Advances in Social Science, Education and Humanities Research, volume 673
2022 3rd International Conference on Language, Art and Cultural Exchange (ICLACE 2022)

A Study of Effectiveness of Vocabulary Software Use of Chinese College Students on Receptive Input Competence

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ABSTRACT
The purpose of this study was to examine the effectiveness of smartphone applications in the development of English vocabulary knowledge, to explore initially whether there is a link between receptive vocabulary knowledge and receptive language skills, and the influence of affective factors in the development of vocabulary knowledge. The results of the study showed that although the performance of both groups (experimental and control) improved, the improvement was more pronounced in the experimental group. Questionnaires analyzing the role of affective factors in the development of vocabulary knowledge revealed that smartphone apps were highly correlated with students' motivation to learn, but showed no significant correlation in terms of attitude and anxiety.

Keywords: *apps, vocabulary learning (VL), EFL, mobile assisted language learning (MALL), receptive vocabulary knowledge, receptive language skills*

1. INTRUDUCTION

Vocabulary knowledge is integral to learning a second language (L2). Moreover, acquiring vocabulary is a key challenge for college English learners (Berman & Cheng, 2010; Evans & Morrison, 2011) [1], especially in the classroom where exposure is inadequate due to time constraints. As a result, teachers and students have been searching for effective alternatives to traditional classroom instruction. In recent decades, mobile-assisted language learning (MALL) has gained significant attention in Chinese universities due to its practical and functional applications. Furthermore, this increased use of mobile technology provides learners with rich interactive opportunities to use language for their daily communication needs and to engage in different cultural experiences (Lu, 2008).

The present study further validated the effectiveness of cell phone applications in receptive vocabulary knowledge memory by investigating and comparing cell phone based vocabulary memory software with paper based vocabulary lists and contributed to the growing body of research on mobile assisted vocabulary learning. Also this study experimentally verified whether there is an association between receptive vocabulary knowledge and receptive skills.

Vocabulary memory: The definition of "memory" is based on the Atkinson-Shiffrin theory of memory, and in this paper it is divided into short term memory and long term memory for vocabulary.

2. RESERCH METHODOLOGY

2.1. Research Participants

The study consisted of 74 freshman students from a university in Heilongjiang Province, China. They were divided into an experimental group and a control group.

2.2. Research Materials and Instruments

2.2.1. Research Material

There 3200 words were used as research material in this study.

2.2.2. Instruments

1）Baicizhan mobile vocabulary learning App

2）Questionnaire Network

3）WeChat

2.3. Research Procedure

2.3.1. Pre-test on Listening and Reading

The multiple-choice questions in the listening section consisted of four dialogues and four passages. After listening to each dialogue and passage (from a humanities or natural science text), students were asked to choose the best answer from A), B), C), and D). The multiple-choice questions in the reading section consist of four dialogues and four passages from humanities or natural science texts. After reading each dialogue and paragraph, students need to choose the best answer from A), B), C), and D).

2.3.2. Treatment

Subjects in the experimental group were asked to complete a total of 80 tasks using the app during the treatment period. Each task was to recite 40 words per day.

The control group used the traditional paper and pencil recitation method, reciting the same 40 words per day as the experimental group.

The researcher and the instructor made sure that both groups of students learned the same vocabulary list each day.

2.3.3. Post-test on Listening and Reading

The post-test had the same type of questions as the pre-test, but different content. All participants were tested in class for 60 minutes.

2.3.4. Questionnaire

The design of the 30 questions in the questionnaire was based on Grande's Attitude/Motivation Test Battery: An International AMTB Research Project (English version), An Empirical Study on the Application of Affective Strategies in Teaching English Vocabulary in High School, and the Likert Scale.

3. RESULTS FROM THE STUDY AND DISCUSSION

3.1 Research Questions

RQ1. What is the effect of vocabulary apps on improving learners' receptive vocabulary knowledge?

There was a significant difference between the experimental and control groups in terms of short-term memory tests and long-term memory tests. It is better to improve retention of vocabulary through application than through rote memorization. From this result, it can be seen that many students who used the app greatly improved their English vocabulary retention, which is in line with (Wang, Y.H. & Shih, S.K.H., 2015; Xue &Wu, 2014) are consistent with the findings[11][12].

Zhao's (2014) study compared the effects of paper-based vocabulary lists and mobile learning software on students' memory effectiveness[14]. It also pointed out that mobile learning vocabulary has the advantages of convenience, interactivity and personalization. And in terms of receptive vocabulary knowledge of English-Chinese vocabulary translation, the experimental group using APP was significantly better than the control group using rote memorization. Ouyang's (2018) study explored the effect of APP on students' English-Chinese and Chinese-English vocabulary learning. The experimental study finds the effect of APP on English-Chinese and Chinese-English translation[8]. APPs could perform well in receptive vocabulary memory and are effective in improving vocabulary recall.

