

# Effectiveness of Mobile Learning in College English Vocabulary Teaching under Multimodal Environment

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## ABSTRACT

Vocabulary is one of the three elements that constitute language. Words carry meaning and sentences are made up with different classes of words. Thus, in foreign language learning, vocabulary acquisition is crucial. Thanks to the mobile communications technology, mobile learning has developed into a new learning-mode. This paper investigates the effectiveness of applying mobile learning to college English vocabulary teaching in China. A fourteen-week's experiment proves combining mobile learning with conventional teaching has enlarged students' vocabulary effectively and their level of expression. The interviews reveal first-year college students show great enthusiasm in mobile vocabulary learning and teachers' guidance and supervision are needed during the process.

## CCS Concepts

• Applied computing→E-learning

## Keywords

Mobile learning; multimodality; vocabulary teaching

## 1. INTRODUCTION

Wilkins pointed out that “without grammar, we can only convey very little information; without vocabulary, we can't communicate anything[1].” Zimmerman regards vocabulary as the key step for language learning and believes that no matter how well a person learns grammar and pronounces words, but if he doesn't have enough vocabulary to express his feelings and to understand other people's opinions and ideas, he can't use the language to communicate with others[2]. As one of the three major components of the language, vocabulary is the basis for people to communicate and express their thoughts and feelings. Vocabulary teaching will directly affect the success of the entire English learning. Therefore it is reasonable to explore an effective way of English vocabulary learning for ELF (English as a Foreign

Language) learners.

From Computer-Assisted Language Learning (CALL) to Mobile-Assisted Language Learning (MALL), modern technologies play a powerful role in current language pedagogy. MALL is available through numerous devices, such as: mobile phones, tablet PCS, MP3 players and so forth. Then the question about how to integrate technologies with practical teaching and learning arises. In China, vocabulary teaching and learning has long been constrained by crowded classrooms, traditional and teacher-centered pedagogy and passive learning styles in higher education. This thesis is intended to combine traditional classroom English vocabulary teaching with mobile-assisted English vocabulary learning in a multimodal environment to explore the effectiveness of MALL.

## 2. PRESENT SITUATION AND PROBLEMS OF COLLEGE ENGLISH VOCABULARY LEARNING

Three elements of a language are phonetics, vocabulary and grammar, among which vocabulary has universally been regarded as the most important. Since the introduction of English course, Chinese students have been engaged in a struggling battle against memorizing English words and there are two major problems in vocabulary teaching.

### 2.1 Passive and Traditional Pedagogy at High Schools

For many high schools in China, English education is mostly test-oriented, as students are all facing the pressure of entrance examinations, much emphasis has been paid to the test results. Due to limited class hours and extended class sizes, most of the English teachers may adopt a kind of passive and traditional teacher-centered pedagogy in teaching. In vocabulary learning, most of students rely on the teachers to do the explanation, after that, memorization is being done by doing repetition, sentence-making, multiply choices or dictation.

### 2.2 Loss of Passion for Vocabulary Learning

For most Chinese students, English vocabulary learning has consumed large amount of time and energy, thus it is easy for many of them lose the passion for vocabulary learning. The reason of this situation can be analyzed from two spectrums. On the one hand, the rote approach of memorizing or acquiring languages is the key factor for low efficiency. Students do not grasp the effective strategies of vocabulary learning and most of them lack the self-autonomy to learn words on their own, heavily depending on instructors' requirement.

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On the other hand, many teachers consider the vocabulary acquisition as a self-learning activity and their main task is to elaborate the meaning as well as the usage of specific words in certain contexts rather than push students to enlarge their vocabulary. Hence, the tough job of vocabulary acquisition falls on the shoulder of students themselves.

### 3. MOBILE ASSISTED LANGUAGE LEARNING

There are many understandings about mobile learning and its definition is defined from different dimensions. Alexander's definition, is widely approved by many scholars, which is "mobile learning is based on mobile computing devices for people to carry out study at anytime, anywhere with the help of mobile computing devices to vividly display the learning content and thus greatly expand the interactivity between professors and students [3]." Mobile learning, compared with other forms of learning style, makes learning more convenient and personalized with more interaction.

