Original Paper

An Evaluation of Popular Vocabulary Learning Mobile Applications in China and Their Implications for Language Learning

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Abstract

Mobile-Assisted Language Learning (abbreviated to MALL) has proved to be both useful and efficacious for language learning. Mobile applications (apps) can help learners meet their needs for updating information and skills and learning without the constraints of time and place. In our current informational era, mobile learning has been more and more adopted in English teaching. Some mobile apps can also provide potential possibilities for foreign language learners to practice language skills on their smart mobile phones and tablet PCs. A lot of applications have been created and used for English as a Foreign Language (EFL) learning.

Mastering vocabulary is an integral aspect of English learning, and an essential way to learn English vocabulary is via mobile learning apps. This study evaluates the four vocabulary learning apps which have become popularized in China: baicizhan, Youdao, Hujiang Happy Dictionary, and Momo word. Through a process of analysis and comparison, the affordances and limitations of these different English vocabulary apps in English learning will be examined. Then I would like to examine how mobile apps can be incorporated into English language teaching and learning and what kinds of tasks can be employed to improve EFL learning for learners.

Keywords

mobile applications, vocabulary, English language teaching, smart phone, education

1. Introduction

In this chapter, the researcher introduces the context of English Language Teaching (ELT) in China and why English has become more important over the last few decades. Then this chapter will explore the rise

and development of Mobile-Assisted Language Learning (MALL) and its trend. This chapter will focus on the developments of ELT in China, and how we have reached the current stage we are in. It shall also include a rationale for this study and expectations towards this area of research. At the beginning of this section the researcher will discuss ELT in China and the emergence of MALL in university education. Next, reasons for doing this research objectives and questions will be given.

1.1 Context of This Study: ELT in China

Education is one of the core variables which determines the success of any given economy. The importance of education has particularly increased among modern global economies, considering the inter linkage which exists among them that has been brought by globalization and market liberalization. The rising importance of education equally arises from the fact that global economies are faced by similar problems which requires common solutions for them to be effectively addressed. Thus, through education, it is possible to disseminate and therefore, allow the sharing of knowledge and skills touching on various societal issues. Learning, form one of the main approaches through which people become educated (Aziz et al., 2018). However, the learning process, just like the rest of the world, has evolved, and technology is increasingly becoming an important component used to facilitate modern language learning.

As Mitchell et al. (2019) stipulates language refers to, "the method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way". Is only through language that people can communicate, and therefore, share ideas. Education, on the other hand refers to the process of learning, which enables one to know what he/she did not know. Education becomes only possible if people have a common language through which they can communicate. Therefore, without language no communication may occur among people, and therefore, it is difficult to have learning. Moreover, without language, it becomes difficult between any two parties, hence difficult to develop common understanding of any given situation. Thus, due to the growing interdependence among global economies, communication among them is becoming increasingly important. Consequently, different language speaking groups have currently taken the initiative to learn foreign languages in an effort to ensure communication among them.

Following the 1978 economic reforms that changed China from a centrally-planned economy, to a socialist form of market economy, the country underwent a lot of changes. The country opened its borders for international trade and other forms of international collaborations. Following the reforms, China emerged as a major player in international trade, and an important participant in international relations. However, the participation of the country in the international stage was however retarded by language, since many of its trading partners used a different language from the Chinese language. For example, some of the country's major trading partners such as the United Kingdom, United States of America, and Australia used English for communication purposes. The need for the citizens of China to know other languages other than Chinese, was compounded when it joined the different organs of the United Nations.

For example, since joining the World Trade Organization (WTO) in 2001, it became necessary for China to undertake serious educational reforms that were aimed to streamline its educational systems to the prevailing educational needs. The reforms included the introduction of the learning of foreign languages in its education system. To correspond with this trend, the Chinese government gave priority to reforms in the teaching of English at various levels of the education system. The move was particularly undertaking to prevent language from becoming a barrier deterring the country from participating in global commerce, and making contribution to various global issues. To bring to an end the above trend the country underscored the need for its citizens to learn English, opening doors to English Language Teaching (ELT) in the country. Since then, the development of English Language Teaching (ELT) in China has flourished, with the number of students interested in knowing the language increasing tremendously (Cortazzi & Jin, 2008). The development of ELT, has for long been facilitated by foreign teachers. Through their assistance, the country has managed to slowly build local capacity, with some Chinese citizens currently helping to teach the English language.

Current developments in ELT include the establishment of other methods of teaching English particularly the use of technological aids such as mobile applications to learn English, thus making ELT easy, accessible and affordable. The move is expected to supplements the efforts of teachers and other trainers of the English language in the country. According to Jin and Cortazzi (2006), despite the impressive milestones China has made in regards to the learning of the English language, ELT retains various characteristics of the Chinese language. Therefore, embracing technology in the teaching and learning of English, will help yield better outcomes of the entire learning process.

The world in the current era has become diverse and the main drive behind this diversification is advances in technology. The development of cell Phones, form one of the land mark technological advancement which has greatly revolutionized the contemporary society (Jin & Cortazzi, 2006). With regard to the many other sectors of accessories the education system has been affected by the mobile applications being developed in the current technological world. China for instance has made a lot of good use with the emerging applications which makes education even more valuable and accessible to quite a number of learners and even connecting them with learners from different other places within the globe. For example, through smart phones, it is currently possible for one to learn English. Mobile apps have particularly helped to offer a flexible and custom based English learning opportunities inside and outside the classroom.

The popularization of mobile technologies particularly, the use of mobile applications in ELT in China, can be attributed to the various benefits associated with the use of mobile technologies in the learning process. Notably, mobile technologies allow learners to learn from where they are thus simplifying the learning process. Mobile technologies equally help learners to enhance various language skills such as listening, pronunciation and communication skills.

1.2 The Rise of Mobile-Assisted Language Learning (MALL) Globally

Nowadays, many students can't utilize the glossary learning strategies effectively. Actually, many

investigations show that the vocabulary memory software is useful for students to enhance learning efficiency. In the teaching of English, teachers can take glossary memory apps as assistant teaching measure, impart glossary memory strategies to students and try to cultivate students' independent learning abilities (Aziz et al., 2018). With the approach of information era, mobile learning has been more and more adopted in school English teaching. Among them, vocabulary learning is no exception. At present, many mobile applications related to vocabulary learning are available to the language learners. Thus vocabulary learning assisted by these apps has been a trend in China.

Learning a new language can be one of the most important interest that most people get engaged in. This is for example the Chinese senior high school learners who could want to master other second languages, for example, the English language and acquire it as their second language. It is therefore notable that teachers who are responsible for teaching this language to the learners they always try to explore the new exciting technologies to facilitate the second language teaching and learning among the learners. This reveals the existence of efficiency from the mobile devices not only to the learners but also teacher's teaching process in TESOL. According to Jarvis and Achilleos (2013, p. 4), like in the case of China whereby there is a greater advancement of technology with more technological devices coming up, the use of mobile is not an exception in this case. There is a greater development in the mobile technology whereby we now have the smart phones which are greatly used among the people and now used in teaching of people whose first language is not English (TESOL). MALL can be a very essential part of education more so in TESOL and also help to make it to be more developed. This is, for example, the mobile phones that currently exist, they are easy to connect with the internet and access the online resource. They also support several applications which can be used in TESOL learning, for example, the applications for dictionaries, applications for various word aspects and many more. As by Godwin Jones (2006, pp. 9-16), this will also make work much easier of teachers as they can be able to use the mobile technology in teaching and not like the past methods of using the chalkboards and the whiteboards which is much tiresome as the teacher has to write now and then. In the start of the twenty-first century, it has been noted that most of the educators have tried to bring this technology to the classrooms and in some parts of China whereby it has been tried, it seemed to work as well more when it comes to the mastering of some words in the English language.

According to recent studies which have been carried on MALL, reviewed in detail within the next chapter of this dissertation, the application of technology in the second foreign language learning more so in TESOL.

The flexibility of mobile phones and their impacts on E-Learning has given these applications maximum value because at the comfort of homes students are able to learn. Globalization might be a wide plot word to a few entirely unexpected people, with numerous undertones. Globalization has been heatedly discussed. A few people accept that E-Learning might be a hazardous advancement that has antagonistic altered the planet. E-Learning has had undesirable ramifications for them on society, moving its tranquility. On the contrary hand, an outsized group of people considers globalization to be a constructive

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pattern, making the planet a great deal of associated and instructed than at any other time. They give the impression of being upon it on the grounds that the world's novel gracefully of positive thinking. It's unmistakable this group sees entirely unexpected focal points of globalization. We live in a worldwide age. Advanced by unlimited versatility of capital also, the liberated opportunity of exchange. Monetary globalization has been a noteworthy pattern in our occasions.

