

CULTURE AND LANGUAGE IN VIRTUAL REALITY EDUCATION

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ABSTRACT

The introduction of cutting-edge VR headsets expands the field's potential uses. This article discusses where virtual reality (VR) and its educational uses stand right now. Globalization has made it more likely than ever that we will come into contact with people from other cultures. We can't survive in today's multiethnic society without learning to properly approach and communicate with others who follow different social standards from our own. Because of this work, we now have a resource to help us modify our habits. A virtual reality setting can be used to practice social interactions, with a particular emphasis on the space we create between one another.

Keywords: Language, culture, linguistic feature, English instruction, English study, virtual reality, and serious games

Introduction

The extent and relevance of international connections and mutual dependencies today are rising. Our government's policy of openness has resulted in unprecedented levels of international contact and collaboration. Back when I was in school, reading was a bigger part of our English curriculum. This new emphasis is necessary due to the critical state of international communication and cooperation. Many people, from youngsters growing up in bilingual households to adult immigrants looking for work to tourists planning a trip overseas, share the desire to improve their linguistic skills. A lot of people, however, struggle with interest and with learning vocabulary and grammar in context. Despite the fact that numerous individuals use websites like Rosetta Stone and Duolingo to study other languages.

Many of the dynamic features of real-world experiences that can make acquiring a new language interesting and engaging are lost in translation when using these technologies. On the other hand, there is no better way to learn a new language, immerse yourself in a new culture, and put what you've learned into practice than by spending time overseas. The benefits of studying abroad for language learning have been the subject of numerous academic investigations. However, not everyone has the means to study abroad due to factors such as cost, lack of opportunity, or lack of time. Aspiring language learners would benefit greatly from tools that provide a realistic simulation of being immersed in a foreign society, allowing them to pick up linguistic and cultural cues just by observing others [1-3].

Since the release of affordable, high-quality VR headsets, there has been a flurry of activity in the field, especially in the classroom. Virtual reality has also been applied to the field of virtual tourism, which places users in different environments without really transporting them there. In this paper, we share our insights gained while developing a VR app for language instruction. We investigated the feasibility of incorporating culturally relevant embodied physical interaction into virtual reality game design. Our findings offer preliminary evidence that adapting to VR and incorporating VR-specific game dynamics improved player engagement with cultural learning and language instruction. However, players ran into issues, such as getting motion sickness from the VR headgear. The results were likewise inconclusive about the effect on learning. However, the results of this exploratory analysis show that we were successful in exploiting certain VR advantages; this knowledge will guide our continued work on the game. The incorporation of real-world cultural artifacts also has consequences for the development of language-learning software and immersive computer games.



Figure 1: 5 Best Virtual Reality in Education

Solutions

Interactive VR Game

Virtual reality (VR) games can be created in which the player interacts with a specific setting by speaking and acting in accordance with the game's objectives. One possible objective in a game set in Japan is to bow respectfully to a character and say "Konichiwa" (which means "Hello" in Japanese).

Voice and text-based spelling and grammar checkers:

The user's voice can be fed into an Android app, which will then perform error checking and send the textual results to the user.

Learning through listening:

A mobile or web-based application or platform that provides its users with audio courses.

A language game with interactive gadgets:

Smart objects can be used to construct a wide variety of games. Using augmented reality, the objects may be detected by the phone's camera, allowing developers to create a wide variety of activities like quizzes, board games, etc.

Quiz:

The user can learn the language through a sequence of questions and answers in a quiz game.

VIRTUAL REALITY

Before virtual reality reached its current form, it went through a number of iterations. First, it's important to remember that virtual reality (VR) hasn't always involved wearable headsets and motion capture technology. Virtual Worlds (VW) are a type of virtual reality (VR) now utilized for teaching and studying foreign languages. Visual environments that "have evolved further from 3D web-based technologies to form MUVES like Second Life" are what we mean when we talk about a "Virtual World." That which "capitalizes upon natural aspects of human perception by extending visual information in three spatial dimensions" is what we call a Virtual Environment (VE). Many people have a skewed idea of what virtual reality is because of the stereotypical image of a person wearing goggles and pawing at the air while experiencing a virtual environment or world (VE/VW). The term "visual learning environment" (VLE) is widely used to refer to educational MMORPGs.



Figure 2: Virtual Reality

History of VLEs In Education

Virtual learning environments (VLEs) have been around since "as early as the 1960s," but it wasn't until the 1980s and 1990s that technological advancements made it possible to create what we now know as Internet-based learning platforms. Typical examples of the kinds of jobs that were being taught were military and medical procedures, both of which carried with them an element of prohibitive hazard and cost. Computer games including 3D VLEs have become standard in many fields of education as gaming technology and education have progressed simultaneously. Research into what kinds of knowledge bases benefit from VLEs is improving our understanding of what constitutes good practice as virtual reality technology becomes more widely available and affordable.

