



Preparing Pre-service Teachers Using a Computer Simulated Classroom of English Learners

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Abstract

Mixed-reality computer simulation is used with to give pre-services teachers a venue to hone their teaching skills without practicing on real children. The TLE TeachLivE™ (TeachLivE) classroom simulator is an immersive, computer-based simulation with teachable avatars (digital characters). Avatars can take on characteristics of English learners in a version of the simulation called TeachLivE-EL. The simulation is developed to bridge the gap between what our pre-service teachers learn in class and their practice in real classroom. The simulated classroom is made up of EL-avatar students of beginning, intermediate and advanced English language levels that are from different cultural backgrounds. Pre-service teacher can practice their lesson plan with EL-avatars and get feedback from TESOL faculty immediately. Therefore, pre-service teachers can improve their lesson plan and communication skills before bringing them to a real classroom. This qualitative study shows that TeachLivE-EL can help to improve language teaching skills of our pre-service teacher in two ways that traditional real-class internship cannot offer: 1) pre-service teacher can get immediate guide and help from professionals while the simulated class is proceeding; 2) students can go back to the same scenario and practice different teaching/communication strategies. Other benefits include building up confidence, feeling of security and protected privacy, etc.

1. Introduction

According to the data from National Center for Education Statistics (2013), a diverse population of English learners (ELs) continues to grow nationally and is currently at approximately 10%. This creates new challenges for professional preparation of teachers. Hemmings and Woodcock's (2011) study suggested that a particular source of pre-service teachers' anxiety was from their capacity to meet students' diverse needs. As the diversity of our student population grows, needs to prepare our pre-service teachers with the knowledge of different cultural backgrounds and skills to communicate with students of different language proficiency levels also increase.

Currently, most pre-service teachers are prepared by practicum and internship. However, many pre-service teachers reported that practicum did not effectively prepare them for the professional role (Gregory et al., 2011). Moreover, pre-service teachers might not have enough exposure to students of special needs and they might have limited chances to try their teaching strategies or behavior management approaches (Muir et al., 2013). Therefore, it is important to explore alternative approaches to prepare pre-service teachers.

Information and communication technology (ICT) creates the possibility of simulated classroom. Mixed-reality computer simulation is used with to give pre-service teachers a venue to hone their teaching skills without practicing on real children. The TLE TeachLivE™ (TeachLivE) classroom simulator is an immersive, computer-based simulation with teachable avatars (digital characters). Currently they have three EL-avatar students of beginning, intermediate and advanced English language levels that are from different cultural backgrounds. Pre-service teacher can practice their lesson plan with EL-avatars before bringing them to a real classroom.

2. Developing English Learner Avatars

The English Learner Avatars are developed from the real cases of English learners (ELs) collected by Joyce Nutta. Finally three representative ELs are created and profiled, who are also recorded in the book *Educating English Learners* (Joyce et al., 2014). The three EL Avatars are Edith of the beginning level, Edgar of the intermediate level and Tasir of the advanced level. They are all English learners in a middle school.

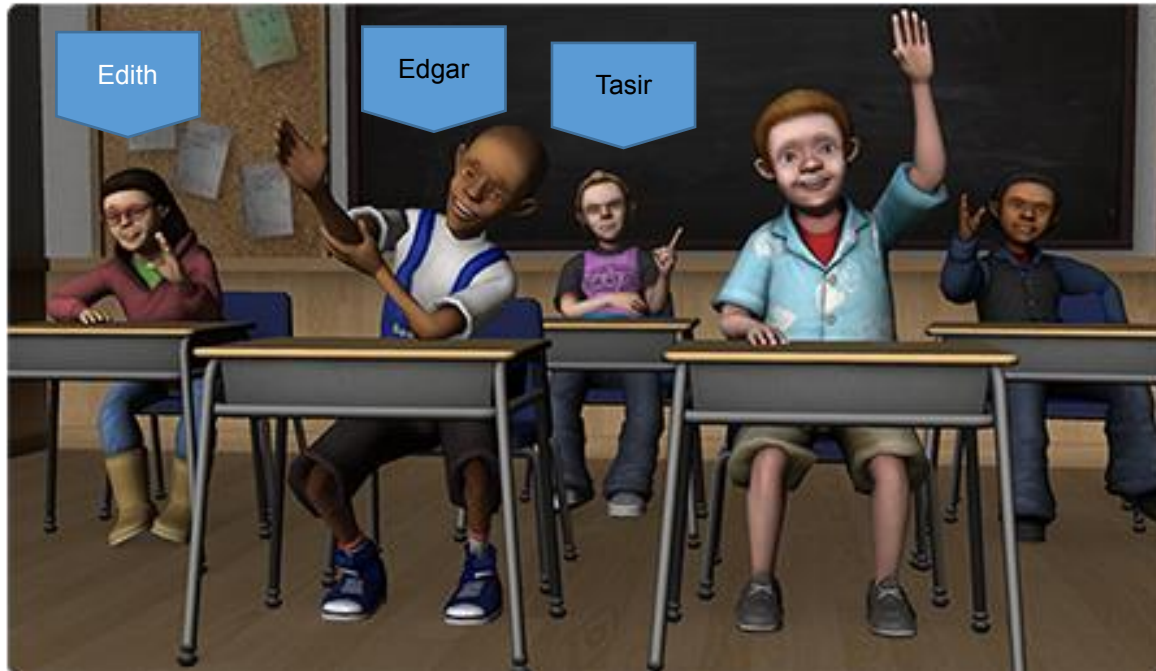
Edith is from Mexico and her native language is Spanish. She has been in Florida for one month. Edith's listening comprehension and speech in English represent the beginning level of oral language proficiency. She may be able to answer simple questions such as yes/no, who, either/or, what and where. Edith



vocabulary is among five to six hundred words.

