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The Effects of Immersive Virtual Environments on Motivation, Oral Communication, and Instructional Strategy in EFL Classrooms

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The Effects of Immersive Virtual Environments on Motivation, Oral Communication, and Instructional Strategy in EFL Classrooms

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ABSTRACT

The creation of web-based real-time computer simulations has given language educators incredible new opportunities to create immersive experiences for English as a Foreign Language (EFL) learners. This thesis reviewed 12 empirical studies, 3 previous literature reviews, 3 non-empirical journal articles, and 23 additional background sources investigating the impact of Immersive Virtual Environments (IVE) on EFL learners' motivation and oral communication in EFL learning. 12 empirical studies were analyzed closely while other sources were used to provide additional information and theoretical insights. The findings indicate that IVEs offer novel ways to connect EFL learners to native-speaking communities where they can acquire new language through exposure to native speakers, increase motivation to participate and reduce anxieties of failure or judgement. IVEs offer persistent environments which are free of time and space constraints typical of traditional classrooms, allowing learners to interact with peers and native speakers in school and at home. The role of the instructor is crucial in designing these environments and preparing the students to engage in them, though increased instructional load on the instructor merits further investigation. Further research is needed into the development of these technologies that are both cheap and equitable so that all EFL learners may benefit from them.

Keywords: Immersive Virtual Environments, English as a Foreign Language, Digital Spaces

TABLE OF CONTENTS

INTRODUCTION

Since the beginning of the COVID-19 pandemic in 2020, the internet has experienced a growth rate of 1,355% in terms of active users, now connecting 66.2% of the world's population in 2022 (Internetworldstats), meaning more people are connecting to the internet and web-based tools than ever before. This has serious implications for the future of English as a Foreign Language (EFL) education, where learners often lack access to communities where the target language is spoken (Lee et al., 2014). While digital platforms have been used in education for some time, computer technology has become much more advanced to allow for connective real-time environments that are increasingly indistinguishable from reality (Ijsselsteijin et al., 2005; Regenbrecht et al., 2011). Virtual spaces have profound potential in EFL classrooms to form connections between and provide access to native or expert English-speaking communities. Some virtual spaces feel like merely an extension of the classroom, such as learning management platforms like Blackboard or conferencing programs like Zoom, while multimedia platforms like Second Life can be specifically tailored to create highly immersive and authentic experiences for EFL learners. These Immersive Virtual Environments (IVE) are the focus of this literature review. The purpose of this research is to examine the impacts IVEs have on motivation and oral communication in EFL learners, as well as the instructional strategies teachers use to design and maintain such environments.

IVEs are "persistent virtual environments in which people experience others as being there with them and where they interact with them" (Schroeder, 2008, p.2). They're network-driven simulations that feature real-time communication, anonymity, and maintain a permanent record of user interaction (Peterson, 2012). IVEs are characterized by their realistic immersion, multichannel input (text and voice chat), and personalized avatars; currently the most popular

programs are *Active Worlds* and *Second Life*, which simulate persistent spaces to facilitate communication between EFL learners and native speakers both in the classroom and at home (Peterson, 2012). IVEs provide a means of communication and relationship building between speakers and learners in ways that traditional language classrooms cannot (Sykes et al., 2008). IVEs can take the shape of online games, web-based applications, virtual reality programs, even instant message chatrooms, or a combination of these things. Students can learn freely from time and space constraints that constrict traditional classrooms and they can use anonymous avatars to help lower their anxiety and practice oral communication without judgement (Cong-Lem 2018; Shih & Yang, 2008). More importantly, learners are acquiring and using the language, not simply studying it. Because the field is still growing and evolving constantly, investigation into the implementation of IVEs in EFL for improved learner motivation and oral communication is merited. This raises two questions:

1. What does the literature show about the factors that promote motivation and oral communication for English as a Foreign Language learners in Immersive Virtual Environments? (RQ1)
2. What instructional strategies can English as a Foreign Language teachers use to support motivation and oral communication in Immersive Virtual Environments? (RQ2)

I decided to make these unique digital spaces the focus of my literature review because I believe in learning through interaction in social settings. I consider myself a social constructivist and feel that no single form of learning is necessarily better or worse, but have different aims and fulfill different purposes. Classrooms should be less transmissive and allow students to interact with and collaborate with one another more. Furthermore, as someone who has grown up incredibly privileged and fortunate to learn through so many unique interactions with others – in

person and online - I believe in creating equitable systems of learning which benefit all groups of students regardless of their identity or status. These are my guiding principles as a researcher.

