Learning episodes in an intercultural virtual exchange: the case of social high-immersion virtual reality

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Abstract. Computer-mediated communication tools facilitate international collaboration projects between foreign language learners and peers abroad (O'Dowd, 2018). Social Virtual Reality (VR) applications allow for synchronous interactions and task-based communication in which learners can experience telepresence and immersion and conversate in a foreign language. Based on previous pilot experiences (Jauregi-Ondarra, Gruber, & Canto, 2020, 2021), this Virtual Exchange (VE) project aims to investigate how the specific affordances of Social High-immersion VR (SHiVR) in conjunction with designed tasks influence interaction patterns, and learning episodes. The VE took place between two groups of university students in the Netherlands (N=15) and Cyprus (N=14) through SHiVR in March 2022. The main aims of the tasks were to raise student intercultural awareness, stimulate task-based communication processes using English as a lingua franca and digital pedagogical competences of language education students. Different sources of data were gathered and analysed. In this paper, we describe and present the pedagogical experience and the initial results.

Keywords: social high-immersion virtual reality, virtual exchange, language related episodes, culture related episodes.

1.   Introduction

In this study we present the pedagogical experience of university Dutch and Cypriot students from a VE project conducted in the immersive environment, AltspaceVR, a social application that offers collaboration and communication

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opportunities to participants who are embodied as customised avatars. In contrast to other media, VR affordances enable users to have a multisensory experience and simulate situated learning opportunities (Christoforou, Xerou, & Papadima-Sophocleous, 2019) that could transform VE projects. Through the use of VR-mediated tasks, we tried to explore how the whole experience influences interactions and learning episodes using English as a lingua franca.

2.   Method

The project was embedded in the students' courses, Language Education and ICT (Dutch students), and English for Chemical Engineering (Cypriot students). Prior to the collaboration, the Dutch students watched video tutorials and participated in preparatory immersive sessions on how to operate the Oculus headsets in VR, while the Cypriot ones familiarised themselves with the Oculus Quest 2 headsets in a Cyprus University of Technology (CUT) lab. They performed three tasks in dyads (getting to know each other, student life, and a task designed by the Dutch students). They carried out their sessions at times of their own convenience in AltspaceVR.

Several sources of data have been gathered in order to investigate which learning opportunities emerge during the sessions: pre- and post-surveys (including a five point Likert scale and open questions); reflection diaries, which the students filled in after each task to describe their intercultural experience with the VR app, as well as the communication and collaboration with the partner; and interaction recordings and focus group interviews with the instructor conducted at the end of the project.

3.   Results and discussion

Because of space constraints, in this section we present first the results of students' general immersive experience based on the final surveys. We then move to analyse the interaction affordances of the VR app and show examples of the interaction patterns of one dyad (NL1-Cy1)[4] performing Task 2 (student life).

4. NL: Dutch student; Cy: Cypriot student

3.1. Students' general experience

Eleven Dutch and ten Cypriot students filled out the final questionnaire. Students found it easy to start and use the VR tool and sound, crucial in communication processes, was good (Table 1). Although in general, participants were positive about the whole VR exchange experience, we notice a clear discrepancy between the Dutch and Cypriot students, the latter ones being much more enthusiastic than the Dutch. Interestingly, all students valued the international dimension highly.

Table 1. Main VR exchange results based on the final survey

Item	NL		Cy	
	M	SD	M	SD
It was easy to START the tool.	3.5	0.9	4.3	0.8
It was easy to USE the tool.	3.9	0.9	4.4	0.7
SOUND was good.	4.2	1.0	3.6	0.8
I found the VR environment difficult to use.	1.8	0.9	1.9	0.7
I like to communicate in this VR environment.	3.3	0.9	4.6	5.5
I like to meet students from other countries in this VR environment.	3.9	1.1	4.5	0.5
I enjoyed the VR sessions.	3.7	0.8	4.5	0.5
This VR environment is nice.	3.6	0.7	4.7	0.5
I think VR is an effective system for practising a foreign language.	3.4	1.1	4.4	0.5
I liked the tasks I carried out with my partner.	3.9	0.8	4.6	0.7
The international dimension (the interaction with students from another country) made the VR sessions more interesting.	4.5	0.8	4.5	0.5
The VR sessions helped me discover new things about other people's views, another culture.	4.0	1.0	4.4	0.7

Note. N(NL)=11; N(Cy)=10. Responses in five point Likert scale (1. Strongly disagree – 5. Strongly agree). M: mean values. SD: Standard Deviation.

