Creating a Global Classroom Using a 3D Technology to Enhance Language Development

Kevin Oh, Natalie Nussli

School of Education

University of San Francisco, United States

{koh2@usfca.edu, ncnussli@usfca.edu}

Abstract—**This study reports on the findings of a case study with English language learners and special education teachers who met in Second Life for conversation practice. The English language learners had a much more positive attitude towards the usability of Second Life for language learners than the special education teachers. Findings suggest that language instructors teaching in a three-dimensional immersive virtual world must be equipped with unique teaching skills. Interaction among conversation partners must be maximized to ensure a successful language learning experience. The lesson design must be carefully planned to take full advantage of the potential of virtual worlds and their relatively authentic and contextualized settings. A virtual world may be conducive to oral fluency enhancement, provided that activities are set up appropriately and there is ample support from the instructor. Extensive challenges inherent to the lesson design and audio quality were identified. Guidelines on how to address these challenges are addressed. These findings will be relevant to other language instructors who plan to use Second Life for oral fluency enhancement.**

Keywords-Second Life; virtual worlds; second language acquisition; oral fluency; collaboration; conversation partners

I. INTRODUCTION

This article reports on an investigation of the usability of Second Life, a highly compelling visual and immersive virtual world, to improve English language learners' (ELLs) oral fluency by engaging them in purposeful interaction with English native speakers. Oral fluency is a complex, difficult-to-measure construct. It has been defined as the ability to produce language without undue pauses or hesitations [1]. Four types have been identified [2]. These include the ability to (i) fill time with talk, (ii) produce logical and semantically dense language, (iii) have appropriate things to say in a wide range of contexts, and (iv) express oneself in a creative and imaginative way, using a wide variety of alternative linguistic devices and choosing the one that is most situation appropriate.

The current study is situated in a three-dimensional immersive virtual world. Schroeder's [3] definition of virtual reality is "a computer-generated display that allows or compels the user (or users) to have a sense of being present in an environment other than the one they are actually in, and to interact with that environment". Educational platforms can be found in the areas of astronomy, medicine, music, literature, biology, history, mathematics, forensic science, ecology, and tourism, to name a few.

Second Life provides a powerful platform for situational language practice. The most recent studies, which include a literature review [4], three qualitative studies [5-7], four quantitative studies [8-11], and one mixed-methods study [12], indicate that a virtual world can assist language learners by extending the traditional language classroom. It provides an environment for stress-free, one-on-one oral practice through activities, such as role-playing, discussions, presentations, debates, games and simulations. English language learners, in particular Chinese students, have been shown to be apprehensive of spoken communication for fear of being negatively evaluated [13]. In a similar vein, the results of a study by Wehner et al. [12] suggest that virtual worlds may help to reduce student anxiety and increase their motivation to learn a foreign language. Virtual worlds could be an effective way to help Chinese ELLs overcome these fears and inhibitions [11].

The current study contributes to the research about language learning in virtual worlds by identifying students' and special education teachers' perceptions of Second Life as a language learning platform, as well as the unique teaching skills required. In addition, the study investigates potential challenges and the effects of virtual meetings on ELLs' perceptions of their oral fluency. Continued research on virtual worlds is necessary to yield stronger teaching models that guide educators in the optimal use of virtual worlds for language instruction [6]. As more educators and researchers develop pedagogical models for best practices in language learning in virtual worlds, taking advantage of such resources will become easier [6].

Recent studies in the field of second and foreign language acquisition will be reviewed in the next section, followed by the purpose of the present study. The sample, the six data collection instruments, the procedures, and data analysis will be described in the method section. Results will be organized around the instruments and will be presented from the perspective of both the ELLs and the special education teachers (SPED). The discussion and conclusion section is organized around the research questions and concludes with the study's limitations and suggestions for future research.

II. LITERATURE REVIEW

Through interactions with target language speakers in Second Life, ELLs can benefit from immersive language practice; tasks for learners at all levels can be designed [6]. Second Life has been shown to offer an "interactive, immersive and content-rich virtual environment for input, interaction, task-based learning and output production" [6]. Virtual worlds offer a suitable platform for synchronous language interaction and the opportunity for conversation and collaboration between language learners and native speakers of the target language.