1.3 Vocabulary Learning through Mobile Apps

Vocabulary acquisition is the main foundation of learning any language. Arguably communication using any given language is accomplished through the use of various words, which form that language's vocabulary. Hence the development of various vocabulary learning mobile application has helped to enhance the learning of English as a Foreign Language (EFL). In China, a number of vocabulary learning mobile applications have been unveiled, with some of the main applications widely used in learning of English language including Baicizhan, Shanbei, Hujiang Happy Word Field, and Momo Word. The mobile applications expose learners to different vocabulary, their meaning, pronunciation and usage thus helping learners to develop better understanding of the foreign language (Deris & Shukor, 2019). Moreover, vocabulary learning allows learners the opportunity to put what they have learned into practice, hence allowing the development of the required intuitiveness.

1.4 Rationale for This Study

This dissertation takes English vocabulary learning apps as case examples to research. Their usability from the perspective of user experience is examined through an evaluation framework (see Chapter Three) to ensure the decisive role of learning apps and effective use of expertise. In the study, four popular vocabulary learning mobile applications have been evaluated to ascertain how they are impacting the learning of the English language. The vocabulary learning applications that will be considered are: Baicizhan, Shanbei, Hujiang Happy Word Field, and Momo word. From the for mobile applications, I will collect relevant information on how the mobile applications from their previous data, helps to enhance language learning.

Through analysis and comparison, this evaluation of different English vocabulary apps in English learning will be examined. According to the result of different learning effects and analysis of existing materials, I will infer the future development of English vocabulary APP based on students' learning habits and needs, goals and motivation, interests and knowledge. Then I would like to examine how mobile apps can be incorporated into English language teaching and learning and what kinds of tasks can be employed to improve EFL learning for learners.

1.5 Research Objectives and Questions

Using Baicizhan, Shanbei, Hujiang Happy Word Field, and Momo Word as cases, this study is designed to answer the following four research questions:

1) What are the specific features and affordances of these mobile apps for vocabulary learning?

2) How do they promote and constrain 'mobility' on the part of the language learner?

3) How can these apps be integrated into classroom-based English language teaching and learning?

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4) What is usability testing method of English learning apps, and how can they develop in the future?

The research questions will help to fulfill the objective of providing guidance on the kind of data and information required to accomplish the study, hence helping to unveil the necessary framework required to carry the rest of the study.

1.6 Significance of the Study

Mobile devices have penetrated all spheres of human activities, including education. Smart phones are becoming widely used in learning as they can improve knowledge retention and increase student engagement. The purpose of this study was to evaluate the use of mobile application used in learning English vocabulary and phrases and establish the strengths and weaknesses associated with the use of the mobile applications.

The study equally aims at unearthing how vocabulary mobile learning applications can be employed by teachers as a teaching aid that can help ensure better understanding (Deris & Shukor, 2019). Moreover, evaluation of the various vocabulary learning mobile applications will help to establish gaps in their design and development, which is crucial in determining future improvements that may need to be done on the mobile applications to help enhance their importance as language learning tools. Stein, Dixon and Isaacson (1994) notes that, "many writing disabilities may derive from too little time allocated to writing instruction or from writing instruction inadequately designed around the learning needs of many students". Hence, through the study, it will be possible to check on whether the vocabulary learning mobile applications contain the necessary tools to aid to guide students on how to write in English, considering the fact that writing form an important requirement which is expected from any learning process.

1.7 Summary

In my evaluation, I will be discussing the framework which will be adopted such as the communication opportunities, feedback opportunities progression, and mobility and authentic practice. Audits of past investigations including demonstrate an absence of systems for helpful and intuitive versatile learning. Likewise, timeliness (response time) as a property of convenience was not considered in any of the past structures produced for portable learning. Thus, it has become a difficult and significant issue to create versatile learning systems with regards to agreeable and interactive figuring out how to improve students' online data assessment skills. To adapt to this issue, this examination proposes a system for helpful and intuitive versatile learning. A versatile learning application was then evolved dependent on the proposed system to present Jigsaw-based agreeable and intuitive learning approaches to portable learning condition to expand communication among peers by bunch collaboration. Also, this investigation included timeliness or intelligent reaction time as a component of ease of use to apply earlier ease of use models in agreeable and intuitive mobile learning setting.

2. Literature Review

2.1 Overview and Outline of the Literature Review

The modern advances in technology have impacted every facet of human life. Education and the entire learning process form one of the areas that has been adversely impacted by the change. As Deris and Shukor (2019) stipulates, the recent technological advances have particularly revolutionized language learning which form part of the global education system. Based on the findings of Jin and Cortazzi (2006), language learning can be simple, but at the same time a complex undertaking depending on how the learner and the teacher undertake it. The complexity of the language learning process doubles when it is foreign to the learner, due to the difficulty associated with comprehending its vocabulary. In-depth understanding of vocabulary forms the basis upon which one can develop a number of aspects relating to the usage of any given language such as writing and speaking. Traditional foreign language learning in many parts of the world was marred with various challenges which led to sub-optimal outcomes (Aziz et al., 2018). For example, English learning in China faced a major challenge since many of the teachers emphasized on grammar and less on vocabulary yielding inadequate learning outcomes. However, with advances in technology, a number of language learning computer software, and mobile applications have developed, and this has helped to reform the learning process (Mobinizad, 2018).

The related literature provides an account of what other researchers have found in regards to the use of technology in language learning. With main emphasis placed on how the use of MALL has impacted language learning in various parts of the world. Special consideration is particularly placed on findings obtained in regards to how vocabulary learning mobile applications are helping learners to acquire vocabulary, variables influencing the easy with which learners acquire vocabulary and the whole process of learning vocabulary. Moreover, the literature considers the challenges second language learners faces when trying to when using foreign language vocabulary. The related literature, further provides an account of on the advent MALL and how it has evolved over the years, together with an evaluation of the various mobile Apps used in language. The study culminates in the establishment of an evaluation framework that will be employed in studying the various mobile applications considered in this study.

2.2 Vocabulary Acquisition in SLA

For a long time, vocabulary acquisition has been one of the most concerning issues for second language learners. Being familiar with vocabulary is an important content in language learning. Chomsky and his supporters argue that genetic genes endow humans with universal language expertise, and he calls this innate knowledge of universal grammar. Chomsky believes that language is the result of the speaker's psychological activity, and babies are born with the ability to learn a language. They do not need to correct their language errors, as they grow older, they will improve themselves in life practice. Some people always use grammar to check when using language to ensure that no mistakes are made, which is called monitoring through learning. With the continuous improvement of language level, the use of such monitoring will gradually decrease. In essence, language is not obtained by "learning" as long as there is enough positive evidence in language input; any ordinary person can learn a language (2011, Jiang).

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Vocabulary acquisition is the foundation of language learning, and expanding vocabulary is an important task in college English teaching. In traditional college English teaching, vocabulary teaching is often attached to the study of texts, but with the deepening of college English teaching reforms, colleges and universities have reduced credits and hours. The author finds that in normal English teaching, most English teachers do not pay enough attention to vocabulary teaching. Valuable classroom teaching time is often placed on the introduction and expansion of texts, and vocabulary learning often depends on students' autonomous learning after class. However, it is often not guaranteed. First, because the vocabulary books on the market are uneven and the content is relatively boring; second, because college students are facing various huge pressures and the temptation of society, especially electronic products, it is difficult to stick to the end. Contemporary college students keep up with the rapid development of information technology. How to make full use of the existing mobile technology to promote their vocabulary acquisition and avoid the problems mentioned above has become a challenge for college English teachers. With the popularization of smart phones and the continuous development of corresponding apps, some vocabulary learning software developed and designed for Chinese EFL students has been published, which has changed the traditional model of English vocabulary acquisition for Chinese college students (Cheng, 2019).

2.2.1 Main Factors Influencing Second Language Vocabulary Acquisition

The two major factors influencing second language vocabulary acquisition are the characteristics of the language itself and the characteristics of the learners themselves. The obstacles to vocabulary learning are mainly determined by the complexity of the second language vocabulary itself. Vocabulary is the basic unit of language structure and meaning. This feature determines that vocabulary is the focus of language learning, and it is also tricky. Vocabulary has the characteristics of a large number, lack of systematic regularity and challenging to control. Because learners do not have enough knowledge about vocabulary, it often brings great difficulties to learners. Learning a word requires not only reading and writing but also understanding its partial and literal meaning. As Jiang (2011) further stipulates learning a word entail the understanding of syntactic features, semantic features, multi-layer meanings, usage restrictions of the word, words closely related to it and the conversion words of the word. Due to the huge and complex vocabulary system, the complexity of second language vocabulary acquisition, and the lack of knowledge between teachers and learners, make learners to have insufficient knowledge of vocabulary (Jiang, 2011).

