Analysis on English Vocabulary Learning APP Based on Constructivism Learning Theory

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Abstract

Vocabulary learning is the foundation of the entire English learning process. With the rapid development of the Internet, a mobile learning model based on learning terminals has emerged and has become a popular learning method. Mobile learning is a new learning method that uses mobile communication devices to conduct fragmented learning anytime, anywhere. Mobile learning is mainly reflected in various mobile phone application programs. Therefore, as the Internet develops, English vocabulary learning constantly innovates, and many apps for learners to learn English vocabulary have been developed. This paper takes constructivism as the theoretical basis and researches English vocabulary learning app based on constructivism learning theory. First of all, the writer makes the relevant literature review of vocabulary learning and mobile learning. Secondly, on the basis of expounding the basic viewpoints of constructivism learning theory, the author collects eleven apps in mobile app stores by consulting materials and using them personally, and then sorts out the collected English vocabulary learning apps from three aspects: personalized setting, learning mode and user interaction. Then, based on the constructivism learning theory, this paper finds out the coherence point between the constructivism learning theory and the English vocabulary learning apps, and studies the social interaction, meaning construction, situational and collaborative nature of the English vocabulary learning apps. This paper combines constructivism learning theory with English vocabulary learning, which can not only help learners to choose and apply English vocabulary learning app better, but also provide reference for the development and update of English vocabulary learning apps.

Keywords

Constructivism learning theories; English vocabulary leaning app; Mobile learning.

1. Introduction

Vocabulary is the basic unit of language, and it is also one of the three elements of language. A certain amount of vocabulary is a foundation for successful listening, speaking, reading, writing and English communication. British linguist D.A.Wilkins (1972) says that without vocabulary nothing can be conveyed. British English teaching specialist Jeremy Harmer (2001) indicates that if we compare language structure as the sketch of language, vocabulary is the thing that provides important organs as blood and flesh. Vocabulary to language is what water to fishes. Vocabulary to English is what foundation to buildings. Learning starts at the most basic unit, so vocabulary is very important in the process of learning English.

Nowadays, with the rapid development of wireless networks and intelligent terminals, mobile learning, as a new learning model, has gradually been accepted and become an important part of modern education and teaching. Mobile learning refers to the use of wireless mobile communication network technology and wireless mobile communication equipment (such as mobile phone, personal digital assistant PDA, Pocket PC, etc.) to obtain educational information,

educational resources and educational services. Mobile learning is an important supplement to indoor classroom teaching and outdoor practical learning. Dr. Desmond Keegan(2004:22-27) predicted that mobile learning is becoming the study of the next generation. In this context, various English vocabulary learning apps have emerged, such as Baicizhan, Shanbay Word, Bubeidanci, Hujiang Fun Word Games, ToWords, ZhimiEnglish, Maimemo Memory Keeper, Youdao, Lingvist, Duolingo and Drops. So, how to choose and use these apps more efficiently has become an urgent task for learners in the face of such a variety of vocabulary learning apps with different emphasis on learning methods.

This paper aims at analyzing the learning mode, personalized settings and user interaction of the apps under the guidance of constructivism learning theory in order to have a better understanding of English vocabulary learning apps and screen apps for learning English vocabulary more effectively and efficiently. Constructivism learning theory has been prevailed since the late 1980s, and it becomes the theoretical guidance in language learning for learners. Researchers of language learning have associated vocabulary learning with constructivism learning theory for a long time, such as Zhang Wanwan(2018), Zhu Tianyi(2018,2), He Qian(2013),Wang Zheng(2018), and so on. Therefore, the author regards constructivism learning theory as the theoretical basis of this paper. Constructivism learning theories consist of constructivist view of learning, constructivist view of teaching and constructivist view of knowledge. Constructivism emphasizes learners as subjects of learning, and ideal learning process consists of situation, collaboration, communication and meaning construction, which are coincident with English Curriculum Standards of Compulsory Education that emphasize the transition from teaching language knowledge to developing autonomous learning ability.