LITERATURE REVIEW

Past studies are quick to acknowledge the effectiveness of these new technologies as a valid approach to language learning when there is still a great need for research that explores how Immersive Virtual Environments (IVE) should be implemented into instruction (Cornillie et al., 2012a; Hubbard, 2002). This section is an examination of theoretical assumptions and claims by the literature considering how IVEs affect motivation and oral communication in English as a Foreign Language (EFL) learners.

Individual Factors in Motivation

While there is an assumption that certain elements of these worlds such as competition and challenge can improve motivation and enjoyment, too much of either can in fact demotivate learners (Vandercruysse et al., 2013; Prensky, 2001). Angeli (2008) argues that virtual environments need to be designed in ways that allow language learners to "steer their way through their zone of proximal development" instead of simply transmitting knowledge from teacher to student (p.271). Therefore, the environments themselves do not motivate learners on their own but must be specifically designed and set up by the instructor to motivate them. A major factor in English as a Foreign Language (EFL) learners' motivations in Immersive Virtual Environments (IVE) is motivational supports in the form of clear tasks, roles and responsibilities, personal choice, and balancing the level of the learner's skill with appropriate challenges (Dickey, 2005).

Cornillie et al. (2012a) note an existing assumption in language education that learning is by nature boring and that gameplay is an important factor in increased motivation and enjoyment. Cornillie et al. argue that EFL learners must be given opportunities to repeatedly fail

and try again to accomplish a task without judgement. While some EFL learners may perceive language learning as too difficult, Cornillie et al. report that student perceptions play massively into their motivations. The authors reported that learners' motivations operate in the same way when learning or playing a game. This means that learners are self-motivated to complete the learning objectives outlined for them. Learning objectives and outcomes that learners value are based on their own perceptions and motivations (Cornillie et al., 2012b).

Cornillie et al. (2012a) further reported that the mode of instruction - that is whether the students are instructed to play a game or work in a learning environment - significantly impacted motivation. Instructional methods for language learning determine whether the learning is perceived as boring or interesting. It is therefore the job of the instructor to properly design these environments to make students feel less anxious and more motivated. The authors report that students require feedback to feel competent and that teachers must monitor student performance to provide meaningful feedback. This creates a kind of feedback loop where students feel motivated to practice their oral communication without judgement and teachers can monitor their progress in real-time.

Immersion and Oral Communication

Immersion plays heavily into learner's oral communication in Immersive Virtual Environments (IVE). Immersion provides learners with a high degree of presence in the world and with other speakers (Wang et al., 2017). An existing assumption in language education is that IVEs push language learners to use new literacies and practice speaking comfortably (Wang et al., 2017). Multichannel chat (text and voice chat) provides multiple sources of feedback for learners and additional opportunities for them to speak when negotiating meaning. Customizable

avatars further heighten the sensation of "being there together" (Schroeder, 2002) with other speakers, a factor considered crucial for speakers who are not physically present (Peterson, 2012). Learners are emotionally invested in their interactions because of these factors and are therefore more motivated to participate and communicate (Cooke-Plagwitz, 2008). Furthermore, the absence of social cues such as age and social status create a low-stress environment where learners can take risks and speak without fear of judgement (Peterson, 2012). In Peterson's (2012) study, participants used their avatars for non-verbal communication such as waving and students reported a heightened sense of presence in their avatars.

Cornillie et al. (2012a) reported that IVEs with high amounts of corrective feedback from the instructor and allowances for role play with practical applications in safe environments encouraged EFL learners to practice oral communication. When EFL learners had trouble with speaking in IVEs, Lee et al. (2014) reported that hints – a piece of computer-generated feedback - were significant in maintaining motivation and guiding the user towards a correct response. The language socialization model proposes a method of language acquisition by which language learners acquire target language through participation in native speech communities; interaction with native speakers is seen as particularly crucial in understanding specific signs and symbols, cultural norms, identity, and status (Duff, 2002; Ochs, 1993).

Previous Literature Reviews and Studies

Numerous studies have been conducted on the validity of using Immersive Virtual Environments (IVE) in language learning classrooms, though there is still a growing need for research that addresses effective implementation of these emergent technologies. English as a Foreign Language (EFL) learners' prior target language speaking ability and experience with

computer technology is an important factor in taking full advantage of the tools that IVEs offer (Cong-Lem, 2018; Thorne et al., 2009). Among the four domains of language learning - speaking, listening, reading, and writing - speaking is notably the most difficult to acquire, and learners often do not have enough chances to practice their speaking skills with peers or native speakers (Cong-Lem, 2018; Kongmee et al., 2011).