2.2.2 Factors Affecting Vocabulary Learning

Due to the huge and complex vocabulary system, the complexity of second language vocabulary acquisition, and the lack of knowledge between teachers and learners, leads learners to have insufficient knowledge of vocabulary. The learner regards remembering a certain amount of vocabulary as their goal, very few learners, including English teachers, will regard the inner law of mastering vocabulary as the goal of language learning. This is due to the fact that there are few opportunities for actual language communication and the pressure of exams, which make students one-sidedly pursue vocabulary, without

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carefully understanding the deep meaning and practical usage of vocabulary. Traditional second language teaching emphasizes the teaching of grammar knowledge to students, and ignores the cultivation of students' actual language use ability, in traditional second language teaching, vocabulary teaching has been valued for some time, but also limited to the literal meaning of vocabulary, not paying enough attention to its actual use. At the same time, teachers neglect to cultivate learners' consciousness to learn vocabulary actively in the process of teaching and learning, lead learners to get used to learning vocabulary within the scope of textbooks, get used to teacher-led vocabulary learning methods, lack of Self-planning and management lack the ability to actively build vocabulary in the brain. The result of this is to limit students' awareness of their cognitive abilities. The lack of awareness makes students feel powerless when they need to use new learning strategies. And if students 'spontaneously applied strategies do not match their cognitive abilities, it has a great harm to their emotions.

Many students spend a lot of time learning by notes but it has little effect. This objectively prevents students from discovering and exploring new learning strategies. All these factors will be reflected in social, cognitive and emotional aspects and affect students' learning. Anxiety, tension, and lack of confidence are the main obstacles to second language vocabulary learning. Because teachers do not emphasize the importance of vocabulary learning strategies in daily teaching, objectively hinders students from discovering and exploring new vocabulary learning strategies, limits students' awareness of their cognitive abilities, the lack of awareness makes students need to use new felt utterly powerless when learning vocabulary learning strategies. In addition, many students spend a lot of time to memorize hard vocabulary but with little effect, the failure of vocabulary learning, makes them fear of vocabulary learning. Therefore, it is necessary for students to enhance their awareness of their learning process, learning style, and common learning strategies. By getting to know the above aspects of the learning process, learners will have the necessary tools they require to plan, monitor and evaluate their learning process, and whether they are making any progress in regards to the learning of English as a foreign language or any other foreign language, thus allowing them to take responsibility of their studies.

2.3 Communicative Approaches to Vocabulary Learning

The development of English teaching requires more comprehensive language skills, and it is necessary to pass the basics of language learning. With the idea of communicative teaching becoming increasingly mainstream in language teaching, the function of communicative teaching is also highly valued. In the teaching of words, it can give full play to the main position of students learning, allowing students to cooperate, experience situations and games, cultivate and develop students' learning ability and quality, and improve the effectiveness of word teaching. The mastery of English vocabulary is a decisive factor that affects students' learning and further development. As a language, the purpose of learning it is to apply and communicate. No matter whether it is oral or written, words are indispensable. It is the cell that constitutes language and is the foundation and supporter of communication applications. To a certain extent, how much vocabulary can reflect a person's language level. According to common sense, students should pay attention to the study of words, but in fact it is the opposite. The teaching of the word

part is often a headache for teachers to teach, and students struggle to learn. In actual teaching, teachers will find that it is not the students who are resistant to and repulsive to English, but the fear of words, which prevents them from further passion and motivation for learning. In response to this situation, the teacher should change the students' fear of learning words. The author believes that the use of communicative teaching methods (communicative approaches) in word teaching can effectively eliminate the students' fear of words and guide students to relax and enjoy. In the middle, master and use words to increase students' interest in learning English, thereby enhancing students' comprehensive English ability.

2.4 Mobile-Assisted Language Learning

Mobile learning is such a relatively new concept that it is very hard to reach an agreement about the definition of it. America and European countries always use "M-learning" and "M- education" to represent mobile learning (Sarrab et al., 2012), while researchers in China often call it "Mobile learning". Up to now, different researchers hold different opinions about the definition of mobile learning. This paper argues that mobile learning is a kind of learning mode that learners can use mobile devices to learn anything, anytime and everywhere. The mobile devices in this thesis mainly includes smart phone, IPADS, personal computer, electronic reader, MP3/MP4 and electronic dictionaries (Ally et al., 2005). Mobile learning assumes quite a number of characteristics, which many scholars uses to distinguish it from other forms of learning. As Ozdamli and Cavus (2011) notes mobile learning is ubiquity, which implies that everyone has the chances to learn anything, anytime, anywhere (Ozdamli & Cavus, 2011). Mobile learning enjoys a high level of Promptness, that means there is no limitations in time and place for learners to learn whatever they want (Sha et al., 2012). Mobile learning equally inculcates the aspect of individualism in the learning process. Which means that mobile learning can provide individualized and unique education service according to one's needs and personal likes and dislikes (Grant, 2009; Winters, 2007).

The development of Mobile learning has resulted in the evolution of Mobile-Assisted Language Learning (MALL). In the 1960s, Computer Assisted Language Learning (CALL) came up. Then, with the development of mobile communication and mobile technology, mobile assisted language learning (MALL) emerged. The first instances relating to the use of MALL, retraces to the 1980s, when Twarog and Pereszlenyi-Pinter (1988) used telephone to give learners long-distance language education, and it was the first step of using mobile devices assisted language learning. The concept of MALL has put mobile learning and computer assisted language learning together (Demouy & Kukulska, 2010). Rahimi and Miri (2014) defined mobile learning as a kind of language learning method which can be used at any place and any time with convenient devices. MALL is different from CALL (computer assisted language learning), for MALL can be used at any place and any time which is much more convenient than CALL. Thus, MALL since its inception has helped to reform the language learning process, because it has brought a lot of flexibility to the language learning process compared to CALL which could not allow learners the flexibility associated with MALL. MALL is particularly effective in helping to rectify a

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number of aspects of the learning process which are important to the development of learner vocabulary and general language use. Moreover, MALL helps in correcting students' learning attitudes, stimulating students learning abilities ad motivating students to develop interest in learning the language. Meanwhile, MALL can also help a lot in supporting students, interaction and cooperation so as to reduce their tension in language learning.

The emergence of MALL, has also given rise to the emergence of other language learning applications which are important in the language learning process. The supportive, applications mobile tools include Mobile Assisted Word-learning (MAWL) As Verma (2011) stipulates MAWL continue to play a pivotal role particularly in the learning of new words. Through it language learners are able to learn new words through the use of smart phones and the internet. As Muhammed (2014), found out in his research, the use of mobile devices in language learning, provides learners with crucial tools which are crucial in vocabulary learning with MAWL playing a fundamental role in helping learners to develop insights into the English Vocabulary learning, particularly in nurturing memory, and developing an understanding of how various English words. MALL mainly focuses on the use of mobile technologies in the language learning process (Tai, 2012). Learners do not need to learn a foreign language or acquire a second language in the classroom any more, instead, they can learn whenever and wherever they like. This function has given a lot of conveniences to those who are eager to learn languages but do not have enough learning time, and those who have a longing to take full use their spare time.

2.5 Evaluating Mobile Applications

Zaharias and Poylymenakou (2009) developed a usability evaluation method for online learning programs based on the methodology in the field of human-computer interaction research, using the form of questionnaires. This method uses a set of conceptual frameworks that combine elements of network and instructional design. It not only includes cognitive factors related to usability of online learning programs, but also focuses on factors of emotional experience. Expanding the current practice in this field, Lin et al. (1997) believed that usability should be added to the current software production standards as an important indicator, but the existing test methods are complicated to operate and require high professional skills from the evaluators. He proposed 8 dimensions: Learn ability, Compatibility, Consistency, Flexibility, Minimal Action, Minimal Memory Load, Perceptual Limitation and User Guidance. Purdue University created PUTQ (Purdue Usability Testing Questionnaire) based on these 8 dimensions (Talirongan & Hernandez, 2017). Martin et al. (2008) found that the commonly used E-Learning platform education theory foundation is insufficient to guide, whether the learning efficiency is not low, and there are many usability problems. Therefore, it uses heuristic evaluation to evaluate and compare the three mainstream E-Learning open source teaching platforms: Moodle, Sakai and dot LRN. They explored how useful it is in supporting the effectiveness of online learning, the integrity of online collaboration, and creating a good virtual learning space for learners. They conducted a series of typical tasks of the teaching platform by studying five expert operations in usability evaluation, and filled out usability test forms. The 300 test points in this table are based on Nielsen's 10 usability principles. The

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results show that the dot LRN platform has the highest usability, followed by Sakai, and Moodle has the worst usability.

