



The Perception of Avatars in Virtual Reality During Professional Meetings

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Abstract. Social Virtual Reality (VR) offers virtual social spaces, where people can meet, collaborate and socialize via head-mounted displays. In VR applications, users can create their own avatars that can control to walk around and interact directly with other users. Recently, social VR gained importance for professional meetings, in order to allow socializing and collaborating during times of travel restrictions. Unlike VR in gaming for the purpose of amusement, where avatars can be fantasy figures, avatars in professional meetings usually look more serious and more like the person behind the avatar. Based on semi-structured interviews in two different scenarios – a conference and a company business meeting – we report about the role and perception of avatars in professional meetings. Our interview results reveal that avatars were perceived differently in both cases. In the conference scenario, avatars were seen as both enablers and obstacles for interaction with other users during the social event. In the company scenario, interviewees did not express any feelings of being restricted in their collaboration with others by the visual appearance of the avatar that represents them.

Keywords: Virtual reality · Avatar · Professional meeting · Socializing · Virtual collaboration

1 Introduction

The usage of virtual solutions for professional meetings have peaked in organizations during the pandemic [1]. Although virtual reality (VR) is not a totally new, but a maturing technology, it is growing in the last years as organizations adopt it for design, data visualization and brainstorming [2].

As a concurrence to video conferences, VR, where users enter 3D-worlds via head mounted devices (HMD), has evolved from being used for on-line gaming to also enabling applications named “social VR”. Users do not follow specific rules and story-lines like in games, but instead move and communicate with each other freely. Social VR has the potential to be a substitute to video conferences, since a 3D-space can create a more realistic arena for collaboration [3]. In VR, a character or “avatar” represents a participant. Users can, from a limited set of pre-defined choices, construct an avatar

that visually represents the user, like a proxy, during participation in the virtual social arena. Being represented by an avatar can give new experiences to the user compared with participating real life or on video conference systems – which might lead to both opportunities and challenges [4]. In gaming scenarios, even fantasy figures can be used as avatars, which is not the case in most professional settings like business meetings and conferences. In this study, we inquire how the usage of avatars as proxy of participants are perceived in professional contexts.

In gaming, the importance of how the avatar is perceived is driven by the logic of the game and the culture of the gamer community. The culture in professional contexts has other drivers. We report two different cases: The first case reports VR use in a social gathering during an online academic conference where participants from different countries did not know each other well and most experienced VR for the first time at this occasion. The second case is a high-tech company where employees meet in VR regularly for different kinds of internal meetings. Based on semi-structured interviews, our research gives insights into the role of avatars to create dynamics in virtual interaction and collaboration in professional meetings.

2 Case: Avatars in a Conference

In the first case, we created a social event in virtual reality at the Scandinavian Academy of Industrial Engineering and Management conference in November 2020 that gathered researchers from Nordic universities. The whole conference was conducted online via Zoom. At the end of the conference day, the two authors of this paper offered a virtual reality (VR) event. Of the 22 participants (including the authors), 17 agreed into an interview about their experiences afterwards, while two reflected on their experience in a group mail-exchange with each other and one of the authors, and one didn't reply on the invitation to an interview.

Most of the participants had not experienced VR before, only some had used it for gaming in the past, but not for professional meetings. Therefore, we offered an onboarding event prior to the conference to try the technology and create an own avatar on the platform. The aim was to create a feeling of security to participate in the real event. Furthermore, an experienced guide was participating in the VR-event to help participants in the virtual arenas and answer questions. Figure 1 shows a screenshot from the social event in one of the virtual arenas where the users gathered as avatars. We investigated how avatars in this VR setting would enable communication or create obstacles in a social event at a conference, which is usually aiming at get to know each other, allow an individual “branding” and establish a new professional connection for further collaboration.

In the preparation of the event, every participant could design an own avatar by choosing among a limited set of choices regarding clothes of different style and color, shoes, body length, body size, style and color of hairstyle, hats, googles and skin-color. It was possible to upload a photo of the user's face. This was used to generate the face of their avatar, but most participants did not do this. In the virtual arena, every avatar was labeled with the user's first name and the country of their university. Being represented by these avatars lead to advantages, but also to challenges when approaching and interacting with others in the virtual space.