Shih and Yang (2008) report that EFL learners often suffer from low confidence and/or low competence when speaking with other English speakers. Previous studies on the effectiveness of using written text-chat in IVEs, which is closely linked to speaking ability, show that when learners are given more time to think and produce the language, combined with a higher tolerance for incorrect syntax, they perform better communicatively (Cong-Lem, 2018; Knutzen & Kennedy, 2012). While there is limited research on the effectiveness of Virtual Reality (VR) technology in language learning, Shih & Yang argue for its potential in improving communicative competence in EFL learners. Shih & Yang also report that language learners often suffer from low confidence and/or competence when speaking with other English speakers in traditional real-world environments.

Sykes et al. (2008) reported advantages of co-participation between EFL learners and native speakers, noting natural and unscripted interactions formed emotional bonds where speakers traded expert status, correcting each other's utterances, and showed motivation to learn the language. In Peterson's (2012) Active Worlds simulation, "participants consistently produced coherent target language output through collaborative interaction that was focused on the tasks" (p.74). Peterson's experiment saw the students form collaborative social relationships and solid group cohesion; decision-making tasks saw the most collaboration and negotiation. Zheng et al. (2009) argue "to fully take advantage of the affordances of virtual spaces, the goals and

intentions of students embedded within information-rich metaverse environments should be understood."

Theoretical Frameworks

Several research articles outline the importance of language learning as a social experience, linking motivations to communicate with membership in a language speaking community. Vygotsky's sociocultural theory states that social interaction is key to all learning and emphasizes the learner's Zone of Proximal Development (ZPD) – in this case the language capability just beyond the learner's own ability – and the need for more advanced speakers to assist them in reaching for new language (1978). Long's interaction hypothesis similarly aligns with Vygotsky, hypothesizing that language learners acquire new language through interaction with more advanced speakers (1996). Long argues that incomprehensible input becomes comprehensible through checking, confirmation, and clarification with more advanced speakers (1980). Lave & Wenger consider English as a Foreign Language (EFL) learning a form of sociocultural participation, where language is used out of a necessity or desire to interact with one's environment (1991).

Based on these theoretical frameworks and claims made by the literature, the necessity for a deeper examination of EFL learning and the motivations that guide learners to literacy in native-speaking communities is clear. The literature claims that major factors of EFL learner motivation in Immersive Virtual Environments (IVE) include adequate instructional design of the world, motivational supports to guide learners, mode of instruction, and opportunities to take risks without facing judgement. The literature points to feelings of presence with other speakers, the use of customizable avatars, and multiple channels of communication as major factors in oral

communication. Furthermore, the role of the EFL instructor is crucial in motivating learners towards oral communication by designing environments that invite engagement, properly preparing students for the tasks in the environment, and providing real-time feedback throughout the lesson. Therefore, the goal of this literature review is to shed light on the research surrounding EFL learner motivation and oral communication in IVEs as well as highlight the need for more research on this topic.

METHOD

This literature review focused on deployments of Immersive Virtual Environments (IVE) in English as a Foreign Language (EFL) classrooms. I wanted to examine the factors which contribute to learner motivation and communicative competence, in particular oral communication, in these novel environments. The focus of this literature review is on the factors that promote motivation and oral communication in IVEs (Research Question 1) as well as instructional strategies EFL teachers can use to support learners in these spaces (Research Question 2).

I initially used the University of Arkansas libraries and Google Scholar online research databases to find relevant literature, searching terms such as "virtual learning AND motivation," "language learning AND speaking," and "virtual learning AND speaking." I additionally used database search functions to narrow the results by texts that were available online, peer-reviewed and published within the last 20 years, resulting in a pool of approximately 40 studies, articles, and previous literature reviews. The term 'Immersive Virtual Environment' was discovered in the "VILLAGE" study by Wang et al. (2017) and chosen to represent the focus on collaborative online software tools that provide EFL learners with opportunities to speak and feel present with other speakers.

I further narrowed the selected pool of literature from 40 articles, studies, and literature reviews down to 18; three literature reviews, three non-empirical articles, and twelve empirical studies. Literature was selected based on its relevance to the central questions of what motivated learners to speak in IVEs (e.g. some studies focused more broadly on language learning, but not English) and instructional strategies that teachers used to support students in the environment. Empirical studies were the focus of the analysis while other sources provided further information. An additional 23 background sources referenced by the narrowed selection of 18

studies, articles, and literature reviews were added to the pool. I paid special attention to articles that were repeatedly referenced across the literature. The most referenced background works were Michael Long's research on interaction and linguistic environments (Long, 2007, 1996, 1980). The final pool of 12 empirical studies analyzed in this literature review is shown in Table 1.

