

An Investigation into College EFL Learners' Use of English Vocabulary Learning Applications

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Abstract: Based on the Technology Acceptance Model (TAM), this study investigated the usage of English vocabulary learning mobile applications among students from a university in China through a questionnaire survey. The results demonstrate that: (1) English vocabulary learning apps were widely used among college students, with the most favored app among the participants of this study being "Baicizhan"; (2) Among the eight factors of social influence, cost commitment, motivation for language learning, immersive experience, learning resources, perceived ease of use, perceived usefulness, and intention to use, there were no significant differences observed among different genders and majors of college students.

Keywords: Technology Acceptance Model, English Vocabulary Learning Apps, College English Learners

1. Introduction

In today's rapidly evolving digital age, college students increasingly utilize mobile applications to enhance their English vocabulary acquisition and comprehension. With the widespread use of mobile devices and the advent of third-party applications for smartphones, these applications have become an integral part of learning English vocabulary. As of 2023, the total number of mobile applications available in China has reached over 3.45 million, covering 26 major categories including academic teaching, skills training, foreign language learning, and reading applications. English vocabulary learning apps, specifically, are highly popular in foreign language learning, as they offer learners abundant and engaging learning resources, and provide a personalized learning experience, with no time or geographical constraints. These applications utilize Internet technology, allowing learners to access a wide range of learning resources, and create their own personalized learning plans. In comparison to traditional English vocabulary learning methods, these applications provide a mobile, contextualized, and personalized learning environment, making them an ideal tool for foreign language learning^[1].

The pursuit of effective English vocabulary learning apps led to the emergence of popular apps such as Maimemo, Shanbay, Baicizhan, and Bubei in the mobile app store. The Maimemo app, for instance, capitalizes on the user's memory behavior data to identify and address forgetfulness, tailoring its review plan accordingly. The app's interactive graphics, charts, and dynamic reward system make learning an enjoyable and effective experience. Baicizhan, on the other hand, uses a picture-based memorization method and provides a comprehensive synonym library for learners at different levels. The application also includes authoritative exam outlines and synonym databases to support users' learning journey. Shanbay offers a comprehensive English test data library, providing a wealth of high-frequency words, explanations, and various word training modes. Its convenient audio feature allows learners to enhance their English vocabulary even in short bursts of free time. The Bubei app, containing over 1.5 million original sentences from films and TV shows, offers a rich repository of word roots and suffixes, covering nearly 20,000 words. Its user-friendly interface design coupled with beautiful wallpapers and themes makes it an ideal tool for rapid vocabulary retention.

Despite the plethora of English vocabulary learning apps available on the market, there has been little attention given by researchers to the use of English vocabulary learning apps among college students. Existing literature on domestic vocabulary learning apps has mainly focused on their design and development^[2-3]. However, there is insufficient exploration of how students use these apps and whether demographic variables influence their choice of using these apps. The widespread utilization of mobile learning applications, particularly English vocabulary learning applications, among tertiary education

level students calls for an in-depth investigation of their usage. This study holds dual practical significance. Firstly, it aims to unveil learners' perceptions and preferences in utilizing English vocabulary learning applications to address their learning needs through a survey. Secondly, the findings of this paper can offer valuable insights to developers, enabling them to enhance their products to better cater to the needs of their target customers.

2. Literature Review

2.1. Theoretical Basis

The theoretical framework underpinning this research is the Technology Acceptance Model (TAM) proposed by Davis^[4], which is rooted in rational behavior theory, planned behavior theory, innovation diffusion theory, self-efficacy theory, inputs theory, and outputs theory. This model is particularly insightful in predicting and explaining users' acceptance and adoption behavior towards new information systems. According to Davis, when users are presented with new technologies, they are influenced by various factors. Perceived usefulness and perceived ease of use are the two most critical factors. Perceived ease of use is defined as the user's perception of the ease or difficulty of using a new technology, while perceived usefulness is the extent to which the user believes that the new technology can enhance productivity or efficiency.

TAM has shown that perceived ease of use has a significant impact on the user's perception of usefulness, which in turn impacts their attitude towards the system. The user's attitude, in turn, shapes their intention to continue using the technology^[5]. Thus, if users perceive a particular information system or new technology as easy to use and capable of enhancing their work efficiency to a certain extent, they would find it beneficial for their work, thereby enhancing their perceived usefulness.