The significance of this paper has three aspects. From the practical point of view, using constructivism learning theory to analyze vocabulary learning apps is of great importance to learners. First of all, it is a practice that combines constructivism learning theory with mobile learning. In addition, by studying the consistency between vocabulary learning apps and constructivism learning theory, it can give advice to learners so that they can use English vocabulary learning apps based on their own specific circumstances. On the one hand, it emphasizes a fact that learners are supposed to apply to appropriate learning theories when they use vocabulary learning apps. On the other hand, based on constructivism learning theory, more suggestions for app updating by analyzing these vocabulary apps will be put forward so that to meet the needs of learners for English vocabulary learning.

2. Vocabulary Learning and Constructivism Learning Theory

2.1. English Vocabulary Learning

English vocabulary learning in this paper is for non-native English learners. During the last decade, there has been a growing interest in vocabulary learning among second language researchers. And a variety of scholars and linguistics begin to study vocabulary learning. Here are some Chinese and international studies on English vocabulary learning.

2.1.1. Foreign Studies on English Vocabulary Learning

In order to improve the effectiveness and efficiency of language learning, early foreign scholars focused on vocabulary strategies in the process of vocabulary learning. Malley and Chamot (1985) think that the continuous repetition of words can deepen the memory of English words. Nation (1990) consider that extensive reading is an important way for language learners to expand vocabulary, especially for native language learners. In addition, he proposes a way to memorize words on the basis of roots and affixes. Knight (1994) finds that looking up dictionaries is one of the main ways that most English learners acquire words.

Since the late 1980s, many outstanding achievements have been made in the field of English vocabulary learning. Ahmed (1989) points out that students take notes in the margins of their books to memory unfamiliar words. Bishop(1998) carried on research in terms of college students looked up the dictionary and found that the purpose of dictionary looking-up was to search and check the meaning of words. Schmitt (2000) suggests that acquire words through the study of incidental acquisition of high-frequency and low-frequency words. Some give a description of various vocabulary teaching strategies in particular (Cohen, 1990; Nation, 1990; Oxford, 1990). Since the 21st century, many foreign scholars have focused on the strategies of English vocabulary learning and teaching, such as context method(Sternbery,2003) and mobile learning.

2.1.2. Studies on English Vocabulary Learning in China

In recent years, many Chinese researchers have done a lot of research on English vocabulary learning. Some studies are as follows.

Gu Yongqi and Johnson (1994) investigated the relationship between language proficiency and vocabulary learning strategies among Chinese college students. The result of investigation shown that college students used various strategies to learn English vocabulary, such as repetition, guessing, dictionary look-up, take notes, and so on. It also proved that there was a strong relation between general proficiency and learning strategies.

Feng Yufang (2003) carried out an empirical study on a variety of English vocabulary strategies employed by English majors at different levels. The scientific research methods of the study are questionnaires, vocabulary tests and interviews. The subject of the study are freshmen and junior students major in English from Yangzhou University. After analyzing the data, she concluded that: (1) An important correlation exists between vocabulary size and vocabulary learning strategies. (2) In the process of vocabulary learning, English majors apply to various kinds of vocabulary learning strategies. (3) There is an important relationship between English vocabulary strategies and vocabulary proficiency.

Zhang Yingqiu (2005) wants to examine the factors that influence vocabulary teaching and learning by analyzing the process of English vocabulary teaching and learning among current college students. In the process of solving these problems, metacognitive vocabulary learning strategies are used in English vocabulary teaching and learning so as to improve students' vocabulary proficiency.

Yang Lifang (2012) discusses the application of mobile learning in English vocabulary learning. Mobile learning breaks the limitation of time and space on teaching, and enables students to change the passive learning mode into active learning. In addition, mobile learning can use a variety of teaching aids to conduct multimodal vocabulary explanation, give students multiple sensory experiences such as visual and auditory, deepen students' understanding of the meaning of words, and also stimulate students' learning motivation.