Table 1

Summary of empirical studies reviewed

Author/Date	Theoretical Framework	Research Goals	Context and Participants	Tasks and Software Applications	Research Methods and Instruments	Findings
Bashori et al. (2020)	Foreign Language Speaking Anxiety (FLSA)	Effect of web-based language learning on student FLSA	335 vocational high school students in Indonesia	Four speaking tasks on two platforms; a website and a web-based application	Mixed methods using pre-study and post-study questionnaire, and interviews	-Students were not more active in speaking -Anxiety originated from misunderstanding teacher instructions, corrections, and questions -Anxiety had a negative impact on student speaking performance -Students felt less anxious speaking to a machine
Cornillie et al. (2012a)	Game-Based Language Learning	Perceptions of implicit and explicit corrective feedback (CF)	83 Adult EFL learners in Belgium	Completing task-based quests in a 3-D Avatar based Role-playing Game.	Mixed-method experimental study using questionnaires, interviews, and game logs	-Students found CF useful -Students preferred explicit CF -Student perceptions of explicit CF were positively affected by perceived competence and game experience

Knutzen & Kennedy (2012)	Collaborative Virtual Environment	Factors that impact changes to motivation and engagement	200 Adult learners; 100 native speaking TESOL students from Texas A&M, 100 Adult EFL learners from Lingnan Univeristy in Hong Kong	Weekly workshops in the real world, Moodle discussion forum, informal conversation between native and non-native speakers in *Second Life*.	Quantitative study using observation, ePortfolios,	-Students expressed a high level of enjoyment in the SL environment. -Students enjoyed audio voice capabilities for practicing their speaking. -Time zone difference limited partner availability -Students felt present in their 'face-to-face' virtual interactions.
Kongmee et al. (2011)	Virtual ethnography	Massively Multiplayer Role-playing Games (MMORPG) as supplementary language learning tools	EFL students at a Thai university	In-game chat with native and non-native speakers, Informal group discussion with peers about issues playing two MMORPGs.	Qualitative study using observations and interviews	-Learners were able to transfer in-game chat to real-world conversation -Learners felt more confident using their language skills in-game. -Learner spoken competence improved.

Lee et al. (2014)	Dialog-Based Language Learning	How computer systems function as conversation partners	25 elementary school EFL students in Korea	Practice conversation with a non-player character that provides hints in the *POMY* virtual world.	Quantitative study using pre-test and post-test	Students produced more speech and full sentences but made more grammatical and morphological errors.
Shih & Yang (2008)	Ethnography of Communication	Encouraging Learners to Communicate	Adult EFL learners in Taiwan	Goal-based scenarios in a custom designed 3D Virtual English Classroom (VEC3D)	Mixed methods study using group meetings, observation, chat logs, and survey	-Students were relaxed when communicating through their avatars. -Goal-based scenarios motivated learners to communicate. -Student motivation improved.

Vandercruysse et al. (2013)	Four-Component Instructional Design	How competition is related to motivation, perceptions, and learning outcomes	83 Adult EFL learners in Belgium	Students were instructed to work in a learning environment or play a game. Both groups used the *Divine Divinity* 3D Role-playing Game to complete 3 different conversations	Between-subjects quantitative study using pre-test and post-test	-Presence of competition had no effect on enjoyment or motivation, but yielded higher scores -Intrinsic goal orientation decreased -Students instructed to play a game reported higher motivation -Majority of students perceived the environment as a learning environment
Wang et al. (2012)	Evaluation research approach	Effective and practical ways to integrate *Second Life* (SL) into an EFL program.	20 Adult native-speaking students at an American university, 20 Adult EFL students at a university in China	Four learning activities in *Second Life* (workshop, virtual tour, small group discussion, interview, presentation) and blogging reflections online.	Quasi-experimental mixed methods study using pre-study test and post-study survey, blog posts, and interview transcripts	-SL_EFL had a positive impact on student EFL learning. -Test scores were significantly higher for the group using SL -Participant perceptions of SL as a learning environment were positive

Wang et al. (2017)	Zone of Proximal Development	Perceptions of Immersion	80 Adult EFL learners in China	Practice conversation with chatbot and time machine in *OpenSimulator*, Two questionnaires	Single-factor quantitative study using questionnaires	Chatbot and time machine increased language learners' feelings of presence
Yang et al. (2020)	Affordance-Based Research Design	Incorporating high-immersion VR technology in EFL contexts	72 junior high school EFL students in Taiwan	Students completed 4 separate tasks in a custom-made Virtual Reality Learning Environment (VRLE)	Mixed methods using pre-test and post-test, questionnaire, and interview	-Students scored higher on the post-test -VRLE was successful in fostering communicative ability -Students felt present in the VRLE -Student engagement improved in VRLE -Students preferred text captions when listening.