In conclusion, TAM is a powerful tool for studying users' acceptance and adoption behavior towards new technologies. Its emphasis on the interplay between perceived ease of use and perceived usefulness provides a more comprehensive understanding of user behavior^[6].

2.2. Relevant Studies

Within the EFL teaching milieu, scholarly attention has been given to English learning applications. For example, guided by the theories of blended learning and mobile learning, Guan^[7] posits that mobile English learning applications have successfully bridged the gap between traditional teaching and mobile learning by integrating synchronous and personalized learning. As a result, this integration has not only improved English proficiency but also served as a catalyst to boost overall English proficiency. Several researchers have explored the potential of mobile learning in promoting English proficiency, including its role in fostering positive motivation for vocabulary learning^[8-9]. For instance, Rahimi and Allahyari^[9] utilized a sample size of 40 English learners to investigate the impact of multimedia-assisted vocabulary learning on learners' cognitive strategy use and vocabulary acquisition. The findings revealed a substantial improvement in vocabulary acquisition and cognitive strategy use among students exposed to multimedia-assisted instruction.

Researchers have also delved into the factors that contribute to users' desire to utilize mobile learning applications. For instance, Cao et al.^[10] explored the opinions of college students towards the vocabulary learning application, Baicizhan, by way of questionnaire surveys and interviews. Their results indicated that this application was positively perceived by the students as an effective tool for supplementing their English vocabulary knowledge. Furthermore, their research revealed that various factors played a role in students' continued usage of the application, including its interface design, learning resources, and entertainment value. Similarly, Liu^[11] discovered that perceived ease of use positively influenced perceived usefulness and students' attitudes towards using this learning tool, while student satisfaction was also found to be a significant factor in influencing their decision to continue using the application for vocabulary learning. In addition, Gao^[12] studied the factors that impacted students' decision to continue using the "LAIX" learning application and identified application functionality, user characteristics, perceived usefulness, and attitudes as the significant factors influencing their desire to continue using the device. It was observed that the user experience of vocabulary learning applications varied across different age groups, and their learning styles were influenced accordingly. Lastly, Cheng and Xu^[13] analyzed the current state of college students' English learning and the impact of using vocabulary learning applications on vocabulary acquisition. They discovered that when students used applications for vocabulary learning, they engaged in activities such as shadowing, studying example

sentences, and watching animations. The study also indicated that the use of vocabulary learning applications had led to improvement in reading speed for some students.

In sum, English vocabulary learning applications have garnered significant attention in vocabulary learning and teaching. However, the perspective of the primary stakeholders-the student users-remains relatively under-explored. It is vital to acknowledge that the increasing prevalence of mobile learning in education emphasizes the importance of understanding how student users interact with English vocabulary learning applications. As the sustainability of these applications relies heavily on student usage, their usage habits should be studied thoroughly.

3. Research Design

3.1. Research Questions

The current study aimed to explore the use of mobile applications for vocabulary learning among college English language learners. More specifically, two research questions were addressed:

(1) What specific applications are college EFL learners using for vocabulary memorization and how frequently are these applications being utilized?

(2) Are there significant gender and academic major differences in the factors that influence the use of vocabulary learning applications by college students?

Hopefully, this research will contribute to the literature on digital literacy and educational technology. Results from the study will be useful to educators, administrators, and policy makers in designing and implementing effective language learning programs for college students.

3.2. Research Subjects

In this study, we gathered data from 233 students from a university in China, consisting of 98 males and 135 females. The participants were divided into four groups: 63 freshmen, 57 sophomores, 54 juniors, and 59 seniors. Specifically, there were 146 students majoring in English and 87 non-English majors. The mean age of the participants was 21 years ($SD = 1.4204$). Table 1 displays the essential sample information for this study, such as gender, major, grade, and average age.

Table 1: Description and analysis of basic information of samples

Variables	Category	Number	Percentage(%)	Average Age
Gender	Male	98	42.06	20.6
	Female	135	57.94	21.4
Major	Non-English	146	37.34	19.9
	English	87	62.66	22.1
Grade	Freshmen	63	27.04	19.7
	Sophomore	57	24.46	20.1
	Junior	54	23.18	21.8
	Senior	59	25.32	22.4

3.3. Research Instrument

Table 2: Description and analysis of basic information of samples

Category	Sample Statements
Social Influence	The recommendations from classmates and teachers will influence my choice of English vocabulary learning apps.
Cost commitment	I believe that paying a certain fee for better quality service is worthwhile.
Learning motivation	Using an English vocabulary learning app to study English is to fulfill my interest in the language.
Immersive experience	When using an English vocabulary learning app, I feel like time flies by.
Learning resources	Interesting and concise audiovisual learning resources have helped me in studying English vocabulary.
Usability	Learning to use an English vocabulary app was easy for me.
Usefulness	I believe that using an English vocabulary learning app can enhance my study efficiency.
Usage intention	If I have already been using an English vocabulary learning app, I will continue using it.