The conception of Mobile-Assisted Language Learning (MALL) came into being in the 1980s. At that time, Twarog and Pereszlenyi-Pinter used phones to provide feedback and help for remote language learners then mobile devices were used for language learning[4]. In the 1990s, Brigham Young University taught English with mobile devices and computers. Later, some other functions of mobile devices were developed with the successful application of mobile devices in language learning.

According to the definition made by O'Malley et al in their article, MALL is "any sort of learning that happens when the learner is not in a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies [5]." Kukulska-Hulme and Shield state briefly that MALL differs from computer-assisted language learning in its use of personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across different contexts of use [6]. Mobile education lab of modern technology education center in Beijing University defines MALL as an interactive teaching and learning activity realized by mobile devices relying on comparatively mature wireless mobile network, international internet and multimedia technology.

Though agreement has not been reached on definition of MALL by now, they all agree that MALL is a new teaching and learning methodology based on mobile technology such as cell phones, PADs, tablets and other portable devices under the context of wireless network to promote interactive communication anytime and anywhere.

Today, due to the growth of wireless technologies, MALL is available through numerous devices including mobile phones, iPods, tablet PCs, hand-held computers, PDAs, MP3 players and so forth. MALL currently serves not only as a primary source of language education for students but also but also supports the retention and utilization of newly-acquired language skills.

### 4. MULTIMODALITY AND VOCABULARY MEMORIZATION APPLICATION

#### 4.1 Multimodality and Multimodal Approach

Multimodality and Multimodal Approach was first put forward by New London Group in 1996 [7]. The word of "multimodality" is

made up of two parts: "multi" and "modality". Here, "modality" which means the semiotic resources is similar to the meaning of "mode". O'Halloran believes that in daily life, without multimodality, people can hardly communicate successfully; in real communication, people use gestures, eyes contact and body languages to achieve meaning [8]. As this process involves a variety of modes, so multimodal discourse analysis theory has to be used to analyze this kind of communication activity.

Jewitt, C insists that the multimodality is the combination of two or more means of representation and communication, including pictures, gestures, sound, postures and the mixture of these means [9]. Van Leeuwen states that Multimodality purports the unity of various semiotic modes, such as language and music in the communicative event [10]. Baldry and Thibault thinks that multimodality means the various ways in which a number of distinct semiotic resource systems are both co-deployed and co-contextualized in the making of a text-specific meaning [11]. Gu Yueguo maintains that "multi-modes" were the interaction pattern of people's sensory organs and the external world. It is easy to draw a conclusion that multimodality is the combination of many different semiotic resources to achieve the goal of interaction and communication [12]. Machin defines multimodality as "the grammar of visual communication that is used by image designers. It is an analysis of the rules and principle that allows viewers to understand the meaning potential of the relative placement of elements, framing, salience, proximity, color situations, styles of typeface, etc [13]"

Chinese scholars Gu Yueguo first introduced this concept to China. Gu studied this issue from the point of cognitive psychology. He believes that modal means people's communication methods with the external environment (such as people, machinery, objects, animals, etc) by the means of senses (such as auditory and visual senses). In China, some scholars have applied Multimodality to teaching in recent years. Hu and Wei propose that the introduction of hypertext thinking in College English teaching can promote the process of foreign language teaching reform in China [14] [15]. Through empirical studies, Long and Zhao find out that the combination of multimodality and meta-cognitive strategies can enhance students's listening comprehension in listening teaching [16]. Zhang puts forward the design case of multimodal foreign language classroom teaching, and explores the principles for compiling multimodal foreign textbooks [17]. Liu demonstrates how to use multimodal modes such as English original film, PPT demonstration, and network corpus in vocabulary teaching.[18]. Jin applies ELAN software to analyze the situation that how College English teachers use multimodal teaching mode in vocabulary teaching [19].