Zhang H. (2013)	Computer Assisted Language Learning	Barriers to learning in *Second Life*	10 Adult EFL learners in North China	Speaking with peers, speaking with non-native English speakers, speaking with native English speakers in *Second Life*.	Exploratory qualitative study using observations and interviews	-Unpredictable online interactions can lead to harassment -Time zone differences make partner availability difficult - SL lacks non-verbal cues -Lack of equal opportunities to practice speaking - Increased workload for instructor
Zheng et al. (2009)	Negotiation for Action	How Avatar-embodied collaboration between native and non-native speakers supports English language acquisition	2 adolescent EFL learners in China, 2 adolescent native speakers in U.S.	Non-native and native speakers coscychronously completed content-related quests in the *Quest Atlantis* metaverse.	Multiple case study using chat logs, field notes, interview transcripts, and email.	-Chat channels supported language acquisition -Instructor role was negotiated between learners -Meaning emerged when language was used to coordinate in-the-moment actions

FINDINGS

After a rigorous search for relevant literature and narrowing selection process, the final pool of studies is further analyzed to understand the current trends of the field. All studies focus on English as a Foreign Language (EFL) learning, feelings of immersion or presence, motivations to participate or communicate, and instructional strategies that support EFL learners in Immersive Virtual Environments (IVE). Additional findings are the effects of anxiety on learners in these novel spaces. This chapter is organized according to the research questions.

Research Question One: What Does the Literature Show About the Factors that Promote Motivation and Oral Communication for English as a Foreign Language Learners in Immersive Virtual Environments?

Several different factors were found across the literature that promoted increased motivation and oral communication among English as a Foreign Language (EFL) learners in Immersive Virtual Environments (IVE). The major factors discussed are: 1) extra time to practice outside of the classroom, 2) organic interactions with native speakers, 3) practicing in a safe non-judgmental environment, 4) immersion or a feeling of presence in the world, 5) hints that guide users towards correct responses, 6) written text chat that allows users more time to think, and 7) the ability to roleplay with different identities.

Extra Time

One great affordance of many Immersive Virtual Environments (IVE) is that they provide 24/7 access, allowing learners the ability to connect and practice outside of the classroom. In Zhang's (2013) Second Life experiment, they found that students were highly motivated by the

promise of being given extra time outside of class to practice with their peers and other native English speakers. However, Zhang found that several participants were already highly self-motivated individuals to begin with and wanted to improve their English-speaking ability. Bashori et al. (2020) found that giving students extra time in the environment outside of class allowed for more opportunities to practice speaking, considering opportunities to speak in class were limited. However, Bashori et al. also noted that without instructor encouragement learners might not feel motivated to take advantage of the opportunity. Thus, motivations to work in IVEs independently outside of class are largely dependent on the individuals' personal goals as well as instructor involvement.

Interaction with Native Speakers

Perhaps the most important factor in motivation and oral communication among English as a Foreign Language (EFL) learners in Immersive Virtual Environments (IVE) is interaction with native speakers. Shih & Yang (2008) found that the best way to learn any language is to be an active participant in a target language community and communicate in real-world contexts. Zheng et al. (2009) found the target language could be scaffolded through interaction between expert and novice learners to improve motivation and oral communication, where expert learners assisted novice ones to reach to use language they were unfamiliar and uncomfortable with. Zheng based their work on a thought experiment called The Intentional Spring. The Intentional Spring hypothesizes that when two learners, one novice and the other native, are aligned in their actions, the actions of the more experienced learner can be transferred to the novice (Zheng et al., 2009). The expert or instructor gradually pulls a lever towards a clearly outlined goal and transfers the action to the learner through trial and error. The analogous context in EFL learning

is that the expert or instructor speaks at a level just beyond the learner's comprehension and slowly guides them to this level over many repetitions. One participant in Zheng's study said, "In Quest Atlantis I can talk to people constantly in English, but in the classroom, teachers usually tell us knowledge" (p. 503). Zheng et al. ultimately found that voice and text chat channels between novice and native speakers effectively supported oral communication.

Safe Environment

An important element of Immersive Virtual Environments (IVE) is providing learners with a safe space in which they can practice real-world applications. One study revealed that students were motivated by real-world opportunities to interact with each other in a safe environment. Cornillie et al. (2012a) encouraged learners to fail and try again repeatedly, which maintained their motivation long enough to complete the task. Cornillie et al. also found that students were motivated by high levels of feedback, and that they preferred the most feedback available. Students were especially motivated by rule-based feedback that could be applied to multiple scenarios in the environment. Participants in Shih & Yang's (2008) study reported feeling comfortable in VEC3D as a common space for gathering, asking questions, and getting feedback from the instructor. Having a safe environment in which learners can practice without risk of failure or punishment is crucial.