Game-Based Pedagogy

Though controversial, the use of video games as a teaching tool has been shown to be effective in a number of contexts, including language learning. It should come as no surprise that pupils have a better time learning when video games are used. This has been linked to an uptick in student motivation, which had been highlighted as a major issue with disengaged students in the classroom. It has been determined that participation in gamified virtual worlds is an important benefit of educational computer games, along with motivation.



Figure 3: Game-Based Pedagogy in Teacher Education

Language Learning Tools

Several software packages exist on computers specifically for language study. MicroMandarin makes use of the user's current geographic location to make word suggestions. Tip Users of Tap Tones learn to distinguish between different tones in Chinese. Desktop wallpaper was employed as a vocabulary-learning tool by Dearman et al. We take these concepts and make them more immersive by designing a 3D VR game around them. Rosetta Stone is a very effective method of learning a new language through visual cues. Typical tasks present the user with a series of five or more images depicting a certain circumstance, like a male eating or a girl running, and ask them to select the one that best represents a sentence spoken in the target language. Rosetta Stone has many benefits over more conventional language-learning methods, including instantaneous feedback, visual context, and the ability to infer meaning. Our work expands on these concepts by providing a rich virtual reality setting for experimentation and the achievement of tasks and goals. This setting is presented in the form of an interactive 3D environment.



Figure 4: Language Learning Tools

Another effective tool for learning a new language through translation is DuoLingo. DuoLingo's learning path is highly structured, and the app's awards and point systems are designed to keep students engaged. Many students stopped using DuoLingo after only 2 hours, despite the fact that it was proved that 34 hours of DuoLingo is equivalent to a first-semester college course in Spanish. To motivate users, our work also incorporates gaming aspects, but unlike straight translation, it teaches linguistic concepts in a placed physical context. Currently available are video games designed specifically for language instruction. You can find a nice summary in. Words in Sanjigenjiten are taught in a 3D environment. This game uses visual cues to explain word definitions, however it does not offer a substantial learning path. The player of Zengo Sayu, a virtual environment for learning Japanese, can roam about and listen to word hints as they go. But in reality, it's not a game at all.

Inspired by the theories of situated cognition and encoding specificity, our software is a 3D language learning game that teaches linguistic content in its physical context. The game's quest system encourages players to pick up new vocabulary and practice applying it in context by giving them tasks like translating a passage or writing a short essay. Significant gains in knowledge were shown in both investigations [4-6].

VR And Language Educational Theories

Practice should never be considered in isolation from theory. An all-encompassing look at virtual worlds in the classroom has uncovered a number of useful educational applications, among which the following three stand out:

Courses that center on solving problems or conducting research

- educational videogames;
- Playing a part;
- simulated quests;
- learning through doing (collaborative simulations);
- working together on a building project;
- Instruction in the various forms of design
- linguistic education and instruction;
- laboratory simulations;

- simulated field research;
- Hearing teachings or seminars.

While the list does cover the topic of language instruction, it stands alone from the other items, which are primarily different approaches to education. However, many of these practices and approaches to learning a language are cornerstones of the field.

Potential Advantages of VR In Language Learning

Practice & Confidence

The relatively little amount of practice needed to achieve this result is one of the characteristics of scaffold language acquisition. It would be easy for a learner to take what they learn in a virtual world and use it in real life. When Thai high school students played a virtual world game that required them to practice English through text and speech, one study indicated that they became more confident and willing to talk. This suggests that games modeled on virtual worlds could be used to hone a wide range of abilities (including but not limited to writing, speaking, listening, reading, etc.). Students' confidence in using their target language in everyday situations will increase as they gain experience with speaking and writing in the language. Virtual reality (VR) has the potential to "lead to improved transfer of knowledge and skills to real situations through contextualization of learning" as a result of more practice and, consequently, confidence.