In summary, multimodality and multimodal approach has gained tremendous popularity and affirmation. However, most of the researches mainly focus on classroom teaching. Therefore, we attempts to apply the concept of multimodality to mobile learning with the help of the most advanced vocabulary memorization application in China.

#### 4.2 Realization of Vocabulary Learning Based on Mobile Devices

According to the 41th Statistical Report of China Internet Development issued by China Network Information Center (CNNIC), the number of Chinese internet users has reached 772 million up to December 2017. And the amount of mobile-phone netizens has attained to 752 million.

As long as the internet is available, the real time communication and sharing of information by mobile devices at anytime and anywhere is possible which breaks the boundaries of location and time to realize lifelong learning. Moreover, support from mobile and communication technology makes mobile devices compatible with various applications in the market for online/ offline study.

As a quick response towards the education market, abundant language learning applications designed for specific purposes come to the market and are updated constantly along with technology improvement to win users over. Applications such as online/ offline dictionaries can be used as a portable device for word acquisition, and vocabulary memorization application is a useful tool for word learning and retention, while communicative platforms installed in mobile devices involving WeChat, QQ, SMS, etc. are convenient mediums for information delivery and multimedia soft wares and applications in mobile devices can be used for review after class. The resourceful choices of applications presented to students render vocabulary learning a tailored activity based on students' preference and learning experience. Therefore, all the aforementioned factors do not only create a favorable environment for EFL vocabulary learning, they also produce many possibilities to scholars and educators in the field of education.

### 4.3 Vocabulary Memorization Application --- "Baicizhan"

The vocabulary memorization application we adopt is called "Baicizhan" (<http://www.baicizhan.com/>), ranking the first and the most popular vocabulary learning APP in China. In October 2017, its users reached over 920000. This software use interesting pictures to establish the relationship between words and the real environment, offering example sentences, pronunciation with native speakers, making word-memorizing a pleasure.



Figure 1. Interface of baicizhan.

Compatibility with IOS, Android operating systems attracts large number of mobile device users. "Baicizhan", has tremendous word databases at various levels from primary school to college, from elementary to advanced, full coverage of vocabulary targeting many important examinations, such as : High School and College Entrance Examinations, College English Test (CET), for English majors in college, Test for English Majors (TEM); IELTS,TOEFL, GRE, GMAT or SAT are also popular. Vocabulary database in specific areas like medication, psychology, biology, architecture etc. are provided.

Multiple choices of reviewing modes make vocabulary memorization entertaining and interesting. Offline package saves money on internet traffic and realizes the real meaning of learning

anytime and anywhere without network restrictions; the warning reminder of planned memorization practices is quite useful; directly adding friends, sharing achievements on various platforms like Microblog, WeChat, watching friends' learning trends and trying to sprint weekly charts makes vocabulary-learning no longer a dull and boring experience, but an interesting game with numerous participants.

Due to requirement of the following experiment, the term mobile device in the paper refers in particular to mobile phones and PADs. Sufficient contextual information provided by the App enables words to be fully understood.

## 5. RESEARCH METHOD AND EXPERIMENTAL DESIGN

We adopted three data collection instruments in the study: the test, the questionnaire and the oral interview. Both qualitative and quantitative surveys were applied in the study.

### 5.1 Subjects

Participants are 125 freshmen in four parallel classes from a comprehensive university in south China; of which two classes are experimental classes with 62 students and two classes are control classes with 63 students.

### 5.2 Training Procedure

In order to explore the role of mobile learning in promoting vocabulary teaching in a multi-modal environment, we introduce mobile learning technology into teaching, integrating traditional classroom vocabulary teaching and extracurricular mobile learning. Each student in the experimental group should own a smartphone and install the App "Baicizhen" for vocabulary learning. There is no equipment requirement for the control class. The process of the teaching experiment lasts for 14 weeks. Since there is no specific vocabulary course, the vocabulary teaching is completed within regular English reading classes, four hours per week. Each teacher gives a special explanation of the vocabulary of this unit for about 15-20 minutes. The contents of the two groups are the same, but the difference is to introduce the mobile learning concept to the experimental group; to demonstrate in detail the functions and steps of Baicizhen; from the first week, the experimental group is required to use the software for mobile learning at least three times a week, each time accumulating no less than 20 minutes, the specific learning time and place are decided by students. They were asked to send their training results to WeChat teachers on a weekly basis.