Wang et al. [11] investigated effective and practical ways to integrate Second Life into an English as a Foreign Language (EFL) program for students in Chinese universities, in which Chinese students conversed with American native speakers. Many study participants reported having a positive attitude towards using Second Life for language learning and perceived the collaboration with their American conversation partners as interesting, effective, and helpful in improving their English skills. Meaningful and authentic interactions with the American students were identified as key motivational factors. Once the Chinese students were immersed in Second Life, they demonstrated more active and sustained speaking events, which helped them to improve their communicative abilities. Their positive experiences were, however, tarnished by technical problems, including poor audio quality (echoing and interrupted audio) and frozen screens to an extent that they seriously interfered smooth communication and task completion in Second Life. Wang et al.'s recommendations for facilitating language learning events in Second Life include: preparing students for task completion, setting a time limit for any given task, closely monitoring student language performance, encouraging post-task reflection, and providing feedback. Overall, the collaboration was found to enrich both the cultural experience and the communication with virtual conversation partners.

Similarly, Knutzen and Kennedy [9] reported on a partnership between ELLs in Hong Kong and student teachers enrolled in a Teaching English to Speakers of Other Languages (TESOL) program at a university in the United States. The two groups met in Second Life at a virtual American diner and communicated through text-chat and voice. Among the conditions that resulted in the most productive interactions was the use of voice communication to practice speaking and listening, as well as the use of separate sound parcels in the form of Cadillac diner booths to allow private conversations. Wehner et al. [12] investigated the relationships between motivation, virtual worlds, and foreign language acquisition. One section of a Spanish course used Second Life as part of its instruction, while the other section participated in the traditional curriculum. Overall, the group using Second Life consistently reported more positive feelings in all areas of motivation and lower levels of anxiety.

Ishizuka and Akama [14] highlighted the potential of Second Life for second language acquisition. Good scenarios and controlling learning environments based on second language acquisition theories have the potential to change language teaching and learning [14]. Several attempts to use Second Life for language learning have been made in the past. A number of EU-funded, large-scale projects include the Access to Virtual and Action learning Live Online (Avalon) project, the Networked Interaction in Foreign Language Acquisition and Research (NIFLAR) project, and the Talk with Me project. These projects aim to facilitate cross-cultural language learning by taking advantage of virtual worlds to simulate communicative acts and provide information on learning models and practices using Second Life as a language learning platform [14].

The current study reports on the findings of an exploratory case study with two groups. International students enrolled in an ELL program and SPED teachers studying at the same university in the United States met in Second Life for conversation practice. The overarching question that framed this research was to identify the usability of Second Life for oral fluency enhancement. The study was guided by the following research questions:

1. What are the English language learners' and the special education teachers' perceptions of Second Life as a language-learning platform?
2. What are the unique skills that a teacher should have to teach in Second Life?
3. What types of problems associated with the language instruction in Second Life were identified?

III. METHOD

A. Sample

Twelve ELL undergraduate students at a university in California and 18 special education teachers enrolled in a graduate course at the same university participated in this research. Prior to this study, a needs assessment was conducted to identify the ELLs' performance gap in terms of oral fluency. It revealed that many Asian, particularly Chinese, students at this university are experiencing a performance gap between their actual oral proficiency in American English and the proficiency they need to fully contribute to class discussions and be understood when they speak. The ELLs were teamed up with 18 SPED teachers as their conversation partners.

B. Data Collection

Six different instruments were used for data collection. The two groups, ELLs and SPED teachers, each received a different set of the following instruments: a preliminary survey, a mid-reflection, and a post-survey. The preliminary survey was completed after watching a 5-minute video showing a tour of the National Oceanographic and Atmospheric Administration (NOAA) Second Life region and prior to the two virtual meetings. The purpose of these meetings in Second Life was to provide the teams with conversation practice. In the preliminary survey, the ELLs and the SPED teachers were asked about demographic information, their technology background, and their perception of the usability of Second Life as a language-

learning platform. In addition, the ELLs were asked to share their perceptions of their oral fluency in English, their attitude toward English native speakers, and their perception of their motivation and self-efficacy in learning and speaking English. Participants replied to the mid-reflection prompts after the first of two meetings in Second Life. The prompts were designed around the research questions and provided an opportunity to reflect on the usability of virtual worlds for language learning. The post-survey offered an opportunity to reflect on the experiences after the second virtual meeting. Respondents were expected to be able to make informed decisions about the usability of Second Life for language learning after the two virtual meetings.