3.2. Learning affordances of VR

During the AltspaceVR interactions (Figure 1), the most prevalent affordance was the virtual communication ability, depicted through the participants' chosen avatars and their abilities to gesture during their conversation and point to various directions or other virtual elements in the virtual environment. A second affordance was the full immersion of the participants during their interaction in their virtual world as both saw their avatars as an extension of their bodies from the real into the virtual world. All these affordances were displayed during

the participants' verbal interaction and collaboration to teach each other how to interact with VR elements and objects found in the AltspaceVR world, in this case how to shoot a basketball and how to light and shoot fireworks.

Figure 1.   Students interacting in AltspaceVR

3.3.   Interaction and learning episodes

Interaction data was analysed to find out how students engaged in social interaction in the VR space and which learning opportunities emerged in the sessions. For this task students had to preview a 360º video over the university and/or the city of the speech partner.

- Culture related learning episodes

The interaction is seeded with varied and rich culture related episodes (Zakir, Funo, & Telles, 2016). NL1 initiated the video discussion asking Cy1 about his global impression about Utrecht. Cy1 referred to Utrecht as an 'amazing city', with 'the river' and where 'everybody is cycling'. They then moved to compare both cities and universities in terms of differences and similarities: they referred to the density, the size, and colours of the city and the buildings, the city planning, and the drivers' behaviours. NL1 related the general impression to his personal experience when visiting the southern European countries. Later in the interaction Cy1 expressed his wish to visit Utrecht and the Netherlands and NL1, Cyprus. Both suggested activities they could undertake during their visit. They

then moved to discuss the studies and students' lives. In the following excerpt, we can see how they exchange information about living alone, living with the family at home, or in a student house during their study. It is interesting to see how they personalise the experience, trying to create bridges, and reach common ground.

Excerpt 1: Culture-related episodes

NL1: Maybe, would you ever like to go in a real student house with a lot of other students or would it be too busy?
Cy1: ahhh (.) I don´t know, I don´t think I would like to go to a student house, like I am I am pretty introvert as a person, so I like to have my quiet
NL1: yep, I really get it too (.). I I live still at home with my parents and I think it is just fine for me. I don´t want to go to a student house. A friend of mine asked me to join his house, but there are 16 students in one house, so I don´t think it would be very good for me=
CY1:=oohh, yeaa. That sounds horrible honestly. I wouldn´t like to go=
NL1: =no, me neither.

- Language related episodes

The students' utterances in English in the language episodes were mostly lexis and mechanics-oriented. In Task 2, the students talk about languages.

Excerpt 2: Language-related episodes

NL1: …but with English I'm more comfortable so I'm glad we're doing this in English.
Cy1: Yeah, it's definitely a lot better doing that in English.
NL1: We can also try it in Greek, I know a few words in Greek…
Cy1: (chuckles)
NL1: Not too many to have a real conversation, but I can say *kalimera* (*καλημέρα* =*good morning* in Greek), that's something, right?
Cy1: Yeah, it is something.

It is interesting to see how the Dutch student's metatalk included a Greek word which serves as an instance of bridging language and culture. Within the context of organising a party and the snacks they usually eat, Cy1 says:

Excerpt 3: Language-related episodes

Cy1 : Another is *lountza* ham.
NL1 : Ok, what is that?
Cy1 : Lou-ntza. It's hard to pronounce.
NL1 : Lou-ntza?
Cy1 : Yeah, you got that right!

This is a mechanics-oriented short exchange, depicted through the students' wish to pronounce the local word right, followed by a rewarding reassurance from Cy1 at the end.

4.   Conclusions

In general, students enjoyed the intercultural learning experience, although Cypriot students were more positive about the immersive experience than their Dutch peers. The analysed interaction shows that a task seeded with cultural elements enhances rich intercultural negotiations in the immersive environment. Interestingly, instead of providing just global information on cultural issues and falling into stereotypes, students, embodied as avatars, succeed in personalising their cultural experience, voice their cultural identity, learn from one another, and reach common ground. These are preliminary results that will need to be substantiated with additional data analysis.

5.   Acknowledgements

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