In the study of vocabulary learning for decades, the future trend of vocabulary learning is to learn through network. Thus, vocabulary learning can be integrated into daily life through mobile tools and networking, so that learners can use the fragmented time to learn, in order to improve the efficiency of learning. Mobile learning is a new digital learning method which combines the development of mobile technology and digital learning technology. As a new way of learning, mobile learning is based on the modern technology of using fragment time to study in any time and place of mobile communication equipment in the network environment, which is the typical characteristic different from traditional learning. Since the 21st century, the main research directions are the combination of English vocabulary learning strategies and vocabulary learning in mobile network environment. However, the current vocabulary learning is still based on the constructivism learning theory, so the study of mobile learning and English vocabulary learning app is inseparable from constructivism learning theory.

2.2. Constructivism Learning Theories

As the latest teaching idea of western educational psychology, constructivism learning theory emerged in the 1990s. According to constructivism learning theory, learning is a process in which individuals actively construct meaning on the basis of their original knowledge and experience, that is, according to their own experience and background knowledge.

2.2.1. The Definition of Constructivism learning theory

Constructivism is a kind of complicated social science theory which has emerged in the contemporary European and American countries since the 1990s. It is an important branch of cognitive learning theory, which is generated through the further study of cognitive rules of human learning process by psychologists. Therefore, constructivism is a philosophy of learning, which is the further development from behaviorism to cognitive theory, which is called a revolution in contemporary educational psychology. Constructivism learning theory consists of constructivist view of learning, constructivist view of teaching and constructivist view of knowledge. Constructivism emphasizes learners as subjects of learning, and ideal learning process consists of situation, collaboration, communication and meaning construction.

2.2.2. Constructivist View of Learning

Constructivism points out that the students are unlikely to learn passively and mechanically, instead, they build up knowledge actively. What's more, this kind of construction definitely cannot be replaced by anyone else (Cunningham, 1996).

Constructivism holds that the essence of human cognition is the process of subject's "construction", all knowledge is the result of subject's own cognitive activity, and subject constructs his own understanding through his own experience. Therefore, learning is not a process in which teachers simply transfer knowledge to students, but a process in which students construct their own knowledge. Students do not receive information passively, but actively construct the meaning of knowledge, which cannot be replaced by others; learning is not passively receiving information stimulation, but actively constructing meaning, which is based on their own experience background, with the help of other people (including teachers and learning partners), using necessary learning materials, What we get through the way of meaning construction is the process of actively selecting, processing and processing external information, so as to obtain our own meaning and construct our own understanding; learning is not simply the accumulation of information, but more importantly, the conflict between the old and new knowledge and experience, and the reorganization of cognitive structure caused by it. Learning process is not a simple process of information input, storage and extraction, but a two-way interaction process between new and old knowledge and experience, that is, the interaction process between learners and learning environment.

Therefore, constructivist learning theory holds that the four elements of learning environment are: (1) Situation. The situation in the learning environment must be conducive to the meaning construction of the learning content. (2) Collaboration. Collaboration occurs throughout the learning process. Collaboration plays an important role in the collection and analysis of learning materials, the presentation and verification of hypotheses, the evaluation of learning achievements and the final construction of meaning. (3) Conversation. Conversation is an indispensable part in the process of cooperation. The members of the learning group must discuss how to complete the learning task plan through conversation. In addition, cooperative learning process is also a conversation process. In this process, each learner's thinking achievements (wisdom) are shared by the whole learning group, so conversation is one of the important means to achieve meaning construction. (4) Meaning construction. This is the ultimate goal of the whole learning process. In the process of learning, the construction of meaning is to achieve a deeper understanding of the nature and law of the things reflected in the current learning content and the internal relationship between the things and other things.

2.3. Summary

This chapter mainly organizes the relevant literature and reviews of English vocabulary learning and constructivism learning theory. It is not difficult to find that that many studies of English vocabulary learning are guided by constructivism learning theory. And it can be found that some scholars have done the research of constructivism learning theory and English vocabulary app. They have studied the design and comparative analysis of several English vocabulary apps based on constructivism learning theory, but not based on the characteristics of constructivism learning theory to sort out and classify the current popular English apps in the market. Based on above classification, this paper is going to analyze the advantages and disadvantages of collected apps that embody or do not embody the characteristics of constructivism learning theory, so as to provide some suggestions for the upgrading and improvement of English vocabulary learning app.