C. Procedures

The two groups, ELLs and SPED teachers, were each introduced to Second Life by their instructors, respectively. The SPED teachers, for instance, spent 30 minutes in Sploland as a class to explore the region and experiment with hands-on activities and then teleported to Spaceport Alpha for a short fieldtrip. The purpose of these preliminary fieldtrips was to provide students with a chance to familiarize themselves with navigation and voice communication. The instructor was physically present in the computer laboratory, while the second author joined the group in-world as a facilitator.

Next, a small group of ELLs met in Second Life with a small group of SPED teachers on EduNation. ELLs and SPED teachers met twice for one to two hours each. Sound checks were conducted before the meetings. All participants were required to use USB headphones. The meetings were organized by an external English instructor, who was commissioned to design and lead the workshop because of her specialization in teaching ELLs in Second Life. Examples of the activities include: playing domino to increase vocabulary, a scavenger hunt which entailed describing interactive household items in the instructor's virtual house, a TV quiz show in a TV studio, playing taboo, a grammar rummy, and a murder mystery.

D. Data Analysis

In this exploratory case study, the qualitative data, which emerged from the preliminary survey, the reflection, and the post-survey, have been used to gain insight into the personal reflections and perceptions of the participants. Emerging themes were identified through open-coding and were combined into recurring patterns. Quantitative data from the surveys inform the story and substantiate the qualitative information.

IV. RESULTS

The results have been arranged chronologically.

A. Preliminary Student Survey (ELLs)

The sample consisted of 12 ELLs between 18 and 21 years old. Most students' mother tongue was Chinese. These learners reported relatively good aural comprehension in English, but difficulty understanding conversations among their English-native peers. Most, however, reported

struggling to express what they want to say, rarely speaking up voluntarily in English, and lacking the confidence to do so. All, but one, reported that they believed they could be understood mostly well. When asked about the reasons why people may have difficulty understanding them, 87% reported that it was due to a lack of vocabulary. On average, respondents' motivation to learn English was 5.4 on a 7-point rating scale (1=weak, 7=strong). On average, their attitude toward English native speakers was 5.7 (1=unfavorable, 7=favorable). Most respondents (67%) reported that they were not nervous when they had to speak English to someone they just met, while 33% reported being somewhat nervous. On a rating 10-point rating scale, they self-reported their technological expertise at 7.33 (1=lowest, 10=highest). In terms of 3D virtual worlds, 76% reported having no or little experience. Seventy-three percent agreed that they did not have to worry about losing face in Second Life because their conversation partner could not see their real face. In the same vein, 80% replied that the use of an avatar in Second Life made them feel more at ease because it helped them disguise themselves.

B. Students' Mid-Reflection (ELLs)

The mid-reflection was completed after the first virtual meeting with their native English-speaking partners, that is, the SPED teachers. All ELLs reported finding the virtual meeting with their English native speaking partners useful. They all appreciated the opportunity to practice speaking in a relaxed environment. It was mentioned that the virtual environment may have helped to overcome shyness, to save face even when mistakes were made, and that they felt more comfortable speaking in an online setting than face-to-face. Being able to make friends, engaging in interesting interactions in a relaxing, game-like, and visually appealing environment were factors that they liked.

The activities in Second Life, however, could have been more interesting, entertaining, and interactive. There were too many people at the same place at the same time (lack of functioning sound parcels) and it was hard to understand each other and the teacher. For example, due to poor sound quality and interference, instructions were unclear and the Second Life platform was too complicated. ELLs would have liked to practice pronunciation, grammar, more activities, and to have separate sound parcels for private conversations. Despite these challenges, the average rating of the usability of Second Life for language learning on a scale from 1 (useless) to 10 (excellent) was quite high at 7.7. Most students were looking forward to the second meeting.

C. Students' Post-Survey (ELLs)

In contrast to their answers in the pre-survey, no one reported difficulties in understanding their native-English speaking partners. No one reported difficulties in expressing their own thoughts and opinions in English. Everyone was confident that they were able to express the full nuance of their thoughts and opinions to varying degrees (very confident: 33%, quite confident: 50%, moderately confident: 17%). On average, respondent's motivation on a 7-point rating scale (1=weak, 7=strong) was unchanged at 5.4. The

statements about being nervous when they had to speak English to someone they just met were almost unchanged, compared with the pre-survey. The majority (58%) reported technical difficulties.