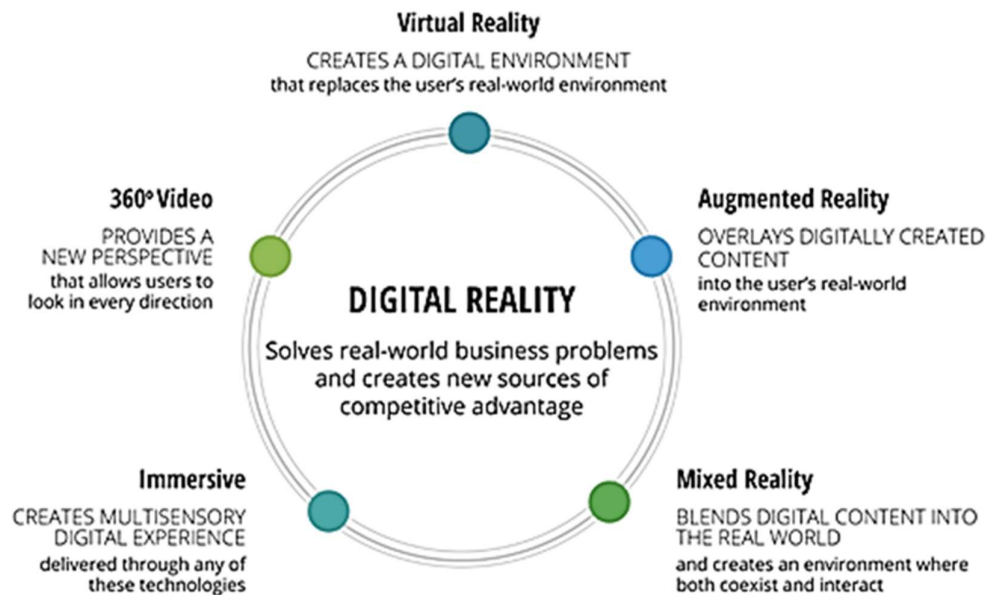


Figure 5: Benefits of Virtual Reality in Education Industry

Immersion

Students learn English in countries like Canada because of the widespread belief that immersion is essential to proficiency. Thus, Taiwan has taken an innovative strategy by establishing so-called English Villages due to the availability of cost and affordability of time. Locations with English-language signage and staff are available throughout Taiwan. The

primary goal in establishing these was to provide a forum in which students could interact in English. There are logistical access concerns, thus not every hamlet can be an English village even though these have various degrees of success. Virtual learning environments (VLEs) are being developed to help with this problem by simulating real-world settings in which the English language is used. This has been demonstrated to improve students' performance across the board, especially in areas like syntactic and conversational competence. However, there is still controversy as to whether a virtual English world or a Taiwanese English as a Foreign Language (EFL) classroom is more representative of a real-life language classroom in an English-speaking country.

Teaching Your Audience

Incorporating technologies that kids are already familiar with, such as mobile devices and video games, seems like a logical fit for teachers because of the environment in which many students have grown up. Nonetheless, it is undoubtedly a misconception to generalize Millennials into a globally shared experience. However, many language learners have already used virtual learning environments (VLEs). Students of today are accustomed to playing video games, and they are increasingly using mobile devices to play and learn with virtual reality environments (VLEs). The Millennial generation's use of the MUVE game *Second Life*, for instance, as well as its application to language students, have both been the subject of research. Even if fully integrated curriculum is still a way off, it is a mutually beneficial goal to combine mobile technologies, VLEs, and language learning theories of immersion, practice, and confidence building.

Formative User Study

We did a preliminary user study to get feedback on the VR adaptation of our app's design. The research looked into the following issues: Can players be taught cultural behaviors with the help of VR, and does the VR version of the game aid in language learning and interest in the culture of the language being learned more so than the non-VR version? We used a sample size of six people to test our hypotheses. Self-reported linguistic and cultural unfamiliarity as well as a lack of prior experience creating VR applications were the only inclusion criteria. We made two versions of the demo to compare the game's performance before and after the VR feature and the bowing function were implemented. The original was enjoyed on a conventional computer screen, devoid of VR. The second was experienced by means of an Oculus Rift headset. Except for bowing, the virtual reality and non-VR versions were identical. We integrated the Oculus Rift into a 3D language-learning game we created. In particular, we investigated the feasibility of basing VR game mechanics on embodied physical interaction that is meaningful across cultures. To gauge the effectiveness of the ported game's layout, we conducted a user survey. Statistical analysis showed that when VR was included, people felt more a part of the experience. Still, there is little in the way of hard data to suggest that language-learning outcomes have improved. Future plans include investigating speech recognition as a primary input technique to further enhance immersion. We anticipate that less reliance on the UI due to speech input will lead to less player confusion when dealing with the UI in VR. To collect longitudinal data and look into whether or not players would return to the game, we also plan to distribute both the virtual reality and non-VR versions of the game online. The development of better 3D reconstruction methods has opened up new possibilities for using authentic settings in language-learning contexts. We intend to determine if this will boost

interest, and we will also work to "gamify" these areas by introducing NPCs and other forms of player-less interactivity.

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