3. English Vocabulary Learning Apps

Under the guidance of constructivism learning theory, the author collects and organizes English vocabulary learning apps on the market. The author first collected eleven English vocabulary learning apps needed for this study through mobile app stores, and downloaded them in the Android app store. In order to make the research in this paper more objective and effective, the vocabulary learning apps studied in this paper are all used by the author herself. After collecting the English vocabulary learning apps, the author attempts to find out the coherence point between the constructivism learning theory and the English vocabulary learning apps. Based on the coherence point that existed in constructivism learning theory and English vocabulary learning apps, the author classifies the apps in terms of three aspects: the personalized setting of the app, the learning mode of the app, and user interaction. The content of this chapter is mainly to analyze the eleven apps collected by the author around these three aspects.

3.1. The Personalized Setting of the App

The personalized setting of the vocabulary learning app means that users can conduct targeted vocabulary learning according to their own needs. English vocabulary app users include not only primary and secondary school students, but also college students and workers. Learners have different learning objectives, learning styles, and cognitive methods, which requires the English vocabulary app to provide learners with the opportunity to personalize additions, deletions, and categorization of English words to get rid of fixed word textbooks. The author sorts the eleven apps collected according to whether they support personalized settings. Personalized settings are divided into three aspects: autonomous selection of word books, the setting of the number of words to be recited each day, and the setting of learning mode.

3.1.1. Autonomous Selection of Word Books

Baicizhan, Shanbay Word, Bubeidanci, Hujiang Fun Word Games, ToWords, ZhimiEnglish, Maimemo Memory Keeper, Youdao and Lingvis all support learners to choose the word books freely. Learners can also directly add or delete learning plans. Besides basic word books, such as word books of CET-4, CET-6, TEM-4, TEM-8, postgraduates entrance examination, TOEFL and IELTS, Shanbay Word, ZhimiEnglish and Maimemo Memory Keeper also have word books of different majors, such as medicine, business, etc. ZhimiEnglish can even supports learners to upload custom vocabularies to generate word books. Only Duolingo and Drops fail to select word books freely, and vocabulary is presented by the system.

3.1.2. The Setting of the Number of Words to be Recited Each day

As for the setting of the number of words to be recited each day, Baicizhan, Shanbay Word, Bubeidanci, ToWords, ZhimiEnglish, Maimemo Memory Keeper, and Youdao provide an access for learners to know the learning progress on the app interface, and modify the learning plan

according to their actual situation, readjust the number of words to recite each day and the planned completion time. However, it is not possible for Hujiang Fun Word Games, Lingvis, Duolingo and Drops to set the number of words to recite each day and the planned completion time.

3.1.3. The Setting of Learning Mode

When it comes to the setting of learning mode, Baicizhan provides learners with seven major word learning modes including intelligent mode, listening recognition, spelling questions, Chinese word selection, picture interpretation, example sentence translation, and correct and wrong prompt sounds. Learners can choose one or more of them to learn according to their personal preferences. Shanbay Word allow learners to choose the learning order, learning mode, word pronunciation and font size in the "learning settings". Bubeidanci, Hujiang Fun Word Games, Maimemo Memory Keeper, Youdao allow learners to select the memory mode, learning reminder, review reminder time, word pronunciation times and example sentence reminders in the learning settings. But ToWords, ZhimiEnglish, Lingvist and Drops do not allow learners to set their own learning mode.

In short, the collected English vocabulary learning apps, except Drops, all support personalized setting, but the degree of the personalized setting varies from app to app.

3.2. The Learning Mode of the App

There are many kinds of English vocabulary learning apps, and their learning mode are different. According to the vocabulary learning mode, the 11 apps that have been collected can be divided into following two groups.