Edgar is from Puerto Rico and his native language is also Spanish. He has been in the US for six months. At the intermediate level, Edgar is able to use short phrases and simple sentences to communicate. However, while trying to produce longer sentences, he may have troubles in both grammar and vocabulary. Edgar's vocabulary is about three thousand words.

Tasir is from Saudi Arabia and her native language is Arabian. She has been in the US for eighteen months and she can speak freely to her instructors and peers. Advanced English learners, like Tasir, is able to construct complicated sentences and state their opinions. However, she may still have problems in reading and writing English and she may have difficulties in understanding the academic subjects in the class. Tasir's vocabulary is about six thousand words.



Graph 1. The middle school inclusive class in TeachLivE

3. Study Design and Procedures

The data of the study is collected through three parts. The participants are the pre-service teachers at the University of Central Florida. A pre-service teacher, in this study, refers to an undergraduate student that is majoring in education that has not yet started classroom teaching. The first part of data is the observation notes from the workshop of TeachLivE with a whole class of pre-service teachers. The second part of data is the observation notes from the interaction between a single pre-service and EL avatars for his/her mini lesson plan. The last part of data is the interviews and open question surveys for pre-service teachers, TeachLivE director and other instructors.

The objective of TeachLivE workshop is to introduce the simulated classroom and the strategy of leveled questions to the pre-service teachers. The workshop started with instructor's short lecture about how to construct different questions to students of different levels using a family dinner picture. The lecture contains key points of question designing for ELs of different levels. After the lecture, pre-service teachers of each table were asked to do group discussions. Each group was given a picture to for designing leveled questions of beginning level, intermediate level and advanced level. Then the pre-service teachers were asked to interact with the avatars with the leveled questions they just designed. Three workshops with different classes were observed and 112 pre-service teachers participated in total.

The mini lesson plan section is for pre-service teachers to try part of their lessons in the simulated classroom. The simulated classroom has five students. Besides the three EL avatars mentioned above, there are two other native speaker students, Sean and Kevin. Each pre-service teacher is required to



prepare a ten-minute content to teach and use the strategies they learned in class to address the need of ELs of different levels. 16 sections were observed during the study. After the section, the TESOL specialists will give a 15-minute feedback and debriefing for each pre-service teacher.

The last part is interviews and surveys. Semi-structured interviews are conducted to the TeachLivE director and an instructor working with TeachLivE all along, and open question surveys are sent out to the pre-service teachers who have done the mini lesson plan part with the simulated classroom.

4. Study Results and Discussion

The thematic review from the observation notes and interviews shows that three major themes in practicing with simulated classroom: 1) pre-service teachers can easily connect to the avatars just as in a real classroom; 2) pre-service teacher can get immediate guide and help from professionals while the simulated class is proceeding; 3) pre-service teachers can go back to the same scenario and practice different teaching/communication strategies.

The interviewees and pre-service teachers confirm the fidelity of the simulation. People mentioned that they might not know what to do because the avatars were so real and they have to face the same challenges of dealing with a real class. Also, pre-service teachers can even connect to the simulated students like what happen in a real classroom. The director of TeachLivE told a story about one of the pre-service teacher talked first to Mary, an avatar of extremely introverted character and very shy. This pre-service teacher was so engaged that finally Mary raised her hand and started to talk. Later he said that when he walked into that classroom, Mary reminded him about himself when he was young.

One unique feature of practicing in simulated classroom is that pre-service teacher can get immediate guide and help from professionals while the simulated class is proceeding. When the inexperienced pre-service teachers are trying to communicate with the EL Avatars, especially to Edith and Edgar, they may have difficulties to make themselves understood. At this time, our TESOL specialists or professors will be nearby and help to figure out the problem. Pre-services teachers are usually impressed how effective that certain strategies will work and they can easily go through after their advice. For example, in one of the workshops, a pre-service teacher asked Edith, "Can you look at the picture and point to the cup for me please?" Edith repeated the word "cup" to clarify because this might be the only word she caught, and TESOL faculty directed students to speak slowly and change the sentence into "Edith, point to the cup". Edith then understood and pointed the sheet on her desk. Such immediate help can seldom happen in a real class.

Another interesting finding is that with simulated class, if a pre-service teacher are not satisfied with what they do to deal with a lesson plan or a certain classroom management scenario, they will coming back and repeat the lesson with the same students or ask for repeating a certain scenario so they could do it with an alternative strategy. Some pre-service teachers take every chance to sign up to a TeachLivE section and their lesson plans were perfected through the process also. Therefore, by the time they bring their lesson plan to their real classrooms, they are much more prepared than before practicing with this simulated classroom.

However, there are always certain limits of this simulated classroom. For example, the simulated students cannot leave their desks and move around as it is designed in some of the pre-service teachers' lesson plans. Also, as our interviewees had pointed out, there should be more cultural diverse of these avatars and different first language backgrounds should be involved.

5. Conclusion

The qualitative study shows that the simulated class with EL avatars could work as a good field experience before the pre-service teachers start their internship or work. Moreover, TeachLivE-EL can help to improve language teaching skills of our pre-service teacher in two ways that traditional real-class internship cannot offer. First, pre-service teacher can get immediate guide and help from professionals while the simulated class is proceeding; and secondly, pre-services can go back to the same scenario and practice different teaching/communication strategies. In addition, working with the simulated class also provides more chance for the teachers to coach and mentor students in their practice. The students will experience epiphany moment and get their attention when they are working side by side with their instructors and TESOL specialists. Though the data collected from this study is still limited, it indicates a promising start of studying the effects of practicing with simulated classroom. Future studies could be conducted by measuring the effectiveness of certain teaching strategies to ELs in a quantitative research



method.

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