

A Literature Review of Adult Language Learning Based on Virtual Environments

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Abstract: The rapid development of computer technology makes the application of virtual environments in the field of adult language learning possible, therefore, the technology of virtual environments is gaining more and more attention. This paper analyzed eight articles which focus on adult language learning selected from four international academic journals, namely, *Language Learning & Technology*, *European Association for Computer Assisted Language Learning*, *Computer Assisted Language Learning*, and *Computers & Education* between 2015 and 2017 to conduct a literature review. Content analysis method is to employ in this paper to explore the following aspects: research topics, research purposes, research methodologies, research platforms and research findings concerning adult language learning as well as some implications for the further development of virtual environments.

Keywords: virtual environments, adult language learning, literature review

1. Introduction

Language learning in 3D Virtual Worlds (VWs) has become a focus of recent research (Kozlova & Priven, 2015). Researchers have found that virtual environments can improve adult language learners' linguistic affordance more or less. Because these environments are characterized by their high graphic realism and communication capabilities, usually integrating chat and voice options (Melchor-Couto, 2016). Adults who depend on virtual environments for language learning can get rid of the limitations of time and space for a more convenient way of learning. For example, a MUVE (multi-user virtual environment) has been a frequently discussed topic in foreign language research and education because of its capabilities of permitting researchers to construct and design the contexts according to the educational purposes (Oblinger & Oblinger, 2005). In addition, users are represented by avatars, therefore affording a degree of anonymity that has been said to decrease the anxiety generated by the environment (Dickey, 2005; Warschauer, 1997) and a virtual environment can enhance communication behaviors (Tang, Sung, & Chang, 2016). Furthermore, in a virtual class, adult learners' perception and attitude toward language learning can be observed as well as the motivation stimulated by this kind of environment. However, we cannot ignore some limitations existing in the process of adult language learning based on virtual environments, so it is important to conduct more interdisciplinary research and cooperation to build a maturer discipline concerning virtual environments. The new millennium has blurred the conventional boundaries of English language instruction in that English lessons are no longer taught solely by means of printed books and chalk and blackboard, but via electronic learning management systems (e.g., Blackboard, Moodle) or digital tools (e.g., Skype, wikis), which extends learning beyond the classroom.

The paper focuses on four international academic journals regarding eight articles to give a literature review. They are *Language Learning & Technology*, *European Association for Computer Assisted Language Learning*, *Computer Assisted Language Learning* and *Computers & Education* which play a vital role in the field of language learning and technology. They are also SSCI journals whose places in the academic circles cannot be competitive and exceeding. In recent years, many foreign scholars have engaged on systematic literature reviews regarding virtual reality and language learning. However, with the fast growth of technology, it is necessary to sort out data obtained in the new time.

2. Research design

2.1 Research methods and research questions

The paper adopts content analysis method to finish the whole literature review. Content analysis method is a data analysis method which shows objectiveness, systematicness and descriptiveness of what is spread. It aims to reveal the essential facts and tendency in the analyzed objects and to reveal the hidden content so as to predict the development of events (Zhang, 1996). All the data are analyzed and classified from different perspectives and will be presented in the following description. And through this analyzing method, the paper will talk about the following questions:

- (1) What topics are that virtual environments facilitate adult language learning?
- (2) What are the research purposes of virtual environment-based adult language learning?
- (3) How research is conducted when employing virtual environments?
- (4) In what platforms these researches are operated?
- (5) What can we conclude from researches concerning virtual environments?

2.2 Data selection

After deciding on the final journals, article selection started. First, articles in four journals ranging from 2015 to 2017 are all downloaded through database, Web of Science, then they are put into NVivo 11.0. After creating key word lists, some key words, such as virtual environments, virtual reality, virtual world, adult education and language learning are input to get some related articles. Finally, these articles are read in order not to omit articles which this paper really needs. By doing manual work, eight articles are chosen to do this research.

3. Results and discussions

3.1 Research topics

After analyzing the data, the following topics of adult language learning are talked: learner characteristics, linguistic affordance, overall proficiency, nature of interaction, task-based learning, language teachers and environment design. In this paper learner characteristics tells about anxiety, learners' perception and motivation. Linguistic affordance involves some language skills such as listening, speaking, reading writing. And the eight papers just talk about the first three dimensions. Next is overall proficiency, these articles mainly pay attention to learners' language acquisition which is discussed twice. As for nature of interaction, these articles focus on communication competence. These articles are very interested in the approach of task-based learning and teaching which is mentioned four times, and authors also specifically explain the important method. The topic of language teachers is talked once which concerns teacher training such as skills teachers supposed to have and acquire, and challenges teachers meeting with in the process of teaching experience based on virtual environments. And environment design including situated learning approach, learning-by-teaching tutoring environment and virtual situation without explicit instruction is discussed. More information is in Table 1.

