



Pedagogical experiences in a virtual exchange project using high-immersion virtual reality for intercultural language learning

Kristi Jauregi-Ondarra¹, Alice Gruber², and Silvia Canto³

Abstract. Social Virtual Reality (VR) applications enable real-time interpersonal conversation and allow users to perform activities together. They have the potential of changing the ways learners practise speaking a foreign language. Following a previous study (Jauregi Ondarra, Gruber, & Canto, 2020), we designed the present study to explore how presence, immersion, and interactivity affect overall social experience. Students from Germany and the Netherlands engaged in High-immersion VR (HiVR) virtual exchange sessions, using Spanish as a lingua franca at A2 level. International dyads carried out four interaction tasks in AltspaceVR, using head-mounted devices. To examine students' HiVR virtual exchange experiences, different sources of data were gathered: questionnaires, reflection diaries, recordings, and focus group interviews. The preliminary results, based on the surveys and reflection journals, show that students liked to use a social VR app to communicate in the target language with peers from other countries, as they felt completely immersed and co-present in the social interactive VR space. This might enhance engagement and lower anxiety levels.

Keywords: high-immersion VR, social VR applications, Spanish as a lingua franca, interactivity, language learning.

1. Utrecht University, Utrecht, the Netherlands; k.jauregi@uu.nl; <https://orcid.org/0000-0002-9096-9450>

2. Heilbronn University of Applied Sciences, Heilbronn, Germany; alice.gruber@hs-heilbronn.de; <https://orcid.org/0000-0003-1558-673X>

3. Utrecht University, Utrecht, the Netherlands; s.canto@uu.nl; <https://orcid.org/0000-0003-4044-2439>

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1. Introduction

Social HiVR might have the potential to enhance meaningful communication processes in the target language in an authentic, virtual environment. Following our first successful pedagogical VR experiences for being an adequate and motivating technology for conducting virtual exchange experiences using English as lingua franca (Jauregi Ondarra et al., 2020), we organised a follow-up study to investigate what opportunities social VR applications offer to enrich foreign language learning experiences and analyse how learners utilise them. We especially focused on the way learners experience presence, immersion, and interactivity and how these aspects influence students' engagement and motivation.

2. Method

Twenty-four students from Utrecht University (the Netherlands) and Heilbronn University (Germany) volunteered to participate in the study. Twenty-two students were aged between 18 and 24. Two German students reported being a little bit older, between 25 and 30. The Dutch students were taking the course *Español 2* and the German students were enrolled in different Spanish courses leading towards A2 (CEFR⁴) level. The students were grouped in international dyads and asked to arrange the meetings at their convenience within a set timeframe. Before the interactions started, information meetings were held to explain the dynamics of the HiVR experience and head-mounted display pick-ups were arranged. Students were all given access to manuals and video tutorials on how to use their displays and the social app.

The VR interactions were carried out outside classroom hours in Spanish as lingua franca. The interaction tasks were performed in AltspaceVR, a social VR platform where public and private events can be organised. Users can meet and communicate with real people represented by a customisable avatar. AltspaceVR, which is free to use, is available on many HiVR headsets and also in 2D mode on PCs (Figure 1).

Task guidelines were created to prepare participants for their interactions. Task 1 was an icebreaker for students to get to know each other and customs of their partners' country. In Task 2, students had to decide where they would spend an exchange period together. In Task 3, they had to make decisions about the house they would share during their exchange. Task 4 was organised as a live event

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(a quiz – guess the famous person) for all participants in the project. During task performance, while interacting with their partner, students were requested to interact with the environment (e.g. customise their houses, visit other locations).

Data were gathered to investigate the impact immersive virtual exchange experiences might have on students' learning: questionnaires, reflection journals, recordings, and focus group interviews at the end of the project. The initial results presented here focus on the questionnaires and journals.

Figure 1. Interactions in AltspaceVR



3. Results and discussion

The results of the final questionnaires containing five point Likert scale items and open-ended questions (see [supplementary material](#)) show that students (n:17) found it easy to start (\bar{x} : 3.8) and use (\bar{x} : 3.7) the tool. It was not difficult to use the VR environment (\bar{x} : 2.7) and most of them liked AltspaceVR (\bar{x} : 3.3). The sound, a key issue in communication, was good (\bar{x} : 3.7).