Immersion

Another important factor in English as a Foreign Language (EFL) learner motivation and oral communication is immersion or the feeling of presence. Immersion is "a psychological state characterized by perceiving oneself to be enveloped by, included in, and interacting with an

environment that provides a continuous stream of stimuli and experiences" (Witmer and Singer, 1998, p.227). Immersion plays a large role in student engagement with content (Knutzen & Kennedy, 2012). Immersion is dependent on motivational components and how immersed the individual typically feels in other activities (Wang et al., 2017). Immersion creates real contexts where learners are totally exposed and must use the language to communicate (Wang et al., 2017). Wang et al. report that collegiate EFL courses in China study language structures but do not offer real immersive contexts to practice. Wang et al. found participants in their study experienced higher levels of presence in their VILLAGE simulation, leading to more sustained engagement.

Yang et al. (2020) found students tested significantly higher on the study post-test, taken after interacting in the VRLE system, suggesting that the design of the system itself facilitated oral communication among the participants. During interviews, participants noted that they felt more concentrated on listening and answering questions and that the simulation felt real (Yang et al., 2020). Yang et al. also found that low-achieving students experienced the greatest improvement in oral communication and that learners were motivated by their ability to explore the world independently instead of being spoon-fed knowledge by a teacher.

Hints

While the use of computer-generated hints is not something used in many studies, I felt the impact it had on one study appeared in the effectiveness of the Immersive Virtual Environment (IVE). The POSTECH study reports Korean EFL learners struggle with communicating in English even after continued study due to the lack of access to native English speakers and few opportunities to speak, resulting in reduced motivation and more anxiety (Lee

et al., 2014). The goal of the POSTECH study was to provide learners with maximum opportunities to speak, and ultimately found the generation of hints to be highly motivating for learners in navigating them towards a correct response when the one they had chosen was incorrect (Lee et al., 2014). Lee et al. found that even students with limited speaking ability could eventually navigate the tasks with the use of hints and that their confidence in speaking grew through multiple interactions with the system.

Written Chat

While the focus of this literature review was on oral communication, the findings on written text-chat and its effects on oral communication were interesting. Immersive online games like World of Warcraft (WoW) host text-chat interaction that allows users more time to think about what they want to say and understand what native speakers have said. In-game social networks are at the center of Massively-Multiplayer Online Role-Playing Games (MMORPG) where players learn to interact with each other and the environment around them (Kongmee et al., 2011). Social communication skills are necessary to progress through the game whether as a solo player, team member, or trading with other players (Kongmee et al., 2011). Initially released in 2004, WoW does not require high-end hardware or fast internet, making it far more accessible than other 3-D virtual worlds of its caliber, allowing players from anywhere in the world to connect with native-speaking communities as if they had traveled to the country in person (Kongmee et al., 2011).

Participants in Kongmee's study demonstrated higher speech production and fluency with native speakers in the IVE compared to real-world interaction. Furthermore, participants could transfer typed communication in the IVE to real-world spoken communication in small group

discussions with their peers (Kongmee et al., 2011). Written chat gives learners more time to think and produce the language and there is a higher tolerance for incorrect syntax compared to spoken communication (Knutzen & Kennedy, 2012). Persistent chat logs can be used to renegotiate meaning through correction, clarification, and confirmation and provide the ability to review previous responses to formulate new, more thoughtful ones (Zheng et al., 2009). Learners are not just practicing for the sake of it but using the chat to refine the conversation and reach a common goal together on a specific topic, effectively learning the language by using it (Zheng et al., 2009).

Role Play

Interactions between learners in Immersive Virtual Environments (IVE) offers an immersive experience where both participants share the roles of teacher and leaner, where Chinese students can teach Chinese phrases, and American students can teach English phrases (Zheng et al., 2009). English as a Foreign Language (EFL) learners enjoy opportunities to co-participate by asking and answering each other's questions, making learning both motivating and goal-oriented (Zheng et al., 2009). Asking for additional information is crucial for negotiating meaning in conversations with EFL learners and necessary to gain new insights beyond their current understanding both linguistically and culturally (Zheng et al., 2009).

The ability to role-play with avatar identity has also been shown to positively affect students' perceptions and motivations. In Shih & Yang's 3D VR environment VEC3D, 65% of students strongly agreed that the virtual world had a positive impact on their motivation to speak, while 80% said they felt relaxed communicating through their avatars (2008). Navigating virtual spaces with the use of a custom avatar allows EFL learners to maintain anonymity and lowers

their anxiety (Shih & Yang, 2008; Kongmee et al., 2011). Zheng et al. (2009) argue that speech in IVEs is a result of the learner being situated in the virtual context through their avatar. "Language depends on being in a world that is inseparable from our bodies, history, and cultural traditions" (Wang et al., 2017, p. 434).