Table 1

Topics Discussed in Ten Articles

Topics	
Learner characteristics	Anxiety Learners' perception Motivation
Linguistic affordance	Listening Speaking Reading
Overall proficiency	Language acquisition
Nature of Interaction	Communication competence
Task-based learning	
Language teachers	Teacher training

Environment design	Situated learning approach	Learning-by-teaching tutoring	Virtual situation without explicit instruction
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3.2 Research purposes

It is obvious that scholars' attention to virtual environments is limited to adult education research. So the paper will sum up their purpose generally. First, most articles study the adult language learners' reaction to virtual environments, and then researchers will judge some methods they adopt in their research to make some conclusions. Cases like this is for present and future learning suggestions. Second, some articles not only observe, compare, analyze and conclude, they also propose some new models for adult language learning based on authoritative theoretical foundation, which is beneficial and favorable for further research. Finally, it is suggested that finding what adult learners really want for language learning can make research purposes more specific, useful and meaningful.

3.3 Research methodologies

Among these eight articles, six articles employ mixed method, one employs quantitative method, and one qualitative method. As we all know, quantitative method just collects data, organizes data and shows data, which gives us a picture of what happed in this research, while qualitative can further demonstrate the essence of the research and it can provides more message for other researchers' work. And mixed method is mostly used in eight articles. Because by combining the two methods, researchers are able to find problems and solve problems. Therefore, in the future, mixed method should be advised for further develop virtual reality in the field of adult language learning. This paper summarizes methods used in every paper, which is shown in Figure 1.

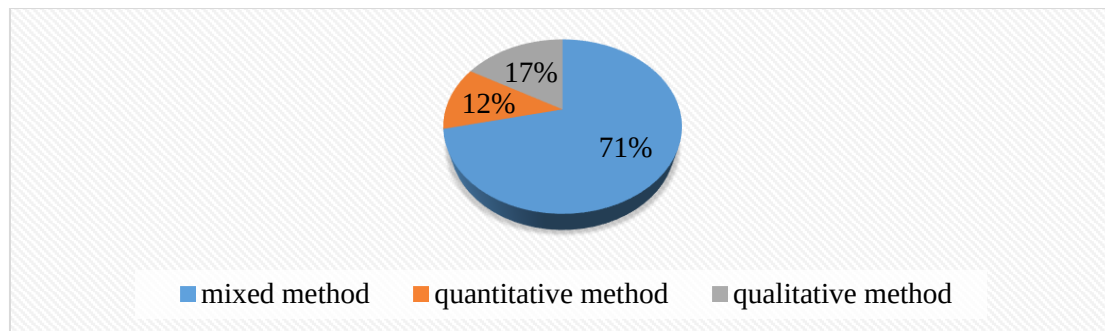


Figure 1. Research Methods

In eight articles, the mostly used ways are questionnaires and interviews. Also, some other available methods are employed to deeply and clearly figure out what these date want to say. These articles all express the research purposes and want to explain the reasons or give suggestions. At this point, these data is powerful. Interpretive studies focus on construction and co-construction of meanings by individuals who interact in order to come to share some understandings in the specific context (Erickson, 1986) and employ several sources of data in order to gain deeper understanding of the issues they explore (Davis, 1995). To understand how virtual environments affect adult language learning, the way of data collection is also very important. The paper makes a summary of the way of data collection in Figure 2.

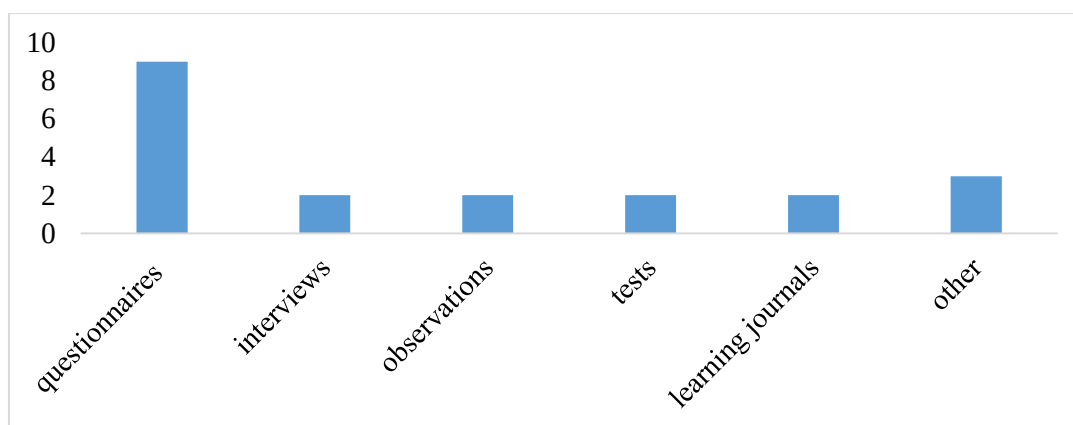


Figure 2. Data Collection

University students are the main research objects when it comes to language learning and virtual environments, especially concerning adult education research. While some teachers take part in researches where they are research objects or research participants. These participants both include female and male. As we all know, the cover of research participants should comprise all stages of age. And in these eight articles, the participants do not satisfy the age span which can be observed. They are college students, postgraduate students, some doctoral students and some language learners who are outside the school. And college students take up the main participants. As for the number of participants, it seems not to be big enough because of some practical situations. More message goes in Figure 3 and Table 2.