Fourteen out of 17 students very much liked to communicate in VR (n:14; \bar{x} : 4), meet students from other countries (\bar{x} : 4.2), and would recommend others to participate in these HiVR exchanges (\bar{x} : 4.2).

Most students felt completely immersed and co-present (\bar{x} : 3.8) in the HiVR space, which contributed to enhanced engagement. Students reported doing their best when interacting in the VR environment (\bar{x} : 4.7) to concentrate well when interacting (\bar{x} : 3.8) and to feel so involved in the interaction task in VR that they ignored everything around them (\bar{x} : 3.7). In addition, the VR environment was felt to be safe and comfortable (\bar{x} : 3.7), which contributed to lower anxiety levels

for most students, clearly stimulating student engagement, as we can see in the qualitative data gathered in the survey (open questions) and the reflection journals.

“The environment is cheerful with fun colours which makes it feel less like a ‘very important university assignment’ and more like a fun educational conversation with someone else”.

Moving around in a private virtual house in VR was also seen to contribute to a relaxed atmosphere during the conversation.

“It is nice to have the opportunity to walk around and show stuff to the other person. That makes the situation more relaxed”.

“It was relaxing because we just walked around our home and showed what we put there and what is important to us”.

According to another student, seeing the same environment “gives you a lot to talk about. That makes it more calming”, and another student stated: “it felt like talking to a friend in a comfortable surrounding”.

Six out of the 17 students felt that the use of an avatar was positive, clearly contributing to lower anxiety levels to communicate in a foreign language: “I liked that we didn’t actually see each other, it put me at ease, and I was less nervous than I usually am when trying to speak Spanish”. However, seven students felt very negative about being an avatar and not having access to visual cues which helps personalise a communication event.

Regarding the interaction with objects in AltspaceVR in terms of aiding language learning, participants’ perceptions varied. For example, one student remarked that “some objects help explain something when we’re having trouble with finding the right word”, while another stated that “you could see many things and do some cool stuff. But it isn’t really needed to learn the language, it is more of a distraction for me”.

The possibility to interact with the environment was considered an added value by 13 students in their reflection journals. Students could customise their houses, play basketball, throw snowballs, etc. Although customising the environment was more challenging for some students than for others, it was generally felt to be a positive feature. The personal touches they could add were claimed to make the interaction more relaxed and enjoyable.

“The surrounding and self-made construction sparked some fun conversations. Building something did take some time to learn”.

“The way we had to interact with our surroundings was a major plus”.

Attending a live group event (Task 4 – quiz) in AltspaceVR was also perceived as a positive experience. Participants seemed to feel part of the group and collaboratively engaged in action.

“The added value of the group session is to see how everyone has grown and the fun of the game element. It was fun to do and there was no pressure. It also has added value because it is a playful way to finish the research and it is nice to get something from the other participants and the possibilities of VR to do something with a group”.

For students who were uncomfortable with public speaking, the avatars provided them with support to lower their anxiety.

“This helped me a lot with my fear of speaking in front of large groups: I didn’t have to look at anyone directly and yet I was speaking in front of a whole group of people. Because they were avatars, I was a lot less intimidated”.

Finally, we noticed that some students (n:7) were very sensitive to the high VR information density and experienced cybersickness.

4. Conclusions

The preliminary results indicate that students liked to use a social VR app to communicate in the target language with peers as they felt completely immersed and co-present in the social interactive VR space. Presence, immersion, and the possibility to interact in and with the environment seem to have contributed to enhanced engagement and lower anxiety levels. Going to different places in AltspaceVR, both public (e.g. the campfire) and the students’ own personalised virtual houses, has several advantages. It offers the possibility of changing the location, which could help avoid awkward silence or trigger a change of topic. Moving around virtual spaces can give learners at beginner level a break and ease the pressure when they struggle with the cognitive demands of speaking Spanish. Being able to walk around each other’s room makes the experience more casual,

engaging, and more real for some students. However, handling the environment and a conversation simultaneously in the target language could lead to cognitive overload (Kaplan-Rakowski & Gruber, 2021).

5. Supplementary material

<https://research-publishing.box.com/s/lgsjcg6x2fz1zf80pk7mswewleqxi06>

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