In conclusion, improving listening performance through apps is better than rote memorization, especially in listening conversations. From this result, it can be seen that students who used the app improved their listening performance, which is consistent with the findings of Ma (2021) and Si (2017).

Ma (2021) stated that the use of APP can help students' English listening learning, as well as increase their interest in listening learning and increase their independence and creativity in listening learning[7]. Also, the use of APPs can enhance students' awareness of using listening learning strategies. And Si (2017) stated that APP can increase students' interest in listening learning, enhance students' self-confidence in learning, help develop students' independent learning habits, and help improve students' ability to think and analyze problems.

RQ2. What is the association between short-term memory receptive vocabulary knowledge and two receptive language skills (reading/listening)?

Short-term memory test scores were significantly associated with listening skills in conversation, while reading skills were also significantly associated in conversation and passages. Zhang's (2014) study explored the factors that influence second language listening comprehension and reading comprehension, respectively[15]. The role of short-term memory, working memory, and vocabulary knowledge in second language listening and reading comprehension was investigated using English majors as the study participants. The results showed that (1) among the measures, vocabulary size, productive vocabulary knowledge, and short-term memory for letters significantly accounted for differences in second language listening comprehension, while vocabulary size and verbal working memory significantly accounted for differences in second language reading comprehension; and (2) short-term memory, working memory, and

vocabulary knowledge explained differences in second language listening and reading comprehension.

Question 3: What is the correlation between long-term memory receptive vocabulary knowledge and the two receptive language skills (reading/listening)?

There was a significant correlation between scores on the long-term memory test and listening skills in conversation, as well as reading skills in terms of conversation and passages. It is evident from this result that many students who used the app showed significant improvements in the listening and reading sections, which is consistent with the findings of Cui (2018), who noted that using a mobile app vocabulary app for English vocabulary learning can improve students' receptive vocabulary, both reading receptive vocabulary and listening receptive vocabulary.

In conclusion, apps have been shown to have a significant effect on increasing the amount of the receptive vocabulary knowledge in long-term memory and promoting the development of the receptive language skills.

Question 4: What are the affective factors that have a strong influence on improving the two receptive language skills of young adult learners?

The results of Yang's study (2012) are consistent with the findings of the present study regarding application and student motivation and related studies[13]. Apps can promote students' motivation.

Ciampa's (2014) study of Malone and Lepper's taxonomy of intrinsic motivation for learning from a theoretical aspect was used as a framework to investigate whether and how this particular theory of motivation is equally applicable to mobile learning was validated.[3] The argumentative model helps to understand the motivational characteristics of learning with mobile devices and how mobile technology can be used to enhance learner motivation, further extending the theory of mobile learning.

In conclusion, motivation as an affective factor has a significant impact on the improvement of receptive skills such as listening and reading.

4. CONCLUSION

Through this study, it was found that the use of mobile apps can effectively improve the learning of receptive vocabulary knowledge in English. Moreover, the results achieved using mobile apps are much higher compared to traditional memorization methods.

As is widely believed, and as mentioned in the previous sections, there is no "one-size-fits-all" approach that works for every learner. In the case of learning with smartphones, not all participants performed in the positive, expected, and desired way. While most people find the use of smartphones and smartphone apps effective and useful, some learners do not feel as comfortable using these technological features as they do using their own traditional and personal learning methods. However, despite this limitation, researchers have been able to report valuable data and information that determines not only the effectiveness of smartphone use, but also the use of smartphone apps. Future research should focus on how to combine modern smartphones with "traditional learning methods" for learning and teaching in and out of the classroom so that the needs and preferred learning methods of all learners are met.

This study contributes to the existing knowledge by comparing the effectiveness of Chinese university students' use and non-use of vocabulary learning apps to develop their vocabulary knowledge and improve their language skills while learning English. This study could help students build their vocabulary through mobile language learning, which could help students succeed in beginning courses. Although the prevalence of information and communication technology (ICT) in all aspects of 21st century life is quite clear and accepted, as Dalton and Grisham (2011) state, it is less clear how teachers can integrate technology into EFL learning, especially in the teaching of vocabulary knowledge development.[4] This study explores and investigates the effectiveness of vocabulary learning apps and contributes to two aspects of improving vocabulary development knowledge for L2 students in English courses through the use of smartphones.This study aims to raise language teachers' awareness of how to use smartphones and how to use smartphones appropriately and effectively for English vocabulary learning.

The results of this study confirm that language learning is not "just" assisted language learning, but mobile assisted language use (MALU) as well as MALL. in particular, smartphones should be a defining point for teaching English to speakers of other languages (TESOL), placing them in the vanguard of teaching and learning (Achilleos & Jarvis, 2013)[5].

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