

Limitations aside, this study provides a comprehensive view of how students perceive avatar characteristics in relation to experience and agency. As such, it gives guidance for VR developers, teachers and educationalists to give shape to collaborative learning environments with a human touch.

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Appendix

Discussion Guide.

Instructions:

1. Turn on the voice recorder.
2. Place the various avatars (12 to 20 pieces) created by the students printed on the table. Place the paper with two axes (experience – agency) on the table. Ask the students to collectively place the avatars on the two axes, aiming for the greatest possible consensus. Then, the discussion leader poses the following questions.

Follow up questions:

1. Which avatar do you believe scores very high on agency? In other words, an avatar that can think logically, act based on free will, make moral judgments, remember things, and have memories. What characteristics contribute to this? To what extent does the degree of detail (body type, height, skin color, hairstyle, facial features, body characteristics, gender, ethnicity, race (non-human/aliens), clothing, shoes, accessories, realism (abstract-cartoonish-photorealistic) play a role?
2. Which avatar do you believe scores very low on agency? In other words, an avatar that cannot think logically, does not act based on free will, cannot make moral judgments, does not remember things, and has no memories. What characteristics contribute to this? To what extent does the degree of detail (body type, height, skin color, hairstyle, facial features, body characteristics, gender, ethnicity, race (non-human/aliens), clothing, shoes, accessories, realism (abstract-cartoonish-photorealistic) play a role?
3. Which avatar do you believe scores very high on experience? In other words, an avatar that has awareness, the ability to feel and experience, such as sensory experiences (e.g., enjoying something or feeling pain) and emotions, and seems to have its own personality.
   What characteristics contribute to this? To what extent does the degree of detail (body type, height, skin color, hairstyle, facial features, body characteristics, gender, ethnicity, race (non-human/aliens), clothing, shoes, accessories, realism (abstract-cartoonish-photorealistic) play a role?
4. Which avatar do you believe scores very low on experience? In other words, an avatar that has no awareness, no ability to feel and experience, such as sensory experiences (e.g., enjoying something or feeling pain) and emotions, and does not seem to have its own personality. What characteristics contribute to this? To what extent does the degree of detail (body type, height, skin color, hairstyle, facial features, body characteristics, gender, ethnicity, race (non-human/aliens), clothing, shoes, accessories, realism (abstract-cartoonish-photorealistic) play a role?

Take a photo of the final result of the avatars plotted on the two axes.

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