This study employed a survey questionnaire as its primary data collection method. The questionnaire was composed of two sections. The first section collected demographic information from the participants such as their gender, grade, major, and age. The second section used the Likert five-point scale (1 indicates “completely agree,” 5 indicates “completely disagree”), which was adapted from Shen Minyo’s scale^[14], to investigate the factors influencing college students’ use of applications for learning English vocabulary. The questionnaire encompassed 27 items, which were divided into eight categories: social influence, cost commitment, learning motivation, immersive experience, learning resources, usability, usefulness, and usage intention. Example statements for each category are presented in Table 2.

3.4. Data Collection and Analysis

The survey was made accessible to online participants via Wenjuanxing (www.wjx.cn) for data collection. QQ and WeChat, two most popular social networking platforms, were utilized to disseminate the survey links and QR codes to participants. The Cronbach’s alpha coefficients for the eight subscales were 0.863, 0.822, 0.854, 0.834, 0.835, 0.794, 0.788, and 0.845, indicating high reliability of the measurement scales. Upon completion of careful data inspection and the removal of outliers, the descriptive statistics such as skewness, kurtosis, extremes, mean, and standard deviation were calculated using SPSS 23.0. As the sample sizes across different grades were relatively small, this study primarily employed independent sample t-tests to identify potential significant differences in the influence of gender and major on college students’ usage of English vocabulary learning applications.

4. Research Findings

4.1. Overall Situation of Students’ Use of English Vocabulary Learning Applications

One of the main observations made in this research is that the participants in our survey reported using English vocabulary learning applications with a frequency that significantly surpassed the typical daily usage of most applications. In fact, as shown in Table 3, 28.64% of participants reported using this particular app multiple times a day, which represents a significantly larger portion of the participants than what would be considered standard or typical. Additionally, we observed that all participants reported using these applications at least two to three times per month, which suggests that the participants utilized these applications as a consistent and regular learning tool throughout the course of their studies. Overall, these results strongly suggest that English vocabulary learning applications are indeed commonly used and highly valued language learning tools among the university students surveyed.

Table 3: Participants’ usage of the English vocabulary learning applications

Frequency of use	Percentage (%)
Never	0
Once a day	25.00%
Multiple times a day	28.64%
Once every two to three days	17.50%
Once or twice every month	13.86%
Once a month or less	15.00%

In addition, the present study explored the types of English vocabulary learning applications frequently utilized by the study participants. As revealed in Table 4, the majority of participants opted for Baicizhan. The results also suggest that the participating students were open to using diverse types of applications.

Table 4: Types of English vocabulary learning applications used by participants

Types of English vocabulary applications	Percentage (%)
Maimemo	42.00
Shanbay	50.00
Bubei	38.00
Baicizhan	62.14
Others	28.00

The results of this study indicate that there was a high level of acceptance and demand for these learning applications among students. It was observed that the students showed a great interest in using applications to improve their English skills. The results of this study also show that there were some widely used applications, which students tended to prefer and use frequently. The most commonly used learning tool among the students was Baicizhan (62.14%), suggesting that it is the most popular English

vocabulary learning application among students.

4.2. Gender and Major Differences in Using English Vocabulary Learning Applications

This study utilized an independent samples t-test to examine whether significant differences existed among participants in terms of gender and major. The results from the t-test showed that no significant differences existed among all eight factors between male and female students ($p > .05$), which was in line with the findings reported by Nami^[15]. Also, no significant differences were observed between students in different majors ($p > .05$) across all eight factors, which was contradictory to the results observed by Tang et al.^[16]. The discrepancy between the results of this study and those of Tang et al.^[14] may have occurred for several reasons. First, the questionnaires were self-administered by the students online, which could have introduced biases in the data due to the potential participant negligence during the questionnaire completion process. Secondly, due to the pressure faced by university students due to English exams such as CET-4, CET-6, TEM-4, and TEM-8, they may have had similar motivations for using English vocabulary learning applications, which may have led to fewer differences in learning outcomes between English and non-English majors. However, the results obtained from this study require further empirical research for validation, as further research can further explore the potential explanations for these differences in learning outcomes between students from different majors and genders.