In traditional user research or usability testing, questionnaires or interviews are mainly used to measure the user's emotional experience (Heo et al., 2009). The common form is to let the user first express the impression of the product after using the target product for a period of time. The disadvantage of this is obvious. It only has the result data and lacks the tracking or measurement of the user's emotional experience during use. At the same time, people's subjective feelings will be affected and intervened in many ways. This result is mixed with too many other factors, making it difficult for the main tester to have a pure understanding of the product (Fiotakis et al., 2009). The research of Heo et al. (2009) first collected the factors that may affect the usability of mobile phones, and adopted a multilevel model of usability factors to propose a comprehensive evaluation framework for usability of mobile phones. Fiotakis et al. (2009) conducted research on an educational mobile APP. The research used three methods of expert inspection, laboratory testing and actual environment testing to evaluate the usability of the research objects. The research results show that in order to find usability problems more comprehensively, a combination of testing methods is a good choice. Young Lee et al. (2006) used five methods to systematically evaluate the mobile user interface based on the SEM-CPU, including scenario-based task performance, Questionnaires, Post-task interview, User observation, and Retrospective think aloud.

In terms of usability evaluation of mobile learning devices and resources, Chinese scholars are paying more and more attention to the feelings of real users who use the products. Zhang and Liao (2015) believed that the effectiveness of the current teaching reform is inseparable from the quality of the learning software. In order to ensure the quality of the learning software, the learning software should be evaluated to promote learning. Wu's (2015) research uses smart phones as terminal devices and Baicizhan learning software as experimental objects for case tracking. The results of the study indicate that mobile learning can provide learners with an intelligent set of scientific learning and review plans, and a richer and more interesting context in terms of language vocabulary learning. After reviewing the existing language learning theory and multimedia English learning software evaluation standards, Liu et al. (2016) developed an evaluation reference table and evaluated related cases.

2.6 The Development of an Evaluation Framework for This Study

2.6.1 Overview

Building on the review of the literature above, this final section of the dissertation outlines the evaluation framework for this study. This framework draws from the features and perspectives of previous work cited in this chapter, and reviewed in detail already.

The study focuses on evaluating the use of MALL in language learning and the specific features and affordances of these mobile apps for vocabulary learning. And then focus on how they promote and constrain "mobility" on the part of the language learner and how these apps are integrated into classroom-based English language teaching and learning. Then I will pay attention to the question that

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how these apps are developed to promote more effective language learning. Emphasis is particularly placed on vocabulary learning mobile applications which have become an important component of language learning. The evaluation of the vocabulary learning mobile applications was based was done using a number of evaluation criteria that could help to effectively bring out how the mobile applications helped to facilitate vocabulary learning.

The assessment of the apps was carried, based on the learning opportunities they offered those learners who used them. The learning aspects of the Apps that were considered include communication learning opportunities, feedback learning opportunities, learning progression, flexibility of their usage, and the authenticity of their content which are expounded below. The vocabulary learnings mobile applications considered include Momo Word, Youdao, Baicizhan and Hujiang Happy Word Field.

2.6.2 Communicative Opportunities

Evaluation of the vocabulary learning mobile applications under communicative opportunities aimed at establishing how the mobile applications were structured to help enhance the communicative abilities of those learners who used them for learning purposes. An outlook into the four applications considered in this study, shows that the applications aim at addressing multiple aspects of the English language learning process.

2.6.3 Feedback Opportunities

Knowing words used in any given language alone do not signify that one has learned a given language. As Yuan (2019) notes learning any given language entail developing the intuitiveness of using that particular language. Reasonably, a person is considered conversant in any given language if the person can speak, write, and listen using that particular language. Development of those abilities is a long process which requires long periods of learning and practicing that particular language, and a system that can help to give feedback on the progress made by the learner. Hence, evaluation of the vocabulary learning mobile application will also entail a consideration of whether the applications contains inbuilt feedback mechanism, that can help ensure provide learner on whether they have known the various concepts that are taught in the mobile App.

2.6.4 Progression

Learning is a continuous process which employs a bottom-up approach, because learners of any given language have to start from the basics which form the building blocks of that particular language, before they can move to advanced aspects of the language. Thus, evaluation of the vocabulary learning mobile application considered in this study, shows that the applications are structured in such way that they can be employed to guide the learner throughout the learning process.

2.6.5 Mobility

The evaluation of the vocabulary learning mobile application was also based on the mobility. According to Mobinizad (2018), mobility refers to that ability of any given product to move with or to access it from anywhere in the world. Consequently, the evaluation of the vocabulary learning mobile applications will also entail a consideration of whether users can be able to make use of it from anywhere. Assessment of

the mobility of the vocabulary learning application, equally encompassed a consideration of whether the applications were made in such way that the could be used in different mobile technology platforms.

2.6.6 Authentic Practice

Most understudies need abilities in assessing data and sources. In view of the significance of information literacy competency principles for advanced education and as per the findings from past examination most college understudies do not have the data assessment abilities to apply assessment models on online data and sources. Hence, this examination centers around the third standard of data proficiency competency measures to assess data and sources critically. In the data proficiency competency principles for advanced education, there are five guidelines and twenty-two performance indicators.

3. Method

3.1 Overview of Methodology

The study methodology was based on the nature of the study topic, particularly the aspects of the vocabulary learning mobile applications the study aimed at bringing out. As Deris and Shukor (2019) found out in their research, the use of vocabulary learning through the use of mobile applications, has gained acceptance among many modern language learners. However, the impact of the vocabulary learning mobile applications on language learning has not been fully unraveled. The current state of things, has made it difficult to ascertain the true value users of the applications obtain from using them for language learning, and their impact on the language learning process.

Therefore, based on the goal the study was intended to realize, it was undertaken systematically starting with the identification of the popular vocabulary learning mobile applications used in China to learn the English language. The four vocabulary learning applications considered included the Baicizhan application and language learning software, Momo word, Youdao and Hujiang Happy Dictionary. The four vocabulary learning mobile applications were then evaluated to derive insights about them, and the implications they had in the learning of the English language in china.

3.2 Data Collection

In order to conduct comparative analysis and investigation of English learning APP reasonably and objectively, reasonable research methods, research processes, and research objects should be determined. The research process is established as follows: This article first classifies and introduces English learning apps, and secondly, through Internet search, the number of English learning apps, APP rankings, downloads, and categories are counted. On the basis of statistical analysis, the characteristics of English learning apps are summarized. According to the statistical analysis of English learning apps, and based on the characteristics of representativeness in different categories and a large number of users, select apps for case analysis.

When selecting the research object, this article uses the Internet search method to search by typing keywords in the application store and ISO platform, so there are many application stores on the market. This article selects the APP store of the IOS system and the Huawei store of the Android operating

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system, Pea Pod, and 360 Mobile Assistant as the sample application stores. According to the classification of the app store, choose the English app of the learning category. Another way is to search directly in the app store. Since the app store does not have a special classification for English learning apps, this article can only use keyword search to obtain samples. Different keywords will search for different results, so you should set the search keywords first, and then search for resources. Consequently, this article identified the research cases as baicizhan, Youdao, Hujiang Happy Dictionary, and Momo word.

3.3 Data Analysis

At present, there are a variety of smart phones and mobile devices on the market. The operating systems of mobile devices are well-known to users of Android and IOS. This article uses the app stores of these two operating systems and third-party app stores to search. Since different keywords will lead to different search results, you need to set the keywords in advance.

Among the 35 English learning apps, the comprehensive category accounts for 40%, and the top comprehensive rankings are the comprehensive apps, which have the largest downloads. This shows that APP gradually integrates the learning elements of English. A variety of learning content is produced for learners to freely choose, including audio and video learning vocabulary memorizing spoken language, online classrooms to help learners learn English grammar, and some test materials. Secondly, vocabulary accounts for 29%. Vocabulary is the basis of English learning. Memorizing vocabulary is also the most basic learning method in English. Therefore, APP creators also use various resources to facilitate learners to remember vocabulary. According to the number of APP downloads, Youdao Dictionary, Hujiang Happy Dictionary, Bai Zi Zhan, and Momo Word have over 100 million downloads. Among them, Youdao Dictionary has the highest download volume at 916 million; Hujiang Happy Dictionary has 277 million downloads, Hundred Words has 167 million downloads, and Momo word has 142 million downloads.

The data for each software mainly comes from various official websites, academic literature and related websites. The use of some apps mainly comes from personal feelings.