Most students reported sound issues. Even when they did have sound, some voices could not be heard clearly. Some students were frequently logged off and lost valuable time having to log in again or having to restart their computer. As in the preliminary survey, all students, but one, agreed that the use of an avatar in Second Life made them feel more at ease due to the anonymity. All students found Second Life easy and interesting to use and confirmed its usability for language learning, although 83% stated that Second Life was not necessary for the type of language practice they had experienced. Everyone enjoyed interacting through their avatar. Benefits of using Second Life for speaking practice were identified as: communicating without seeing each other, more opportunities to meet native speakers, reduced nervousness, increased confidence, and overall more opportunities to speak than in real life. When asked what the ELL instructor, who conducted the activities, could have done differently, several students stated that they would have liked more opportunities to speak with their partners and more interesting activities. All students reported being satisfied with the experience and encouraged the instructor to keep using Second Life as a language-learning platform.

D. Preliminary SPED Teacher Survey

Eighty-three percent of the SPED teachers reported having little or no experience using virtual worlds. The average self-rating in terms of "tech-savvyness" on a 10-point rating scale (0=lowest, 10=highest) was 7.1. The average rating of Second Life for education on a 10-point rating scale (1=useless, 10=extremely useful) was 6.28, based on the NOAA video they watched. Overall, their first impression of Second Life was that it had potential for education and seemed user-friendly. When asked what they hoped to gain from the two virtual meetings with their ELL partners, most said they hoped to identify the best techniques to work with ELLs and to see some of the educational applications of Second Life from a more active role, rather than just being a student in it.

E. SPED Teachers' Mid-Reflection

Nine out of 18 SPED teachers submitted the mid-reflection. Their usability ratings went down from 6.28 (preliminary survey) to 4.33 (after the first virtual meeting with their ELL partners) on a 10-point rating scale (1=useless, 10=extremely useful). The ratings ranged from 1 to 10. Eight out of nine respondents did not find the first virtual meeting useful in order to get teach experience and provided several reasons. The set up (i.e., planned activities) failed to encourage discussion among the two groups. There were too many people and it was hard to talk because everyone else could be heard too. Although each team worked in a separate room of a house, for example, the lack of (functioning) sound parcels resulted in the participants hearing everyone speak, which made it challenging to identify one's team members' voices. Separate sound parcels

would also have satisfied the participants' desire for private communication. More interaction and better time management would have been appreciated. The following statement describes the amount of spoken interaction between SPED teachers and ELLs that was distinctive of all sessions that the authors observed (eight sessions for all teams combined).

I asked the student I was working with questions about herself to get to know her, and she wouldn't even respond to my questions even though I tried to rephrase what I was saying to her to help her understand. [...] Since it was online and you can't see her face that could be why she didn't respond at all.

Only two out of nine SPED teachers found the first virtual meeting useful in terms of familiarizing with virtual worlds. A unique affordance, however, was identified as, "Being able to virtually meet with my ELL partner was nice, and I couldn't imagine doing the activity over the phone." The remaining comments were mostly negative. Respondents were disappointed because mostly they "just stood there", without having a purposeful role assigned. Due to the lack of interaction, they did not have the impression that the meeting had helped to improve the ELL partners' oral fluency. It was suggested that a tour would have encouraged interaction more effectively.

The third prompt inquired about features they liked about the interaction and their perceptions of the unique benefits of Second Life for this type of learning activity. While some respondents did not like anything, several respondents appreciated that there were no limitations by location or by physics. The potential to establish rapport in a virtual setting was pointed out too.

We actually had a few minutes at the end of the activity to explore the boathouses' kitchen and we both agreed that it (the kitchen) was very nice and we chuckled about that. It was nice being able to connect to my buddy about something we both appreciated.

The virtual environment was described as offering language immersion to ELLs and as a way to introduce teachers to 3D technologies.

I realized the usefulness and the possibilities for offering an environment that may be less intimidating than face-to-face meeting for ELLs. I liked interacting exclusively with a group that had a facilitator who helped to orient the Cohort to the space, and who provided us with a shared set of expectations and goals. The unique benefits were that it not only provided ELLs with a means for immersion, it also gave new teachers access to technologies that we may not have engaged before.

Several challenges were identified. Although some spaces offered separate sound parcels, they did not offer enough privacy:

You and your ELL partner had to go to a separate corner to work but other people would come and sit with you, this loud TV background noise kept interrupting the conversation, and other noises were distracting so it was hard to work with this student.

