

1 Multilingual immersive communication technology: repurposing virtual reality for Italian teaching

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Abstract

This paper will report on a pilot Virtual Reality (VR) project which repurposes an existing scenario-based VR asset for health sciences. The original scenario aims to prepare health care students for home visits by allowing them to experience a semi-linear conversation with a virtual Non-Player Character (NPC). This provides a safe, non-threatening environment for students to hone the necessary skills they will need once they begin their professional careers. The NPC's simulated emotional state and reactions are changed based on the student's choice of responses. The original scenario was written in English but the opportunity to convert it into an Italian language learning resource by changing the audio files was identified and implemented. The scenario involves learners to be recurrently selecting from a number of possible responses in order to help the virtual character with his grievances regarding his father's care package.

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1. Introduction

Although the notion of goggle-based VR can be traced back to the 1930s, it only began to be widely used in the form of Second Life from 2003 onwards. This platform boasted over 20 million members in 2010, but it is only fairly recently that VR has reached the mainstream, since the launch of several platforms in the sphere of gaming. The potential to incorporate VR technologies into language teaching was reported on widely by [Godwin-Jones \(2004\)](#), but still remains on the periphery in terms of methodologies due to their lack of sophistication and functionality compared to other commercial gaming products. However, the availability of cheaper stand-alone headsets has seen the emergence of numerous products designed specifically for language learning, including AltspaceVR, Mondly, ImmerseMe, VirtualSpeech, and Argotian (launched in 2019). In these safe spaces learners can practise their speaking skills and intercultural competencies. In spite of this, building suitable VR platforms remains expensive, especially in the higher education context where extensive funding for projects of this nature is difficult to secure in a subject area which is struggling to recruit students. Hence the idea to repurpose an already-existing health visitor VR asset, produced by colleagues in the Faculty of Health and Life Sciences, for language learning.

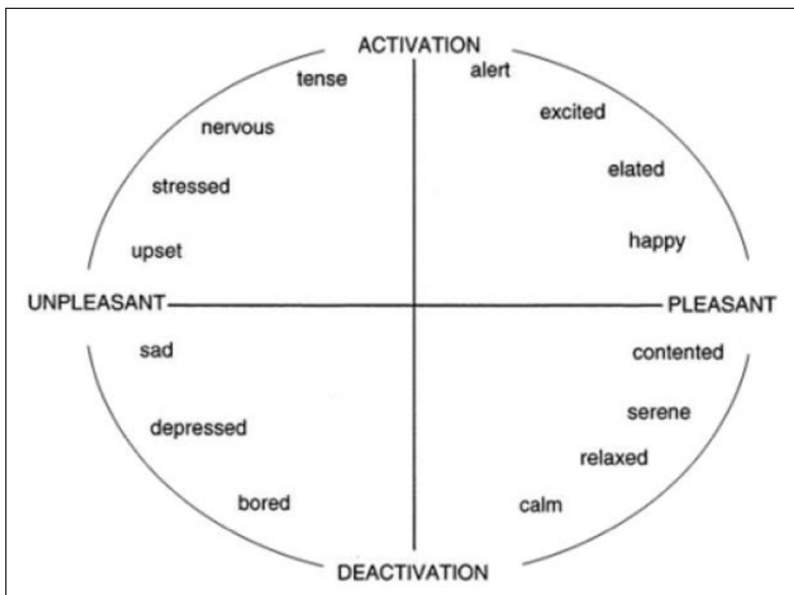
2. Method

2.1. The original asset

The original asset was built for health care students, using the Unity VR games development platform to practise home visits in a non-threatening environment. The asset enabled 30 undergrad health care students to interact for 15 minutes

each with an NPC whose emotional state changed based on the students' responses. The state is updated and stored throughout the conversational process meaning that, at times, it could be more difficult to maintain a positive or neutral relationship with the NPC, giving the character a type of emotional memory. After the conversation has ended, the student is able to reflect on their choices through a replay system. During the replay, the student views their avatar through the eyes of the NPC whilst a coordinate system, which plots out the emotional state of the NPC, is shown alongside the avatar. This way the student can review and reflect on the choices they have made, and how it has had an emotional impact on the NPC. The choices are a combination of informative (activation) or uninformative (deactivation), and pleasant or unpleasant (see Figure 1). These choices, when made, apply a value to the emotional state of the NPC which is reflected on the following coordinate system.