Research Question Two: What Instructional Strategies Can English as a Foreign Language Teachers Use to Support Motivation and Oral Communication in Immersive Virtual Environments?

While the literature acknowledges the role of the instructor as crucial in the development, deployment, and maintenance of Immersive Virtual Environments (IVE), the literature focused more on the design of the environment itself and how instructors could create more engaging environments. It was therefore difficult to pin down specific instructional strategies teachers could use during the actual lesson that benefitted English as a Foreign Language (EFL) learners' motivation and oral communication. However, among the few studies found in the literature that identified some of these strategies concerning instruction, a common thread of feedback emerged.

Feedback

There is a need for more consideration in how Immersive Virtual Environments (IVE) are implemented in English as a Foreign Language (EFL) classrooms, especially how feedback is given; feedback is essential to language learning and to the structure of a virtual environment (Cornillie et al., 2012a). Cornillie et al. found that students prefer the most feedback available in IVEs, where dialogue can be paused when an error is made, they're shown the correct answer,

and explained why their answer was wrong. The authors further reported that students benefit the most from a combination of elaborate and immediate feedback that was designed for the simulation. However, students who perceived the feedback as useful were more motivated to learn English and felt more comfortable in a virtual environment to begin with; students who are already highly motivated individuals will benefit from feedback in IVEs the most (Cornillie et al., 2012a). Cornillie et al. ultimately found that when teachers designed the environments to provide high levels of feedback, students felt competent and supported and felt positive about the experience afterwards. Cornillie et al. stress the importance of designing IVEs to include two kinds of feedback which can motivate learners: 'just in time,' when it is necessary to continue, and 'on demand,' when the learner requests it.

Wang et al. (2012) noted that participants in their study required consistent feedback on their performance compared to the set learning objectives for the task. Wang et al. also found that instructors needed to consistently monitor student performance in their Second Life simulation to prevent students from feeling that it was just a game; having the instructor present in the simulation also prevented distractions or interruptions. The authors of the study also noted that recording interactions and having students review their own performance in the simulation afterwards was the most beneficial to improving their oral communication.

Other

Shih & Yang (2008) acknowledge the difficulty of designing Immersive Virtual Environments (IVE) to be more motivating, but stress user interaction as the key instructional strategy in improving motivation and oral communication, not the actions of the instructor themselves. The authors point to the necessity for goal-oriented tasks for the environment to be

successful, but do not mention any specific strategies to be used by the instructor. In Knutzen & Kennedy's (2012) study, the researchers hired several third-party designers to develop two Second Life islands with an instructional design focused on collaboration, but do not mention any specific strategies taken by the instructors themselves during the experiment.

Zhang et al. (2013) found that EFL learners needed ample time to practice their oral communication with their peers before advancing to interactions with native speakers. The authors suggest the instructor interact with their students as a participant at first, acting as a native speaker who can also scaffold the conversation so that novice speakers can enjoy more opportunities to practice their oral communication. Additional strategies instructors can use to support oral communication when moving on to interacting with more advanced native speakers are monitoring the conversation and 'texting' the learner sample responses to practice or preparing a list of topics for both speakers to review in advance of the conversation (Zhang et al., 2013).

To conclude, the findings show that more research is still needed into specific instructional strategies for the deployment of IVEs and that those strategies are largely dependent on goal-oriented activities, consistent feedback from the instructor, and user interaction.

DISCUSSION

Upon a review of the literature, it is clear there continues to be a need for how immersive, virtual technologies are implemented in English as a Foreign Language (EFL) instruction. There is a tendency for research on games and virtual environments to be excited about the capabilities of the technology rather than the implications for instruction (Tobias et al., 2011). EFL learning is a crucial area of need for more specialized uses of Immersive Virtual Environments (IVE) because of the speakers' physical separation from native-speaking communities. As we move toward more fully realized metaverse technologies for education and EFL learning, there must be more consideration for cost and deployment, as the nature of these costly technologies means they will no doubt be available to only certain groups.

Drawbacks

A crucially overlooked element of Immersive Virtual Environments (IVE) is their complexity and uniqueness, requiring somewhat advanced understandings of computer technology and graphical simulations. Major drawbacks of IVEs are the necessity of high-end computers and fast internet, which many institutions and students lack, and the technology itself requires constant maintenance and long-term financial investment (Peterson, 2012). For many studies the large time zone differences made synchronous participations difficult, resulting in a lack of partner availability. Zhang (2013) notes the steep learning curve of navigating an IVE without prior experience. Furthermore, IVEs are prone to all the same issues of human interaction in the real-world including bullying and harassment of player avatars (Bugeja, 2010). Several students in Peterson's (2012) study reported frustration with navigating an advanced computer simulation and feelings of 'technostress.'