Fig. 1. Informal talks in the social event in the virtual world

A participant mentioned that avatars are “...*interfaces between you and the other real person that makes it a little easier to break this ice...*” and to overcome shyness and get in contact with unknown people.

Another participant perceived avatars as difficult to find out who is behind an avatar: “...*you don't really see how old this person is; I cannot go through the room and look for the young PhD student who is similar to me*”. Even with avatars that look more professional like on a usual conference, it was difficult to find people with a similar experience level (as, e.g., PhD students that are mostly of young age). Additionally, “*it could be trickier to build a first time connection, so I was surprised how much harder it felt in the VR environment to talk to people I didn't know*”. The avatars furthermore do not allow to recognize the mood of a person: “*I cannot detect if this person looks kind of grumpy or annoyed*”. This “...*could be an easy way to approach that person, or this person is annoyed and just wants to be left alone*”.

3 Case: Avatars in Internal Professional Meetings

In the second case, we interviewed the high-tech company AdventureBox that have reached a point in their digitalization of internal collaboration where social Virtual Reality (VR) has become a “new normal” to them since three months back in time. The company has 20 employees distributed across the globe and is noted on the Swedish stock exchange.

The semi-structured interview was taking place as a group interview with four organizational members: the CEO, the initiator of social VR in the company and two other employees. Unlike in the first case, the interviewees did not express any obstacles with the visual appearance of avatars. The face of each avatar was based on a photo of the

user, which made the avatar's face looks very similar to the user's dito. The interviewees argued that when participants intuitively link the look of the face with the body language of the avatar, it altogether makes up a valid representation of this person as a "*selfie in combination with body language, even a stronger representation that i.e. in Zoom*". Figure 2 shows a group photo from a professional meeting in the virtual reality where the avatars wear the real faces of the AdventureBox employees.



Fig. 2. Virtual reality meeting at Adventure Box

The employees have managed to go beyond the look of avatars in order to focus on the collaborative process in the 3D virtual arena. They compared social VR with a video conference system, and actually thought that it can be easier to recognize a person being represented by an avatar than in a 2D-window in a video conference call: "It gives a feeling of closeness among the avatars, and among the users as a consequence of this". They suggest the concept of a "stand-up-meeting" in VR as a powerful tool for collaboration: "If you want to have a team-mission and you can't meet people abroad, this is possible in VR - you can give people a feeling of being under the same roof. In a geographically distributed organization, you can create a sense of belonging through "social VR", inclusion. Standup meetings are nicer in VR: it's easier to talk, it's a kind of intuitive".

4 Discussion and Conclusion

Avatars can play different roles in VR worlds. In a medical or rehabilitation context, the virtual body of an avatar can decrease cognitive load and improve motor and cognitive tasks of patients when they follow their avatar in the virtual world [5]. In other scenarios like gaming, users can create themselves a new identity, where they can try out being someone else, like a hero [6]. For scenarios in the social virtual reality it is not known enough about how self-presentation works and how this influences the users' interactivity [4]. Our research contributes to this call for research.

Reflecting on the two cases in this study, there are several dissimilarities in how the different users in the different contexts perceive the avatars in a professional setting; to be represented by an avatar and to interact with other users' avatars in a 3D virtual social or collaborative arena. First, there is an indication that trust and tension are factors that can be essential elements when it comes to both the expectations on and a perception of the avatars. In the second case, social VR was used for internal collaboration where the participants conveyed that they now each other quite well professionally and they were able to collaborate through their avatars, while in the conference setting, participants did not know each other well. This puts high expectations on the avatars and their interaction – it is a tense situation. Second, the visual appearance of the avatars, in combination with other “social marks”, seems to be even more important in the situation of low trust and high tension, using the desire expressed by PhD students to be able to find other likeminded participants in the conference in case 1. Third, it plays a major role, which type of toolbox a VR platform offers to construct avatars and how they appear in different kinds of HMDs, using the example that only the upper part of avatars body can be visible. Fourth, there is an aspect of time and change; the time it takes to implement and the “push” that is created – compared with the similar “push” the pandemic has had on the spread of video conferences.

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