3.4 Evaluation Framework Used for Analysis

To gain insights onto how the four popular vocabulary learning mobile applications impacted language learning, they were evaluated using a common framework which considered the communicative, feedback, progression, mobility and the authentic practice of the offered their users.

3.4.1 Communicative Opportunities

Evaluation of the vocabulary learning mobile applications under communicative opportunities aimed at establishing how the mobile apps were structured to help promote communicative opportunities for the target language use? Assessment of the four applications based on this criterion encompassed consideration of how the mobile applications, nurtured the communicative abilities of Chinese English learners. An outlook into the four applications considered in this study shows that the applications are structured in such a way that they address multiple aspects of the English language learning process.

Notably, all the applications are fitted with features that help learners to practice the usage of the different words that makes up the English language. Considerably, an evaluation of the Baicizhan mobile application, shows that the APPis developed with inbuilt pronunciation capability, thus providing its user with the opportunity to know the pronunciation of every English Word learned, fundamental in developing communicative abilities of the learner. The App also acquaints its users with the sounds making up every Word contained in the App, thus providing a solid pronunciation foundation necessary in ensuring learners develop the right pronunciation of the different words that makes up that particular language.

The communicative opportunities offered by Baicizhan, are also evident in the other three vocabulary learning mobile applications. The applications just like Baicizhan have features that allow their users to learn the various sounds making up any given word, and therefore, the pronunciation of that particular Word. The communication opportunities offered by the four mobile applications becomes outright in the respective form since they allow learners the opportunity to compare how the pronunciation of any given word in both the local language (Chinese) and the English language, hence helping them distinguish the pronunciation and usage for communication purposes. The four vocabulary learning applications also reinforces the communication abilities of their users because they provide learners with alternative words (synonyms) and which can be used in place of another word without compromising the intended meaning. They show how words can be used in sentences, and the different meaning they result in based on how they are used.

3.4.2 Feedback Opportunities

Knowing words used in any given language alone do not signify that one has learned a given language. As Yuan (2019) notes learning any given language entail developing the intuitiveness of using that particular language. Reasonably, a person is considered conversant in any given language if the person can speak, write, and listen using that specific language. Development of those abilities is a long process that requires long periods of learning and practicing that particular language, and a system that can help to give feedback on the progress made by the learner. Hence, evaluation of the four vocabulary learning mobile application also entailed consideration of whether the applications contained inbuilt feedback mechanism, that could help ascertain whether the learner comprehended a given language when using them as learning aids. Thus, the evaluation of the language learning mobile applications included consideration of whether they had systems that could help monitor the performance of their users, and provide feedback on the learning path undertaken by the learner. And whether the learners have recorded any improvement or not.

Notably, all the four vocabulary learning mobile applications are structured in such a way that every word is accompanied by its meaning in both the local and English, language, hence allowing the users to determine whether what they know about any given vocabulary is true or not. The feedback opportunities of the mobile applications can also be deduced from the additional information contained in the forms which help to show on whether what the learner knows about any given vocabulary is true or not.

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Evaluation of the Baicizhan use shows that other than the meaning and pronunciation of the Word in both the Chinese and English language, the App contains additional features that are aimed at providing more feedback to the learner. The additional information contained in the App includes its use in sentences, the part of speech under which it falls (noun, verb, adjective adverbs, etc.), and the form it takes under different tenses. Pictures that help to bring out the meaning of that particular Word, hieroglyphic, and videos can help to build the learner's understanding of that vocabulary. Just like Baicizhan, the other three applications which included Momo word, Yaudao, and Hujiang Kaixin Dictionary all possessed similar features, making them useful in providing feedback to learners on whether their learning process is headed towards the right direction, and whether what they know about any given vocabulary is right or wrong. Moreover, the feedback opportunities provided by the applications provides users the opportunity to learn wrong usage of vocabulary thus allowing them to desist from it.

3.4.3 Progression

Learning is a continuous process that employs a bottom-up approach because learners of any given language have to start from the basics which form the foundation of that particular language before they can move to advanced aspects of that language. Evaluation of the vocabulary learning mobile application shows that the Apps have been developed in such a way that they allow the learner to learn the language systematically right from the basics to complex aspects of the language. Thus, in-depth consideration of the four mobile applications shows that mobile apps have been structured in such a way that they contain content for different levels of learners, including beginners and advanced level language learners. For example, the applications contain different letters of the alphabet in both English and Chinese. Moreover, the four mobile application considered in this study shows that each Word contained in the mobile application is described from its basics including the sounds contained in that Word, the shapes of the letters and sounds making up that particular Word, the small and upper case of the letters of alphabet that makes up that language and the meaning of the Word.

The progression of mobile applications can also be deduced from how it brings out any given vocabulary. Notably, the mobile applications are structured in such a way that they gradually introduce the learner from basic aspects of the language to complex aspects of the language. For beginners, the applications contain sections and features that help them learn simple words their construction and how they can be used in sentences. The mobile applications further show the use of certain vocabulary for advanced language learners. Thus, based on their nature the language learning mobile applications, provides their learners with the opportunity to gradually progress from basic aspects of learning the English language to simple, and finally to complex aspects of learning the English language.

Progression across the different levels of language learning can be noted from the four mobile applications considered in this study. Considerably, the Momo Word application provides its users with a clear progression from one level to the other. The application offers its users additional insights about any given vocabulary, making it possible for the learner to develop a better understanding of that particular word. For instance, the app offers a further explanation for the vocabulary and the other words such as

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antonyms which can help give more insights regarding that particular vocabulary. Furthermore, progression among the four vocabulary learning mobile applications can also be noted from the Yaudao, and Hujiang Kaixin Dictionary mobile applications. The mobile apps provide a breakdown of any given vocabulary by providing an analysis of the various types of English vocabulary and their usage.

3.4.4 Mobility

The evaluation of the vocabulary learning mobile application was also based on its mobility. According to Mobinizad (2018), mobility refers to the ability of any given product to move with or to access it from anywhere in the world. Consequently, the evaluation of the vocabulary learning mobile applications will also entail consideration of whether users can be able to make use of them from anywhere via the internet. The assessment of the mobility of the four vocabulary learning mobile apps was necessary because people who may be interested in learning any given language may not be in China alone but various parts of the world. Therefore, by integrating the aspect of mobility into the mobile applications it will be possible for the learners to access the contents of the applications from anywhere in the world via the internet.

Mobility of the mobile applications was equally done based on whether they were accessible using the different mobile devices which include laptops, tablets, and smartphones and the different operating systems such as Windows, Android, and iOS under which the devices operate. Thus, assessment of the mobility of the mobile applications encompassed consideration of whether the vocabulary applications could be accessed by users using different devices, which operate under different operating systems. Accessibility of the applications from multiple systems is crucial in ensuring mobility because it allows users to access the contents of the app from any part of the world. Remarkably, the evaluation outcomes indicated that the four mobile vocabulary learning mobile applications (Baicizhan, Momo Word, Hujiang Kaixin Dictionary, and the Yaudao Mobile Application) exhibited a lot of mobility since their content could be accessed from anywhere in the world using the internet. The applications are also accessible through a diverse range of mobile devices, thus making them highly mobile.

3.4.5 Authentic Practice

Most learners need abilities in assessing data and sources. Given the significance of information literacy competency principles for advanced education and as per the findings from a past examination, most college students do not have the data assessment abilities to apply assessment models on online data and sources. Hence, this examination centers around the third standard of data proficiency competency measures to assess data and sources critically. In the data proficiency competency principles for advanced education, there are five guidelines and twenty-two performance indicators. The third standard of IL predicates that, "The data educated understudy assesses data and its sources critically and consolidates chosen data into their insight base and worth framework. In which one of the presentation indicators is: The data educated understudy expresses and applies the first rules for assessing both the data and its sources. Therefore, the result includes: examines and thinks about data from different sources to evaluate unwavering quality, legitimacy, exactness, authority, timeliness, and perspective. Based on

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the IL standard, there are five rules that understudies ought to consider in believability appraisal of electronic information including money, pertinence, authority, precision, and reason. As per Metzger precision alludes to how much a website is liberated from blunders, regardless of whether the data can be verified offline and the unwavering quality of the data on the webpage.

The authority of an online website page can be reviewed by seeing who made the site and whether contact data is obliged that individual or affiliation, what the designer's confirmations, qualifications, and affiliations are and whether the internet site page is generally suggested by a definite gracefully. Reason or inclination incorporates perceiving the inspiration driving the situating and whether the information offered is presence or input. Cash or utility implies concerning whether the information is freshest. The pertinence of authenticity means the breadth or profundity of the data given on the situating. Consequently, evaluation of the kind of content contained in each of the four vocabulary learning mobile applications based on the people who have developed their content, and the motive behind content development shows that indicates that their content is authentic and credible. The above view was ascertained through a comparison with a number of certain hard copy sources. Thus, as per the findings obtained the vocabulary learning mobile applications are crucial to foreign language learners and students since they provide an alternative avenue through which they can easily learn a foreign language without having to look for the assistance of teachers.