Overall, the first virtual meeting was neither perceived as useful for the development of teaching skills nor as an

expansion of their virtual worlds skills and experience. The unique affordances of virtual worlds were perceived as being useful for language immersion (given adequate settings and time and room for private discussions), distance learners, and for learning activities that would benefit from the absence of physical boundaries. The two major challenges were the lack of a setting that would encourage discussion, the lack of effective private sound parcels, and the apparent technical glitches that consumed the major portion of the lessons. Due to these impediments, the SPED teachers' usability ratings of Second Life decreased dramatically after the first virtual meeting with their ELL partners, to the extent that the majority of SPED teachers were not looking forward to the second meeting.

F. SPED Teachers' Post-Survey

All 18 SPED teachers completed the post-survey after the second meeting. The first prompt asked, "Do you think that the meetings between you and your ELL partner(s) have helped them to enhance their oral proficiency? How would you have designed the meetings to help them improve their oral proficiency?" Only two participants stated that the meetings may have helped the ELLs to increase their oral fluency. Specific instructions and scenarios that would have guided the interactions and would have specified the SPED teachers' role would have been appreciated. Suggestions also addressed the lack of interaction and highlighted the need for a purposeful role of the SPED teachers.

> *An activity that might have been more successful would have been one that would have required not only speaking but actual interaction between the ELLs and the native speakers like a guessing game such as a version of 20 questions or Guess Who. These would give the ELLs a chance to practice speaking more than just two words. It would also give the native speakers a reason to be there and involved.*

Similar to the mid-reflections, it was criticized that the instructions were confusing. Several respondents stated that a face-to-face meeting would have been more effective and doubted the effectiveness of Second Life for these purposes.

Most SPED teachers acknowledged that Second Life has great potential because it allows for more interaction than other media, such as a video call, and because communicating through avatars appears to be less intimidating and to reduce anxiety levels. It provides anonymity for the ELL student and allows them to relax. Technology, however, was often seen as a barrier to learning. "I think that using Second Life as a language learning platform makes things harder than they need to be." The lack of social cues, such as facial expressions, was evident. It was unclear whether silence meant active listening, confusion, disinterest, or headphone issues. The design of the activities needs to be carefully thought out in order to allow interaction. It was acknowledged that a virtual world may be conducive to discussion, provided that activities are set up appropriately and there is ample support from the instructor and the facilitator(s). When asked if the two teaching sessions on EduNation had taken advantage of the potential of virtual worlds, most respondents reported that the tools,

such as a game show set, were not used in a way to promote oral communication successfully and failed to allocate the SPED teachers a purposeful role.

The final prompt inquired about the unique skills that a teacher should have to teach in Second Life. A long list of unique characteristics and abilities was generated: Patience, kindness, understanding, non-judgment, technical expertise, strong communications skills, knowledgeable and experienced in the Second Life program, creativity in order to make materials enjoyable and accessible to many different learners, the ability to anticipate student needs without being able to read body language and facial expressions, the ability to diagnose a technical problem and troubleshoot, the ability to plan and implement a [virtual] lesson, the ability to specify and explain expectations and give clear directions in a calm manner, the ability to be clear and concise, the ability and willingness to organize activities in a way that everyone gets an opportunity to engage in an extensive conversation in a private chat area, the ability to stay calm in the face of technical glitches and not let the participants feel one's frustrations, think through the language demands of any given activity, and the ability to accommodate the needs of ELLs in a culturally sensitive way in order to allay their anxieties. A teacher in Second Life needs a back-up plan if technological errors take over the lesson.

Despite the numerous frustrations that these SPED teachers experienced, the post-survey reflected that, overall, the respondents found the experience interesting because it showed them practical examples of teaching in Second Life, although they thought that the unique affordances of Second Life were not fully taken advantage of. The potential of virtual worlds was recognized, provided that the design of the activities is well thought out and that technical glitches can be drastically minimized to enhance everyone's experience.

> *Fun experience. Frustrating at times, but awesome to see where technology can go in education. The thought of kids being able to do this on an ipad with more ease and perhaps a webcam feature with kids from across the planet is a very exciting concept!*

V. DISCUSSION AND CONCLUSIONS

The discussion of the results has been arranged around the three research questions. Five recommendations are made: anxiety-reducing lesson design, taking advantage of the full potential of virtual worlds, training the unique skills of a 3D teacher, enhanced voice communication, and collaborative design. These recommendations extend the guidelines suggested by Wang et al. [12].