### 5.3 Research Instrument

#### 5.3.1 Vocabulary size test

"Vocabulary Size Test" designed by Nation and Begalar, has been used to predict the vocabulary level of the four classes before and after the teaching experiment.

#### 5.3.2 Interviews

Interviews are conducted after the post vocabulary test and 30 students are chosen at random from the experiment group. Questions about the importance of vocabulary learning and the effectiveness of mobile learning are asked for each interviewee.

## 6. RESULTS AND ANALYSIS

### 6.1 Comparison of Test Results between the Two Groups

The vocabulary size test divides words into 14 levels, 1000 families at each level. Considering that the subjects are freshmen,

the former five levels are used as testing tools. After the test, the two groups of students are tested by independent sample T-test. The results are as shown in Table 1. Statistically speaking, the vocabulary level of the experimental class and the control class is on the same line, and there is no significant difference. ( $t=0.103$ ,  $p=0.435 > 0.05$ )

**Table 1. Means of T-test for pretest on vocabulary size**

N = 125	M	SD	<i>t</i>	<i>p</i>
EC = 62	61.82	8.371	0.103	0.435
CC = 63	61.54	8.092		

14 weeks later, the vocabulary size test was conducted again for the two groups. Table 2 shows that the average scores of the two groups have improved to a certain extent. The students in the experimental group have higher scores than those in the control group, and there are significant differences between the two groups ( $t = 3.893$ ,  $P = 0.001 < 0.05$ ). Although both groups have made progress, the students in the experiment group got better learning results and made more remarkable progress. We can draw the following conclusions: traditional classroom learning, combined with mobile learning can effectively improve college students' English vocabulary.

**Table 2. Means of T-test for post-test on vocabulary size**

N = 125	M	SD	<i>t</i>	<i>p</i>
EC = 62	84.82	6.368	3.893	0.001
CC = 63	78.54	7.652		

## 6.2 Results and Analysis of the Interview

30 students are chosen as the interviewees randomly from the experimental group, and we find out the following useful information:

### 6.2.1 Assertion for the importance of vocabulary learning

All the 30 students being interviewed believe vocabulary their thinking and communication; people without a certain vocabulary cannot effectively practice listening, speaking, reading and writing, which directly affect the individual's language expression capability; vocabulary is the basis of the English comprehensive ability and it is also of vital importance in their learning a foreign language. 99% interviewees indicate effective vocabulary learning can promote their level of expression.

### 6.2.2 Great enthusiasm shown on mobile vocabulary learning

95% interviewees believe their vocabulary size have been improved through systematic mobile learning under the guidance of the teacher and the help of useful APP. 80% students agrees that sufficient contextual information provided by mobile learning APP enables words to be fully and more easily understood. And 99% interviewees express their willingness to continue mobile learning with the software.

### 6.2.3 Teacher's guidance and supervision needed during the process of mobile learning.

90% interviewees agrees that teacher's guidance and supervision are quite necessary. Some freshmen even said teacher's supervision was essential for them, for their lack of self-discipline

and strategies of English learning. Therefore, through teacher's participation, students can easily acquire learning strategies and skills for mobile-assisted language learning.

## 7. CONCLUSION

Vocabulary is of great importance in foreign language learning. With the innovation of information and communications technology, the transmission of information is no longer merely by means of words or voices, but in a multi-modal way. As with mobile devices, mobile learning that can happen at anytime and any place is taking its shape. This study explores the possibility and effectiveness of combining mobile vocabulary learning with conventional college English classroom teaching through a 14-week comparative teaching experiment. Although this study shows that there are significant differences in vocabulary tests between the experimental class and the control class, the sample is confined to four classes. Due to the limitation of time and conditions, the scope of the study is relatively small; further research from different dimensions should be conducted to help a deeper understanding on mobile learning.

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