4. Result

4.1 Vocabulary Learning Mobile Applications Considered

4.1.1 Baicizhan Mobile Application

The vocabulary learning mobile application is developed by Baicizhan, a privately owned Chinese company that was established in 2012. The company specializes in the development of English learning applications with some of its other applications including Tomato English, Hundred Word, Mint Reading, Cake English among other English learning mobile applications and software products. Evaluation of the Baicizhan vocabulary learning mobile application. The application was particularly appropriate for this study, since it was specifically developed to help learners develop English vocabulary for every Chinese word, making it a fundamental pillar for those interested in learning the English language.

An overview of the application brought out a number of features about it which can be very instrumental to those learners who may be studying English as a foreign language. Notably, the Baicizhan vocabulary learning mobile application was used for windows. An outlook into its features indicated that the application had several features which aided vocabulary learning in a number of ways. Among its features include the provision of a vocabulary, the sounds making that vocabulary, its pronunciation, and meaning. The application is embedded with additional features that are meant to help its users to gain complete meaning of the vocabulary. The additional features include pictures relevant to the vocabulary, hieroglyphic and videos that are relevant to the word. The Baicizhan application equally has a review part

critical to learners as it helps them to review what they have learned.

All the applications have mainly included several features which are aimed at building their communicative abilities. All the applications are fitted with features which helps their learners, to practice the usage of the various words learned in communicating. Considerably, an evaluation of the Bicizhan mobile application, shows that the APP, is developed in with pronunciation capability, thus providing its user with the opportunity to know the pronunciation of every English Word learnt, which is fundamental in developing communicative abilities. The App also acquaints its users with the sounds making up every Word contained in the App, thus providing a solid foundation to learners of that particular language.

The communicative opportunities offered by bicizhan, are also evident in the other three vocabulary learning mobile applications. The applications just like Bicizhan have features that allow their users to learn the various sounds making up any given the word, and therefore the pronunciation of that particular Word. The communication opportunities offered by the four mobile applications becomes outright in the respective form since they allow learners the opportunity to compare the how the pronunciation of any given the word in both the local language (Chinese) and the English language, hence helping them develop them distinguish the pronunciation and usage for communication purposes. The four vocabulary learning applications also reinforces the communication abilities of their users because they provide them with alternative words (synonyms) and which can be used in place of another word without compromising the intended meaning.

The evaluation of the Baicizhan shows that other than the meaning and pronunciation of the Word in both the Chinese and English language, the App contains additional features that are aimed at providing more feedback to the learner. The additional information contained in the App include its use in sentences, the part of speech under which it falls (noun, verb, adjective adverbs, etc.), and the form it takes under different tenses. Pictures that help to bring out the meaning of that particular Word, hieroglyphic and videos which can help to build the learner's understanding about that vocabulary. Just like Baicizhan, the other three applications which include Momo word, Yaudao, Hujiang happy Dictionary and Words Ink, all have possessed similar features, making them useful in providing feedback to learners on whether their learning process is headed towards the right direction, and whether what they know about any given vocabulary is right or wrong.

Actually, Baicizhan is a mature word reciting software. After downloading and installing, learners can freely choose the vocabulary level, including the college Entrance Examination, CET-4 and CET-6, IELTS and TOEFL, etc. They can also set the amount of vocabulary learning and review it every day, and people could test their existing vocabulary. The App is easier for students to remember new words through virtual flash card. Each word will be provided with the Chinese translation, sounds, interesting pictures, and context, etc. As an English learning software, baicizhan improves the traditional method of memorizing single words through the combination of sound, form and meaning, so as to reduce the boredom and help users to achieve their learning goals.

Baicizhan's target users are mainly divided into two categories: firstly, students who need to pass various English tests; Secondly, office workers who want to improve their English. In the process of word memorizing, the combination of sound, shape and meaning can reduce the boredom in the learning process and can help users to remember more words. "Sound" is mainly reflected in the stage of word learning. It enables users to know the pronunciation of words through audio, and users can also follow and learn words by audio on the word station. Memorizing words can not only help users memorize strange words, but also can improve learners' listening and speaking. "Shape" is mainly reflected in hieroglyphs and pictures to help users better understand the word meaning and using scenarios. In this way,it rises the user's study enthusiasm, making memorizing words no longer boring. "Meaning" is mainly reflected in that there is not only the Chinese meaning, but also the English meaning.So it can help learners to reduce the ambiguity caused by the Chinese meaning in word learning.

4.1.2 Momo Word Vocabulary Learning Mobile Application

The Momo Word application was the other app that was considered. The application is structured in such way that Chinese learners interested in learning English vocabulary can do so by entering the name of the vocabulary they want to learn in any of the two languages, and it brings out the results relating to the meaning of the vocabulary in both languages. The application is however made in such way that it automatically connects to an external site by the name jisho. The jisho site provides the required information about the vocabulary. Notably, the jisho.org was developed by Kim, Miwa and Andrew, and it uses JMdict, Kanjidic2, JMnedict and Radkfile dictionary files to give their users a unique learning experience.

The vocabulary learning mobile application gives a detailed breakdown of any given word in both the English and Chinese language. The features of the application which aids language learning include the meaning of the vocabulary in the two languages, its use in sentences, and the pronunciation of the vocabulary. The is equally designed in such way that it has links which connects its user to external sources which gives detailed information about the vocabulary being learnt. The diagram below shows the information provided by the application about the word house.

The Momo Word mobile application offers additional insights about any given vocabulary, making it possible for the learner to develop a better understanding of the dictionary. For instance, the app offers a further explanation for the vocabulary and the other words such as antonyms which can help give more insights regarding that particular vocabulary.

4.1.3 Hujiang Happy Word Field

The vocabulary learning mobile application is also referred as MDBG Chinese Dictionary. The dictionary can be accessed via various mobile devices including laptops, tablets, and smart phones which run under Windows, mac OS, and Android. The dictionary offers Chinese people who either speaks the Chinese language or Pinyin language the opportunity to learn the English language. Using the dictionary, learners can input any given any given vocabulary in any of the three languages, and obtain its meaning in the two languages. An overview of the application shows that it is designed in such way that it can

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provide a good foundation to the Chinese people who may be interested in studying the English language, or English speaking people who may be interested in knowing Chinese or Pinyin. The application is structured in such way that there are parts for words, characters, translate and practice sections.

Under the words section the application helps learners to find the meaning of the various English vocabularies thus helping learners to build their vocabulary base. The characters' section of the mobile application helps its users to learn different English language characters through the use of Chinese characters. Notably, the part is designed in such way that it brings an English language for every Chinese character fed into the system. The translate part of the Hujiang Happy Dictionary helps learners to translate words, sentences or paragraphs from one language to the other. The translation can be from Chinese to English, or from English to Chinese. The example below shows how the mobile application is used to translates a sentence from English to Chinese.

The practice part of the Hujiang Happy Dictionary plays a pivotal role in the learning of English. The part contains additional tools which can help users of the mobile application the opportunity to put into practice the skills they have acquired from the learning. The additional practice tool includes the pronunciation of English characters, exercise questions, and feedback to exercise questions. The practice part further shows how the different English characters are used in words.

4.1.4 Youdao Mobile Application

The Youdao vocabulary learning mobile application developed by NetEase, Inc. provide an alternative foreign English language learning platform other than the traditional classroom approach. The vocabulary learning mobile application is designed in such way that it offers its users the opportunity to learn other foreign languages. The application has particularly proved useful to many of the Chines people who have interest in learning English. Notably, Youdao comprises a group of separate but interdependent products which includes the Youdao Dictionary, Youdao Cloud note and Huihui.cn. The Youdao Dictionary plays a fundamental role in learning foreign languages because it offers its users the opportunity to translate a word from one language to the other. A consideration of the Youdao dictionary, shows that it is structured in such way that it can be used across a diverse range of devices including smart phones, tablets or even laptops. The dictionary is designed in such way that it gives its users a unique learning experience. Its contribution to vocabulary learning is evident from the kind of content contained in the dictionary. The dictionary currently offers translation to more eight languages including English, Japan, South Korea, France, Germany, Russia and Western Portuguese. The application is particularly useful to learners because it offers them with a number of learning opportunities particularly those relating to pronunciation and meaning of words. The dictionary equally shows the use of the vocabulary learnt in sentences, thus helping learners to develop a good understanding and ability to use the vocabulary learnt. The usefulness of the Youdao mobile application, in learning English language can be noted from the fact that it is integrated with audio and visual features such as videos, diagrams which helps to reinforce the understanding of any given vocabulary.