3.2.1. Learning Words with Pictures

Baicizhan adopts the method of graphic and text collaboration, that is, to create a certain situation for each word example sentence and provide four vivid and interesting pictures. But only one of the four pictures is similar to the meaning of the word, and the other three are all interference options for learners to choose. Learners can choose the right picture by analyzing the meaning of the word in the example sentence and combining it with the picture. In addition, it also provides a "word pictograph", that is, a graph similar to the shape of the letter and the meaning of the word is embedded in the word, so that the graph and the word are closely combined to jointly express the meaning of the word.

Zhimi English is to describe the meaning of words by providing a picture matching the words, without setting interference items and choices. This learning mode helps learners to avoid confusion caused by ineffective memory, or to avoid memory confusion of the correct picture and interfere which may lead to remembering the wrong word meaning.

As for learning mode, Drops adopts the form of LianLianKan. It means that Drops provide learners with two or four pictures when learners learn vocabulary, but only one of them corresponds to the meaning of the word. The remaining pictures are interference options for learners. If learners judge the meaning of word correspond to the picture, then they slide to the correct direction.

The learning mode of Duolingo is that four pictures are presented with English, and learners are supposed to look at Chinese and select the corresponding pictures (the words are spelled at the bottom of the pictures), then look at the pictures and select the corresponding English words in Chinese.

3.2.2. Learning Words without Picture

The learning mode of Hujiang Fun Word Games and ToWords is similar. The first step is to present words, and learners choose Chinese Interpretations corresponding to words.

The learning mode of Bubeidanci and Maimemo Memory Keeper runs the same way. First, the word is displayed, and then the learner chooses to know or do not know the word. After selecting, the Chinese interpretation of the word will be displayed.

Shanbay Word first provides learners with a word, which requires learners to choose to know the word or to use prompts. Corresponding Chinese meaning will occur after learners making a choice.

The learning mode of Youdao is that the Chinese is presented first. At the bottom of the word, there are three options for learners to choose, that is, know, simple, do not know. After choosing, the corresponding English word will be shown.

The learning mode of Lingvist is to provide learners with the Chinese interpretation of a word, and then requires learners to spell the word.

3.3. User Interaction of the App

User interaction refers to the communication and interaction between learners, which uses the Internet to connect learners separated from time and space to form a cooperative learning community, supervise and promote each other. This kind of network-based collaborative learning has larger scale, more abundant resources, and can promote communication and cooperation in a more diversified way.

Baicizian has the function of two-person interaction and multi-person interaction. In the two-person interactive function, Baicizian supports learners to add friends through account search or surrounding search. Learners can view the learning dynamics and learning plans of their friends at any time, rank with their friends, share learning achievements, encourage each other, sprint to the learning list together, or invite friends to perform word PK, participate in word ranking competition, use the most popular ranking method to stimulate learners' interest in learning and competition, and make learners learn by playing and play by learning. In the multi-person interactive function, learners can create or join existing learning groups according to their own learning interests and learning purposes, complete the daily punch in task together with the learners in the same group, and perform ranking competition. In addition, there is a post bar on it, learners can exchange learning experience and discuss problems.

Shanbay Word also have two-person interaction and multi-person interaction functions. In the two-person interaction function, Shanbay Word are systematically matched based on the needs of learners by following WeChat Public Platform of Shanbay Word to find the common learning deskmate for learners. After successful matching, learners can supervise each other and learn to punch cards with deskmate. In the multi- person interaction function, it is a group based learning form. Learners can create or join an existing small class group according to their own learning interests and learning purposes, complete the daily punch in task with the students in the same group, and carry out ranking competition. Besides, Shanbay Word provides learners with the function of self-study room, which is like Weibo, in which learners can share their learning resources, learning experience, and collect, forward, comment on others' blogs.

Hujiang Fun Word Games has the function of two-person interaction and multi-person interaction. In the two-person interactive function, it supports learners to randomly match opponents through the system or perform word PK with WeChat and QQ friends. In terms of multi-person interaction, learners can independently form teams for learning purposes, create or join existing learning groups, and complete daily punch-in tasks with fellow students in the same group. Team members' punch in and their contributions are ranked in the group, so as to improve the group's ranking in the system. Individual honor and collective honor go hand in hand to make all members of the group and the collective progress together.