Figure 1. NPC emotional variance (Posner, Russell, & Peterson, 2005, n.p.)⁸



8. © 2005 Posner et al.; author manuscript before publication in final edited form

“Embodied learning is probably most effective when it is active, and the learner is not passively viewing the content, or watching others interact with manipulables” (Johnson-Glenberg, 2018, n.p.). By immersing the students in a virtual environment, some felt that it helped them to focus on the task.

2.2. Repurposing the asset

Repurposing existing assets has been widespread in the humanities for some time, encouraged by the establishment of numerous repositories including the Humbox (Brick & Corradini, 2012) and LORO, the Open University’s now-discontinued repository, in which academics deposited learning materials in written, audio, or visual formats to share with colleagues working in other institutions nationally and internationally. These materials could either be used in their entirety or repurposed providing the original author was acknowledged.

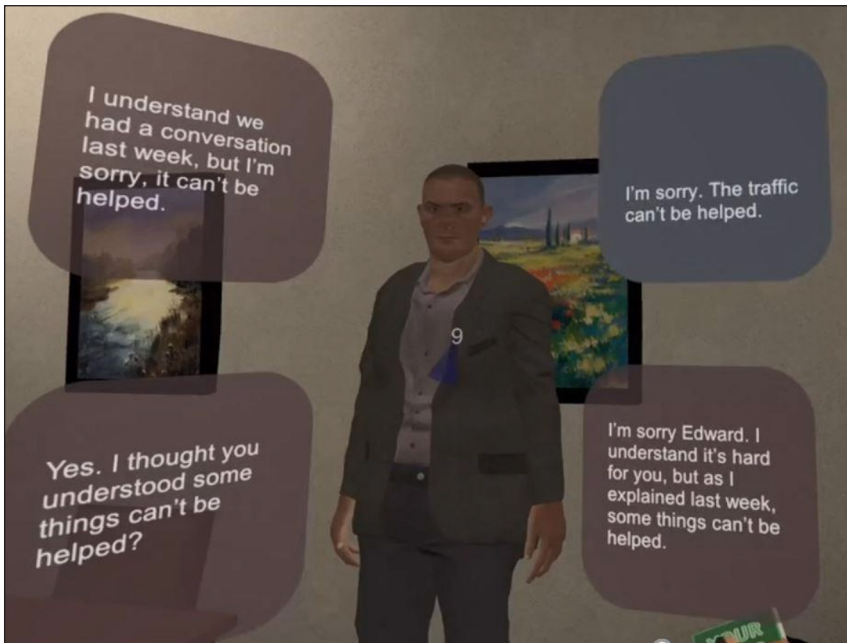
In the context of this project, this spirit of co-operation was expanded to work across subject areas and faculties. The aim of the project was to change the conversation between the NPC and the health care visitor from English to Italian and to do this, it was necessary to translate and replace the existing sound files from the original asset with Italian audio files. Three Italian (L1) speakers then voiced the dialogue which was professionally recorded before being uploaded in place of the English audio files to the VR asset. A further adjustment, using the dedicated software package Lipsync Pro, was needed in order to synchronise the characters with their new Italian responses.

3. Results and discussion

The project is at a proof of concept stage only. However, the asset has the potential to allow learners to observe how the virtual character responds to their interactions, teaching them skills such as how to reason with an irate client, how to deal with complaints, and how to think and react in a foreign language in stressful situations. The finished asset could be employed in an Italian for specific purposes context or to help prepare students undertaking a year abroad.

Skills such as these are not explicitly taught on undergraduate programmes, therefore using VR technologies might offer affordances in this context. One of its innovative features is that student responses are sequentially plotted on a multi-polar coordinate system that records the virtual character's emotional state based on the participant's choices. The student can then reflect on their choices using a replay system that is viewed through the eyes of the virtual character (see [Figure 2](#)).

Figure 2. Virtual character



The exercise can also be repeated as often as the student wants, which helps build confidence. Students could be encouraged to write down any new vocabulary they encounter during the session, providing contextualised learning opportunities in the field of learning languages for specific purposes. This would also teach students important employability skills and the asset could potentially be translated into any language, making it scalable in its application.

4. Conclusions

Collaborating across disciplines within the university keeps the cost of VR development down and helps to forge communities of practice across faculties. The project proves that it is possible to repurpose VR assets into language learning resources by replacing the audio and written texts with other languages. Further collaborations are planned for testing the asset with colleagues from Southampton University. More work would be involved to change the body language and gestures associated with a particular culture as this would involve rerecording the motion capture.

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