4.2 Applications Evaluation

4.2.1 Specific Features and Affordances of These Mobile Apps

The communicative opportunities offered by Baicizhan, are also evident in the other three vocabulary learning mobile applications. The applications just like Bicizhan have features that gives their users the opportunity to learn the various sounds making up any given word, and therefore the pronunciation of that particular word. The communication opportunities offered by the four mobile applications becomes outright in the respective application, since they allow learners the opportunity to compare the how the pronunciation of any given word in both the local language (Chinese) and the English language, hence helping them develop them distinguish the pronunciation and usage for communication purposes. The, four vocabulary learning applications also reinforces the communication abilities of their users because they provide them alternative words (synonyms) and which can be used in in place of another word without compromising the intended meaning. All the four vocabulary learning mobile applications are structured in such way that every word is accompanied by its meaning in both the local and English, language, hence allowing the users to determine whether what they know about any given vocabulary is true or not. The feedback opportunities of the mobile applications, can also be deduced from the additional information contained in the applications which helps to show on whether what the learner knows about any given vocabulary is true or not. Evidently, evaluation of the Baicizhan application shows that other than the meaning and pronunciation of the word in both the Chinese and English language, the App contain additional features that are aimed at providing more feedback to the learner. The additional information contained in the App include its use in sentences, the part of speech under which it falls (noun, verb, adjective adverbs, etc.), and the form it takes under different tenses. Pictures that helps to bring out the meaning of that particular word, hieroglyphic and videos which can help to build the learner's understanding about that vocabulary. Just like Baicizhan, the other three applications which include Momo word, Youdao, Hujiang Happy Dictionary and Words Ink, all have possessed similar features, making them effective in providing feedback to learners on whether their learning process is headed towards the right direction, and whether what they know about any given vocabulary is right or wrong.

4.2.2 Mobility

Mobility of the mobile applications was equally done based on whether they were accessible using the different mobile devices which include laptops, tablets, and smart phones and the different operating systems such as Windows, Android, and iOS under which the devices operate. Thus, assessment of the mobility of the mobile applications encompassed consideration of whether the vocabulary applications could be accessed by users using different devices, which operate under different operating systems. Accessibility of the applications from multiple systems is crucial in ensuring mobility because it allows users to access the contents of the app from any part of the world. Remarkably, the evaluation outcomes indicated that the four mobile vocabulary learning mobile applications (Baicizhan, Momo Word, Hujiang Kaixin Dictionary, and the Yaudao Mobile Application) exhibited a lot of mobility since their content

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could be accessed from anywhere in the world using the internet. The applications are also accessible through a diverse range of mobile devices, thus making them highly mobile.

4.2.3 Development of Vocabulary Apps to Promote more Effective Language Learning

The progression of the mobile applications can also be deduced from how it brings out any given vocabulary. As it can be noted from the mobile applications the learner is gradually introduced to complex aspects of learning the language which includes the use of the different vocabularies learning in the apps in sentences. The above progression helps learners to obtain an understanding of how the different words can be joined to communicate a complete thought which form the basis of learning any language. As it can be noted from the Momo Word mobile application, the progression provided by the app can be noted from the additional information the app provides about any given vocabulary. Evidently, the Momo Word mobile application provides additional insights about any given vocabulary making it possible for the learner to develop a better understanding of the vocabulary. For instance, the application provides additional explanation to the vocabulary and the other words such as antonyms which can help give more insights regarding that particular vocabulary. The progression of the vocabulary learning mobile application can also be noted from the Youdao and Hujiang Happy Word Field mobile applications shows how they have instituted the progression process. The mobile applications provide a breakdown of any given vocabulary since they provide a breakdown of the various forms the vocabulary may take depending on its usage.

Evaluation of the kind of content contained in each of the four vocabulary learning mobile applications based on the people who have developed their content, and the motive behind content development shows that indicates that their content is authentic and credible. The above view was ascertained through a comparison with a number of certain hard copy sources. Thus, as per the findings obtained the vocabulary learning mobile applications are crucial to foreign language learners and students since they provide an alternative avenue through which they can easily learn a foreign language without having to look for the assistance of teachers.

4.3 Implications of the Vocabulary Learning Mobile Applications On Language Learning

4.3.1 Accessibility

The development of the various vocabulary learning mobile applications has had serious implications on language learning. The applications have impacted in a number of ways how people study foreign languages. As evident from the four applications considered in this study, it is outright that the development of the applications has made access to foreign language learning resources. The applications have particularly made it easy for the Chinese people who may have interest in knowing English easy to do so. Reasonably, the initial step towards learning any given language is gaining access to the necessary resources required to learn that particular language. Thus, the mobile applications have contributed towards this end by ensuring all the necessary required to learn any given language are made available.

The accessibility implication the vocabulary learning mobile applications have had on language

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learning, was deduced from a consideration of how the four applications allowed access to language learning. Evidently, the Hujiang Kaixin Dictionary, and Baicizhan application are structured in such way that interested users gains access into it upon downloading. The Momo Word and Youdao are equally structured in such way that they allow their users access to content after registering and logging in. Therefore, the vocabulary learning mobile applications have allowed access to language learning because of their easy of entry. The impact of the applications on language learning are evident from the fact that they can be accessed from different types of systems and applications. Remarkably, a consideration of the four mobile applications studied shows that they could be accessed using smartphones, tablets, and laptops. The ability of the applications to be assessed using a number of devices has made their content available to learners thus, impacting their language learning.

4.3.2 Cost

Language learning just like any other educational undertaking, is an expensive undertaking. Consequently, for a long time people who had the interest of learning a foreign language have been unable to do so because they could not afford. Reasonably, the higher cost of language learning arose from the fact that foreign language was exclusively learnt in brick and mortar environment with the help of teachers. The approach was relatively expensive because of the kind of inputs that were required for it to take place. However, with the advent of the vocabulary learning applications mobile applications, it has become possible for some learners to learn a foreign language through the application without necessary attending class, thus making it cheaper for them. How, vocabulary learning mobile applications helps to reduce the cost learners of foreign language incurs to learn a given language, can be deduced from four mobile applications considered in this study.

Arguably, the learning of encompasses undertaking a diverse range of activities which helps the learner to develop the ability of using that given language. The learning process entail introducing the learner to the different characters that makes up that language, then to word, and finally on how to use the words to construct sentences and paragraphs. Language learning equally entail nurturing the learner's speaking, writing, reading and listening abilities. To effectively help any one person learn a new language, the person or device helping to carry out the process, should know the language of the catchment area of the learner, since it should act as the basis of instruction delivery. Surprisingly, the four vocabulary learning applications considered in this study contain all the features necessary to accomplish any language learning process. Evidently, in-depth analysis of the four vocabulary learning mobile applications clearly shows that the possess all the necessary features to facilitate the learning of a new language. For instance, the applications can help facilitate learning of the English because their content is both in Chinese and English. Making it possible for their users to employ the Chinese language as the instructional language which helps them to learn the English language. Moreover, the applications are designed in a systematic way, which makes it possible for one to study them from the basics to the most complex on his/her own. The above outcomes are also made possible by the inbuilt guides which makes it possible for the learner to use the application on his/her own, hence making

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learning through them cheaper.

4.3.3 Flexibility

Traditional language learning exhibited a lot of rigidity which often ended up locking certain individuals from learning a new language of their interest. The rigidity of the traditional language learning schedules, was particularly detrimental to those people who developed the interest of knowing the new language later on in their life. Remarkably, majority of these people are employed or have businesses to run, ending up with limited time for attending foreign language classes. However, with the development of various language learning applications, it has become possible for these group of people to learn the language, because they can do it from the comfort of their homes using their mobile devices. The above view holds a lot of truth, as it can be noted from the four applications considered in the study, since they do not limit any person from accessing them despite of when and where the person may be accessing them. Therefore, they are considered because when can adjust their usage in language learning thus ensuring they suit one's learning needs.

5. Discussion

Language provides a medium for people to communicate with each other. Communication, whether it is spoken, written, or symbols, involves the use of words or symbols that convey specific meanings. By facilitating the communication process, language can help all parties to establish consensus on several issues. It is worth noting that language allows all parties to share a wide range of ideas. Formal language learning can form part of the education system of any given country or region. As mentioned earlier, education refers to the process of learning to make people know what they do not know. Education is possible only when teachers and learners have a common language of instruction through which information about any given issue is shared. Therefore, if there is no language communication between the two parties, they will be completely cut off, making it difficult to share information and ideas. Without language, education may be harmed because it is difficult for any two parties to have a common understanding of any given situation. Therefore, as global economies become increasingly interdependent, communication between them has become increasingly important. This situation in turn makes it necessary for governments and people from different economies around the world to take measures to help ensure that their citizens understand the languages that are widely spoken around the world. Current trends have led to an increase in the number of people from different political parties in the world who want to understand foreign languages.