1. What are the English language learners' and the special education teachers' perceptions of Second Life as a language-learning platform? Almost all ELLs perceived Second Life as a useful and interesting language-learning platform. A perception that was shared by many was that they had more opportunities to speak with native speakers than in real life. On the one hand, this statement is surprising, considering that all ELLs were actually studying at a university in the United States where the majority of students were English native speakers. On the other hand, it could be

an indicator of the difficulties that these students may have in engaging in conversations with native English speakers. ELLs have frequently indicated that communicating through a virtual world helped them to alleviate their anxiety, which is in agreement with Wang et al. [11]. Learning activities can be designed in a way that only the instructor knows the true identity of an avatar for assessment purposes.

2.   What are the unique skills that a teacher should have to teach in Second Life? The SPED teachers provided a long list of qualities that they would like to see in a teacher teaching in Second Life. Many of these skills should not only apply to virtual worlds teachers, but should be present in all teachers. Examples include patience, kindness, and understanding. It is hypothesized, however, that a virtual teacher needs to have even stronger skills in these areas when teaching in a virtual environment where social cues and non-verbal gestures are mostly absent. To give directions, for example, an avatar cannot rely on supporting verbal directions by gestures. Especially the lack of smiling and eye contact makes it more challenging to establish rapport and to convey kindness and understanding. Among the most frequently mentioned skills of a virtual teacher were: the ability to give clear and concise directions, the ability to stay calm in the face of technical glitches, and the willingness and flexibility to resort to plan B if the lesson is not working out the way it was planned.

3.   What types of problems associated with the EFL program in Second Life were identified? Although the ELLs' perception of the usability of Second Life for language learning was much more positive than that of the SPED teachers, both groups identified the same two challenges. First, the way that the lessons were set up failed to encourage interaction between the two groups. On the few occasions when they spoke with each other, the ELLs tended to give monosyllabic answers. It is recommended that language-learning activities in Second life be designed in a way that opportunities for interaction in private sound parcels are maximized. The visually stimulating and interactive environment in Second Life lends itself to extensive and engaging collaborative activities, such as scavenger hunts, in relatively authentic and contextualized settings. Oh and Nussli [15], for instance, reported about a lesson plan created by special education teachers that was designed around a collaborative scavenger hunt at the Star Trek Museum of Science in Second Life.

Technical issues, mainly related to voice communication in Second Life, were the second major challenge. Instead of the use of Second Life voice chat, it is recommended that Skype be used instead to accommodate both text and voice chat [16]. It is also recommended that an in-world facilitator support the instructor. Prior to the actual Second Life assignments, students will appreciate the opportunity to familiarize themselves with Second Life. Oh and Nussli [15], for instance, started an 11-Step Virtual Worlds Teacher Preparation Workshop with an hour-long class fieldtrip to five Second Life islands to ensure that students master the navigation skills required for the actual assignments.

Virtual worlds have provided broad access to native speaking communities and virtual spaces for learning and collaboration [12] and provide the potential to address the five components of the National Standards for Communication, Culture, Connections, Comparisons, and Communities [12]. Collaborative project design, however, can be challenging in virtual worlds. The findings of this study concur with Warburton and Pérez-García [17] who identified a set of guidelines that address factors fostering collaboration in 3D environments, such as running a social event before the main activity, ground rules for communication, making collaboration intrinsic to the tasks, guidance and regular briefing in order to scaffold gradually increasing levels of task complexity, video tutorials, and live mentoring/assistance.

Overall, despite several challenges, the participants in this study perceived Second Life as a useful, supplementary tool for instructors because it promotes contextualized language practice, provided that the lesson design allows for maximized interaction and that the participants receive support from the instructor and, if possible, a technical facilitator. The unique teaching skills were identified as well as a list of challenges experienced by both groups. The findings and guidelines will be relevant to other language instructors who plan to use Second Life for oral fluency enhancement. Virtual meetings between ELLs and English-native speakers in Second Life have the potential to offer an innovative, creative, and stimulating way to practice speaking English in contextualized settings, provided that the activities are framed by a pedagogical rationale that justifies the use of 3D technology. If ELLs are teamed up with native English speakers, specific roles should be assigned to the latter. But, even without the presence of native speakers, language learners can benefit from mutual interaction by practicing their language skills in content-rich virtual worlds [6]. Increased speaking opportunities with English-native speakers is likely to enhance ELLs' confidence and may encourage them to transfer the skills practiced in virtual worlds to the real world, specifically their university settings.