The design of such immersive real-time environments creates much more work for language instructors, who must constantly monitor student activity and provide real-time feedback. They require an advanced understanding of computer technology and 3-D simulations. There needs to be more research in how these technologies can be developed without creating more instructional load for the teacher.

Advantages

Despite their drawbacks, Immersive Virtual Environments (IVE) can radically change the contexts in which English as a Foreign Language (EFL) learners are exposed to and acquire new literacies. Too many EFL programs focus on analysis and translation, without ever placing the learner in a real-world context in which they can practice (Wang et al., 2017). EFL classrooms are still transmissive and often teachers do most of the talking. Even after extended study of English, many EFL learners continue to struggle with speech, they feel incompetent conversing with other English speakers, and they often struggle with anxiety that inhibits their participation (Lee et al., 2014). IVEs offer incredible affordances in connecting EFL learners with native speaking communities and exposing them to the minutia of vernacular speech. Furthermore, students can learn freely of time and space constraints that limit traditional classrooms (Cong-Lem, 2018).

The literature shows that IVEs have a strong ability to reduce learner anxieties, making them feel more comfortable in the contexts of a virtual world and more motivated to speak with others (Zheng, 2009; Shin & Yang, 2008). The presence of native speakers in the environment allows EFL learners who are physically separated to feel fully immersed in a native community as if they had travelled there (Peterson, 2012). Furthermore, widely accessible commercial IVEs

like World of Warcraft represent a growing trend in virtual online communities that continue to see an increase in individuals from diverse social, age, and linguistic backgrounds who log on daily to practice their English communicative competence (Cornillie et al., 2012b).

Sykes et al. (2008) reported advantages of co-participation between EFL learners and native speakers, noting natural and unscripted interactions formed emotional bonds where speakers traded expert status, correcting each other's utterances, and showed motivation to learn the language. In Peterson's (2012) study, participants used their avatars for non-verbal communication such as waving, students reported a heightened sense of presence in their avatars. In Peterson's (2012) Active Worlds simulation, "participants consistently produced coherent target language output through collaborative interaction that was focused on the tasks" (p.74). Peterson's experiment saw the students form collaborative social relationships and solid group cohesion; decision-making tasks saw the most collaboration and negotiation.

Role of Instructor

Language instructors are instrumental in preparing students for the virtual environment, providing real-time feedback, and monitoring students' progress throughout (Cong-Lem, 2018). The success of instruction in Immersive Virtual Environments (IVE) is directly affected by students' intrinsic motivation and their perception of the environment (Cornillie et al., 2012a). English as a Foreign Language (EFL) learners' motivation in learning and willingness to communicate can also be directly linked to their use of language learning strategies (Dornyei, 2001). Language learning strategies are actions that learners take to achieve a set learning goal (O'Malley, 1990).

The literature also shows that students require feedback to feel motivated and comfortable practicing their speech. Feedback entails an instructor's response to all EFL learners' speech production, noting errors and providing corrections or calling attention to the error and why it was incorrect (Ellis et al., 2006). Feedback focuses on form and meaning, creating opportunities for meaningful communication (Long, 2007). Feedback needs to be non-judgmental and instant for learners to confirm and improve their performance (Rigby & Ryan, 2011).

Limitations

This literature review was inherently limited by articles that were scholarly, peer-reviewed and available in online research databases. Furthermore, the scope of the initial pool of studies was limited to the past 20 years to represent contemporary trends. The selection of literature was limited to research written in English and represents only a small sample of the literature available on Immersive Virtual Environments (IVE). Research was conducted over a period of only 6 months and could have potentially missed important articles that would have been useful.

Conclusion

In conclusion, the existing literature on Immersive Virtual Environments (IVE) demonstrates the impressive capabilities of the technology in connecting speakers, reducing anxiety, and increasing motivation with spoken English. Where traditional English as a Foreign Language (EFL) classrooms fail to expose learners to real-world contexts and allow them opportunities to fail safely, IVEs excel. Instructors must take advantage of the full affordances of

these tools and design new innovative spaces where learners can interact without fear of judgement or failure. I have personally experienced the power of IVEs through interaction with EFL learners in World of Warcraft, who logged in to the game daily just to practice their communicative skills with native English speakers. Finally, there is still a great need for research on how to deploy these technologies cheaply and equitably, as the affordances of these immersive technologies cannot be available only to a privileged few. The next step in my own research is to hopefully further explore the advantages of roleplay in digital spaces. Roleplay is at the center of user interaction and drives the scenarios in which students work together to reach a common goal. I would also like to further explore how these systems can be made available for English as a Second Language students.

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