5. Conclusion

The use of English vocabulary learning applications has been explored in various studies, but this particular research focused on the use of English vocabulary learning applications among university students in the Chinese EFL context. The study found that English vocabulary learning applications were favored by college students as a language learning tool. The most widely used tool among the participants was Baicizhan, an app specifically designed to teach English vocabulary and provide users with an immersive learning environment. The study also found that there were no significant differences in eight aspects among students of different genders and majors, including social influence, cost commitment, English learning motivation, immersive experience, learning resources, perceived ease of use, perceived usefulness, and usage intention.

However, it should be noted that the results of this study cannot fully explain the use of English vocabulary learning applications by university English learners. Despite this, the study provided useful insights into the use of English vocabulary learning applications among university students. The results suggest that students generally favored these apps and found them to be useful, immersive, and easy to use. This suggests that educators and teachers can use these tools to improve English teaching and learning in the classroom.

In conclusion, the findings of this study provide valuable insights into the use of English vocabulary learning apps among university students in the Chinese EFL context. The results suggest that English vocabulary learning applications are a valuable tool for students who want to improve their English language skills. By using these tools, educators and teachers can improve the learning environment and enrich the form and content of the classroom, thereby enhancing students' enthusiasm for learning English.

References

- [1] Chen J J, Zhang W R, Di H L. Research on English learning Apps and college students' English proficiency[J]. *Overseas English*, 2015 (1): 98-99.
- [2] Chen Y, Han N. Developing APP for English vocabulary learning based on constructivism approach [J]. *Journal of Inner Mongolia Normal University (Natural Science Edition)*, 2017, 46(6): 898-901.
- [3] Zhang Y, Wang Z, Li Y L, Wu N N. Designing a gamified English vocabulary learning app for the Android system[J]. *Computer Knowledge and Technology*, 2023, 19 (27): 58-61.
- [4] Davis F D. Perceived usefulness, perceived ease of use, and user acceptance of information technology [J]. *MIS Quarterly*, 1989, 13(3): 319-340.
- [5] Zhu J. Based on the technology acceptance model of graduate student the influence factors of mobile learning [D]. Jinan: Shandong Normal University, 2015.
- [6] Wang J. Micro-blog users' participation motivation and behavior—An empirical research based on TAM [D]. Jinan: Shandong University, 2010.
- [7] Guan A H. Research on blended teaching model in college English based on mobile learning app[J].

Journal of Contemporary Educational Research, 2021, 5(1): 78-81.

[8] Mahdi H S. Effectiveness of mobile devices on vocabulary learning: A meta-analysis[J]. *Journal of Educational Computing Research*, 2018, 56(1): 134-154.

[9] Rahimi M, Allahyari A. Effects of multimedia learning combined with strategy-based instruction on vocabulary learning and strategy use[J]. *Sage Open*, 2019, 9(2): 2158244019844081.

[10] Cao J, Deng X J. Research on the influence of “Baicizhan” on college students’ English vocabulary learning in the perspective of mobile learning[J]. *Technology Enhanced Foreign Language Education*, 2019(3): 43-48.

[11] Liu Y X. Research on factors influencing the continued use behavior of mobile learning apps[D]. Haerbin: Heilongjiang University, 2019.

[12] Gao J H. An analysis of the influencing factors of the continuous use intention of learning software users—Take Liulishuo as an example[D]. Taiyuan: Shanxi Normal University, 2020.

[13] Cheng Z Q, Xu Y Y. Research on English Blended Learning Based on the Online Test Platform[J]. *Journal of Science and Education*, 2019 (22): 167-168.

[14] Shen M Y. Study on users’ usage intention of English vocabulary memorization applications[D]. Zhengzhou: Zhengzhou University, 2021.

[15] Nami F. Educational smartphone apps for language learning in higher education: Students’ choices and perceptions [J]. *Australasian Journal of Educational Technology*, 2020, 36(4): 82-95.

[16] Tang X J, Tang J W, Yang Y L, Shao Y F, Yuan Y H. Survey on the use of English vocabulary learning Apps by college students and its implications[J]. *English Square*, 2022 (34): 116-119.