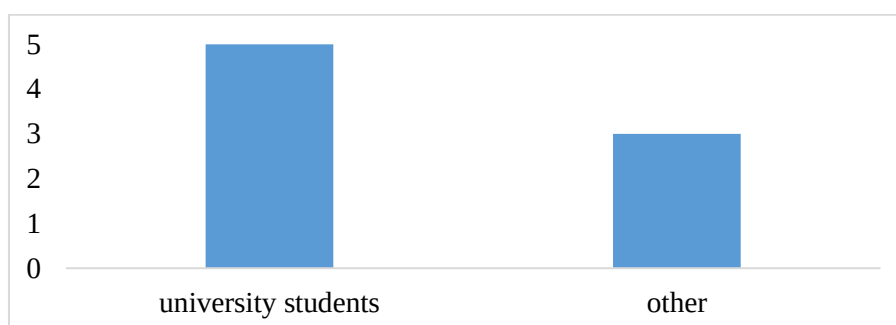


Figure 3. Research Backgrounds

Table 2

Research Participants

Participants	References
6	Kozlova & Priven (2015)
14	Melchor-Couto (2016)
35	Levak (2016)
11	Tang et al(2016)
9	Chen (2016)
51	Gallego, Bueno & Noyes (2016)
30	Lan, Kan, Sung & Chang (2016)
18	Park & Kim (2015)

3.4 Virtual environments

3D VWs are probably the most complex among modern educational technologies on several levels. First, 3D VWs support synchronous, multimodal communication via several communication

channels including audio, text chat, collaboration boards, and webcam video. Second, 3D VWs provide users with a simulation of real-life experiences by embodying them in a graphical form as an avatar (Gerhard, Moore & Hobbs, 2004) and with “realistic immersion” in the worlds resembling real-life locations that “usually reflect a theme, specific location, or country” (Peterson, 2011, p. 68). Third, they create learning spaces conceptually different from the face-to-face classroom and web-conferencing environments, (e.g., Blackboard Collaborate). And in eight articles, researchers employ different virtual environments to conduct their study. They observe adult language learners performance when immersive in a virtual learning situation. Correspondingly, this kind of learning model makes difference, so the paper will show them in Table 3.

Table 3

Virtual Environment Mentioned in Ten Articles

Virtual environment	number
Second Life	6
Algonquin College Campus And Tipontia Island	1
Virtual Tutee System	1

3.5 Research findings

First, these articles express new outcomes regarding virtual environments and adult language learning, and the results are also of great value and are worthy of further research. For example, it is found that the virtually authentic contexts significantly benefited EFL linguistic affordance, especially in syntactic and conversation abilities. Virtual teaching environment is an effective method of teaching training. Virtual environments have been said to be a low anxiety environment that may be particularly suitable for adult language learning. And it can also mediate adult learners’ motivation. Virtual environments can enhance communication behaviors which is so important in the process of language learning. The task-based virtual learning experience is significantly different from simply reading or unrealistically practicing tasks in a traditional classroom, it can make task completion more realistic, leading to heightened engagement and positive learning outcomes (Cheng & Chen, 2016).

Second, these articles have some limitations which should be focused on. The sample of participants is small, which cannot persuade most people and do not show applicability in a broader sense. These articles lack further study to prove the correctness because of the limited time in the research design, which means some important data or messages cannot be obtained. Besides, the problem of decreasing internet of participants also influences the research accomplishment. In some researches, the control group is not created, the time of research is not enough and the way of data collection is single, so the results has minimal internal validity.

4. Conclusions and implications

The potential of updated virtual environments has caught much attention in recent years. It is a possible way to help adults have a pleasurable and effective experience in language learning. And it is a tendency to expand the current study to obtain more solid evidence for approving the application of virtual environment in adult education in the future. In this literature review, it discussed the employment of virtual learning environment from eight articles selected from international academic journals. It is generally a quantitative review which is to tell an objective research situation in this circle. Undoubtedly, virtual environments will be in the next future one of the most successful tool to help adults learn another language. And it is essential that teachers or scholars have the responsibility to make of possible research to demonstrate in which we believe.

These articles give some suggestions for potential development. For example, more adult learners should have the additional opportunities to experience how social interaction competence is improved through virtual contexts, which is different from their regular classes. And it is desirable to make researches to observe adults’ language learning anxiety when using VWs. In a word, many

researchers recommend more work on virtual environments will help us determine more about the advantages and disadvantages of virtual environments in the field of adult language learning.

However, the literature review bears some limitations if it wants to further demonstrate some findings of adult language learning. First, the sample of articles is not enough. As mentioned above, there is only eight articles to present research findings. Besides, the range of topic may be limited which cannot makes the paper systematic. Finally, the literature review will become more perfect if practical reasons can be eliminated.

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