ZhimiEnglish only support multi-person interaction and have small learning classes. Learners can create or join existing small classes according to their own learning interests and learning

purposes, and complete daily word tasks with classmates. In addition, ZhimiEnglish can check your ranking among alumni by filling in school information.

ToWords only has the function of a two-person interaction. ToWords supports learners to add a deskmate through account search or post applications at the public platform. After another one agrees, they will formally become deskmate the next day. In this way, they can share learning achievements, encourage each other, and jointly supervise each other's learning.

While Bubeidanci, Youdao, Duolingo, Maimemo Memory Keeper, Drops and Lingvist do not have the function of user interaction. That is to say, these English vocabulary learning apps do not allow learners to encourage and supervise each other in the learning process, so as to learn and progress together.

4. English Vocabulary Learning Apps Based on Constructivism Learning Theory

Constructivism learning theory holds that learning is not a process in which teachers simply transfer knowledge to students, but a process in which students construct their own knowledge. Students do not receive information passively, but actively construct the meaning of knowledge. Constructivism learning theory emphasizes the important role of meaning construction in the formation of knowledge, and takes meaning construction as the core of learning activities. Constructivism learning theory points out that "situation", "cooperation", "conversation" and "meaning construction" are four elements in learning environment. The design of English vocabulary learning apps described in the previous chapter embodies constructivism learning theory. This chapter will analyze the situation, conversation, meaning construction and cooperation of constructivism learning theory to understand the specific characteristics and advantages and disadvantages of each app.

4.1. Meaning Construction of Apps

Constructivism learning theory holds that the original knowledge and experience of learners should be regarded as the growth point of new knowledge, and learners should be guided to actively construct new knowledge and experience from the original knowledge and experience. Therefore, Constructivism learning theory emphasizes meaning construction. Constructivism emphasizes that learners construct knowledge for themselves and they also individually and socially construct meaning(Maclellan & Soden, 2004). Learning vocabulary is not limited to memorizing the spelling of words, but to actively process new words based on learners' own background knowledge, so as to master the specific meaning of words. In the learning environment created by the English vocabulary learning apps, learners can adjust the flexibility of learning content according to their own situation.

Based on the information mentioned in the last chapter, the conclusion can be drawn that Baicizhan, Shanbay Word, ToWords, ZhimiEnglish, Maimemo Memory Keeper and Youdao pay most attention to meaning construction, because these apps have more choice of personalized settings, which can provide learners with more ways to construct meaning, such as the number of word memorization, learning mode and the selection of word books. And Bubeidanci, Hujiang Fun Word Games, Lingvist and Duolingo also pay attention to meaning construction, which usually involve one or two aspects of the personalized setting. While only Drops does not support personalized settings, so it fails to focus on meaning construction.

The advantages of English vocabulary learning apps embodying the meaning construction are as follows. First, the learner's original knowledge experience as a new knowledge growth point is conducive to the learner's understanding and memory of new words. Second, learners are based on their own English level to choose word books and learning mode that suits them, which is in line with the spirit of modern scientific learning and reflects the learning concept of

teaching according to aptitude. Finally, through personalized settings, learners can flexibly and effectively adjust the learning progress. If this mode or setting is not suitable for the learners, the learning plan can be adjusted in time.

The disadvantage of English vocabulary learning apps that do not embody the meaning construction is that meaning construction emphasizes learners' self construction of knowledge on the basis of existing knowledge. Therefore, for learners with poor consciousness, they tend to memorize the words mechanically instead of connecting the new knowledge with the existing old knowledge in their mind, so it is difficult to play the role of meaning construction in the effectiveness of English vocabulary learning, which result in reducing the efficiency of English vocabulary learning.

Therefore, Baicizhan, Shanbay Word, ToWords, ZhimiEnglish, Maimemo Memory Keeper and Youdao do well in meaning construction. In order to improve English vocabulary learning of learners, Drop is supposed to add new functions that embody meaning construction.