Limitations of this research are that all instruments relied on self-reporting and the teams only met twice for one hour each. Recommendations for future research include a more in-depth investigation of the effectiveness of virtual worlds on the oral fluency of ELLs and how instructors can design in-world activities effectively to take full advantage of unique affordances of virtual worlds.

REFERENCES

[1] C. J. Fillmore, in C. J. Fillmore, D. Kempler and W.S.W. Wang (Eds.), Individual differences in language ability and language behavior, NY: Academic Press, 1979, pp. 85-102.

[2] P. Skehan. Second-language acquisition resarch and task-based instruction. In J. Willis, & D. Willis, Challenge and change in language teaching, Oxford: Heinemann, 1996, pp. 17-30.

[3] R. Schroeder, "Defining Virtual Worlds and Virtual Environments," Journal of Virtual Worlds Research, vol. 1(1), 2008, p. 2-3.

[4] S. Aydin, "Second Life Foreign Language Learning Environment: A Review of Research," Turkish Online Journal of Distance Education, vol. 14(1), January 2013, pp.53-63.

[5] C. Balcikanli, "Language Learning in Second Life: American and Turkish Students' Experiences," Turkish Online Journal of Distance Education, vol. 13(2), April 2012, pp.131-141.

[6] M. T. Thomasy Blasing, "Second Language in Second Life: Exploring Interaction, Identity and Pedagogical Practice in a Virtual World," Slavic and East European Journal, vol. 54(1), 2010, pp. 96-117.

[7] C. Wang, H. Song, D. E. Stone, and Q. Yan, "Integrating Second Life into an EFL Program in China: Research Collaboration Across the Continents," TechTrends, vol. 63(6), November/December 2012, pp. 14-19.

[8] S. Grant and R. Clerehan, "Finding the Discipline: Assessing Student Activity in Second Life," Australasian Journal of Educational Technology, vol. 27(5), 2011, pp. 813-828.

[9] M. Henderson, H. Huang, S. Grant, and L. Henderson, "The Impact of Chinese Language Lessons in a Virtual World on University Students' Self-Efficacy Beliefs, Australasian Journal of Educational Technology, vol. 28(3), 2012, pp. 400-419.

[10] C. X. Wang, B. Calandra, S. T. Hibbard, and M. L. McDowell Lefaiver, "Learning Effects of an Experimental EFL Program in Second Life," Educational Technology Research Development, vol. 60, 2012, pp. 943-961, doi 10.1007/s11423-012-9259-0.

[11] A. K. Wehner, A. W. Gump, and S. Downey, "The Effects of Second Life on the Motivation of Undergraduate Students Learning a Foreign Language," Computer Assisted Language Learning, vol. 24(3), 2011, pp. 277-289, doi 10.1080/09588221.2010.551757

[12] B. Knutzen and D. Kennedy, "The Global Classroom Project: Learning a Second Language in a Virtual Environment," The Electronic Journal of e-learning, vol. 10(1), 2012, pp. 90-106.

[13] M. Liu and J. Jackson, "An Exploration of Chinese EFL Learners' Unwillingness to Communicate and Foreign Language Anxiety," Modern Language Journal, vol. 92(1), Spring 2008, pp. 71-86.

[14] H. Ishizuka and K. Akama, "Language Learning in 3D Virtual World: Using Second Life as a Platform," eleed, vol. 8, 2011, http://nbn-resolving.de/urn:nbn:de:0009-5-31706 [retrieved: January, 2014]

[15] K. Oh and N. Nussli, "Teacher Training in the Use of a Three-Dimensional Immersive Virtual World: Building Understanding through First-Hand Experiences," Journal of Teaching and Learning with Technology, in press.

[16] K. Yee and J. Hargis, "Jumping Head First into Second Life for Higher Education," International Journal of the Scholarship of Teaching and Learning, vol. 6, 2010, pp. 1-15.

[17] S. Warburton and M. Pérez-Garcia, "3D design and collaboration in massively multi-user virtual environments". In D. Russell (Ed.) Cases on collaboration in virtual learning environments: processes and interactions, Hershey, PA: IGI Global, 2009, pp. 27-41.