Recently, in China, the interest and demand for understanding certain foreign languages (especially English) have been increasing. After economic reforms in 1978 transformed China from a centrally planned economy to a socialist form of market economy, demand suddenly increased. China has opened its borders for international trade and other forms of international cooperation. After the reform, China became a major participant in international trade and an important participant in international trade. However, because the language used by many trading partners is different from Chinese, the country's

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participation on the international stage is hindered by language. For example, some of the country's major trading partners, such as the United Kingdom, the United States of America and Australia, use English to communicate. This situation makes it necessary for the Chinese government to take measures to help ensure that its citizens understand some of these languages in order to promote global trade and cooperation. The Chinese government's entry into the United Nations has further increased the need to learn foreign languages.

China's 1978 economic reforms had far-reaching effects on various sectors of the Chinese economy, with one of the areas that were affected in the education sector. The country undertook to streamline its education system to ensure it was in line with the economic realities of modern times. The reforms included the introduction of the learning of foreign languages in its education system. To correspond with this trend, the Chinese government gave priority to reforms in the teaching of English at various levels of the education system. In this context, the change of policy in the foreign language education sector became an issue that was generally accepted by many of the stakeholders in the country. One of the languages that the Chinese government and its people had a great interest in was the English Language, and with the reforms, the country opened doors to English Language Teaching (ELT) and learning in the country. Since then, the development of English Language Teaching (ELT) in China has flourished, with the number of students interested in knowing the language continuing to increase every day. Consequently, English language learning at first was exclusively carried in brick and mortar setups, in which teacher trained taught learners various aspects of the language. The process was at first spearheaded by teachers from English speaking countries before the country developed its capacity. However, with modern advances in technology, language learning in China has taken a completely different approach with some of the people interested in knowing the language resorting to the use of MALL.

From the study of the related literature and the four popular vocabulary learning mobile applications in China, it was outright that the applications have revolutionized language learning. Vocabulary learning mobile applications form a subset of Mobile-Assisted Language Learning (MALL) in which learners of any given language use mobile telecommunication devices to learn any given language. The use of MALL in language learning has proved to be both useful and efficacious. Under it, mobile applications help learners meet their needs for updating information and skills and learning without the constraints of time and place. MALL since its inception has helped to reform the language learning process because it has brought a lot of flexibility to the language learning as compared to its predecessor CALL which could not allow learners the flexibility associated with MALL. MALL is particularly effective in helping to rectify several aspects of the learning process which are important to the development of learner vocabulary and general language use. Moreover, MALL has been noted to be effective in correcting student learning attitudes, stimulating student learning abilities, and motivating students to develop an interest in learning a new language. Meanwhile, MALL can also help a lot in supporting students, interaction, and cooperation thus helping to reduce tension in language learning.

The emergence of MALL has also given rise to the emergence of other language learning applications which are important in the language learning process. The supportive, applications of mobile tools include Mobile Assisted Word-Learning (MAWL). MAWL continues to play a pivotal role particularly in the learning of new words. Through it, language learners can learn new words through the use of smart phones and the internet. The use of mobile devices in language learning provides learners with crucial tools that are crucial in vocabulary learning with MAWL playing a fundamental role in helping learners to develop insights into the English Vocabulary learning, particularly in nurturing memory and developing an understanding of how various English words can be used. MALL mainly focuses on the use of mobile technologies in the language learning process. Learners do not need to learn a foreign language or acquire a second language in the classroom anymore, instead, they can learn whenever and wherever they like. This development has given a lot of conveniences to those who are eager to learn languages but do not have enough learning time.

Having a good vocabulary base, act as a good starting point for any given person who may be interested in learning a new language. Consequently, vocabulary learning mobile applications have become an important part of language learning, hence crucial among Chinese people interested in learning English. Vocabulary learning mobile applications help to expose learners to a diverse range of words that are necessary for knowing any given language. The mobile learning applications have also helped to make language learning easy. They have helped to give learners a certain level of autonomy and flexibility in the learning process since they do not have to rely on teachers for every aspect of the learning process as they can learn some of the things on their own. Moreover, mobile learning applications have made it possible for those interested to learn on their own. Thus, the development of vocabulary learning mobile applications has helped to change how Chinese English learners acquire vocabulary. They have particularly shifted the great dependence that was placed on teachers and materials such as textbooks for the acquisition of vocabulary, to the widespread use of the popular vocabulary learning applications in language learning and general vocabulary learning. Notably, the two major factors influencing second language vocabulary acquisition are the characteristics of the language itself and the characteristics of the learners themselves. Vocabulary is the basic unit of any language. Because learners do not have enough vocabulary knowledge, it often brings great difficulties to learners. Learning a word requires not only reading and writing but also understanding its partial and literal meaning.

In our current informational era, mobile learning has been more and more adopted in English teaching. Vocabulary learning has been particularly enhanced by mobile technologies, with some mobile applications with the inbuilt capability to provide their users, particularly those using them to learn a foreign language with a diverse range of tools that help them to practice language skills using the various mobile devices they may be having at their disposal. As noted, mobile devices encompass those electronic devices that a person can move around. They include devices such as smart phones, tablets, and laptops. Mobile applications, on the other hand, refer to those software products which function in mobile devices, allowing one to use them from anywhere, at any time. The evaluation of how popular

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vocabulary learning mobile applications in China have impacted language learning, four of the widely used vocabulary learning mobile applications were used. The applications considered included Baicizha, Momo Word, Youdao, and Hujiang Happy Word Field. The implications of the mobile applications on language learning were done by assessing the applications based on their Learn ability, Compatibility, Consistency, Flexibility, Minimal Action, Minimal Memory Load, Perceptual Limitation, and User Guidance. The evaluation of the applications made use of an evaluation framework that helped to give insights on how the mobile applications helped in learning English language vocabulary and the English language as a whole. The learning aspects of the Apps that were considered include Specific features and affordances of these mobile apps, Mobility, The vocabulary apps in classroom-based English language teaching and learning, Development of vocabulary apps to promote more effective language learning.

The evaluation of the implications of mobile applications on language learning indicated that the applications revolutionized language learning in many ways. Notably, the applications have helped open access to foreign language learning resources. For example, through them, it was easy for the Chinese people who had an interest in knowing English to learn it on their own. Language learning just like any other educational undertaking is expensive. However, the independent evaluation of the four mobile learning applications, it is evident that they contain important resources which if properly harnessed can help reduce the cost of language learning. The vocabulary learning mobile applications have particularly made it possible for those interested in learning any given language to do it themselves without any support, thus helping them avoid the fee one may have to pay to be thought by others. Thus, helping to make the learning of a foreign language cheaper. An outlook into the four mobile learning applications has helped inculcate flexibility in language learning. The applications have helped to end the rigidity that was associated with traditional language learning and which acted as deterrents to some people who had an interest in learning that particular language. However, with the development of various language learning applications, these groups of people can learn the English language from the comfort of their homes, without requiring external assistance.

Thus, based on the study results, it is true that vocabulary learning mobile applications in China have significantly impacted language learning. The applications can be described as game-changers in language learning because they have helped to ensure language learning resources are readily available for those who may want them. The accessibility of the applications from different mobile devices such as laptops, tablets, and smart phones has made it easy for those people currently working and therefore, unable to attend language learning classes able to learn privately. The appropriateness of the applications for undertaking private personal studies of interest is eminent from their holistic nature because they contain all that one may require to study any given language. Hence, based on the study outcomes, I undoubtedly recommend the use of vocabulary learning mobile applications by teachers, and learners to build their vocabulary which is necessary as per their current role. Based on how each of the four applications approaches language learning, I also recommend them as helpful platforms that can help those people interested in studying a certain language successfully do so. For example, the four mobile

applications appear very effective in helping the Chinese people learn English.

Recommendation for Future Research: The conclusion of this study was exclusively based on the evaluation of the four vocabulary learning mobile applications which included the Baicizhan, Hujiang Hapy Word Field, Momo Word, and the Yaudao. The approach I employed makes the conclusion to be based more on the features and the content of the applications than user experience. Thus I recommend further research into the area, whereby the research conclusion is based on the user experience of the mobile applications that are obtained from people who at one time used the mobile application, to help ascertain whether the results correlate with those of this study.

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