4.2. Situation of Apps

Jonassens (1994) describes the general characteristics of constructivist learning environment, which include constructivist learning environments should emphasize authentic tasks in a meaningful context rather than abstract instruction out of context and provide learners real-world situations. Situation refers to the construction of English vocabulary learning. The situation in the learning environment must be conducive to the meaning construction of the learning content. For example, they can using corresponding pictures, so as to memorize and understand vocabulary through context. While these apps which learning vocabulary with pictures pay more attention to the importance of situation. With the input of visual clues, learners can learn vocabulary more efficient. Therefore, apps that learning vocabulary with pictures embodies the situation that constructivism learning theory emphasizes.

Baicizhan, ZhimiEnglish, Duolingo and Drops are apps that learning words with pictures, which conducive to visual learners, or some learners who are tired of traditional learning methods. These vivid pictures create a context for language learners to construct meaning of words, which can help learners deepen their understanding and memory of words and better grasp the meaning of words. Besides, pictures not only uses the collaborative relationship of graphics and text, but also ingeniously combines various relationships to increase the meaning, and does not stick to the existing meaning of words, leaving a broader imagination space for learners themselves.

Shanbay Word, Bubeidanci, ToWords, Maimemo Memory Keeper, Youdao, Lingvist and Hujiang Fun Word Games are apps that learning vocabulary without pictures. They do not provide any pictures, and its interface is concise. Whether the learner knows the word is the main line of the learning, and presents learners more text content.

The advantages of English vocabulary learning apps embodying situation are as follows. Firstly, situation, with its intuitiveness, interest and vividness, stimulates students' desire to participate and study. The application of situation in vocabulary learning has changed the previous rote learning mode of vocabulary memory, put the boring words in the context of situation, provided the space for students to use the language in practice, and made the boring vocabulary learning lively. This caters to the psychological characteristics of students. Secondly, it is beneficial for visual learners. Through the combination of words and pictures, vocabulary learning creates a certain situation to show the words, promotes the learners to obtain multiple sensory stimulation, enables the learners to experience the word situation from the senses and other aspects, and promotes the learners to memorize the words. Thirdly, it is conducive to enhancing the learning initiative of learners. Autonomous learning is the main learning method of mobile learning. Enhancing learning initiative is the key to ensuring the effect of mobile learning. Mobile learning supported by those apps that learning vocabulary with pictures can

bring elements, such as context and situation into learning to enhance learning initiative. Finally, It helps learners to use words more accurately in daily life. To some extent, it overcomes the problems of the traditional vocabulary learning, such as the disconnection between the traditional vocabulary learning and the reality, and the lack of pertinence.

However, English vocabulary learning apps embodying situation also have some drawbacks. At first, due to the abstract nature of the situation, taking picture memory mode as an example, learners may not remember its precise interpretation when they see the learned words, just remember the content of the pictures. Such picture assistance will often make learners have the illusion that they have mastered the words, but rather affect the learning efficiency. In addition, in English vocabulary learning, sometimes there is a situation where the picture does not match the meaning of the word, which may leads to memory errors.

Based on the above analysis, English vocabulary learning apps should pay attention to the situation in the future updating and development. On this basis, learners can not only learn professional knowledge, but also can stimulate their interest in learning.

4.3. Cooperation and Conversation of Apps

Edwards and Mercer (1987) emphasize learning is a social activity, and learning should intimately associated with the connection with other human beings, such as peers, friends, teachers as well as casual acquaintances. Schmucks (1997) once pointed out that the key of constructivism learning design lies in how to group and how to help students to complete the learning task together. Therefore, students can take a variety of different ways of cooperation when they complete their learning tasks. Cooperation refers to the degree of learners' cooperative conversation, which occurs throughout the learning process. Cooperation plays an important role in the collection and analysis of learning materials, the presentation and verification of hypotheses, the evaluation of learning achievements and the final construction of meaning. Conversation is an indispensable part in the process of cooperation. The members of the learning group must discuss how to complete the learning task plan through conversation. In addition, cooperative learning process is also a conversation process. In this process, each learner's thinking achievements are shared by the whole learning group, so conversation is one of the important means to achieve meaning construction. User interaction in English vocabulary learning apps refers to the communication and interaction between learners. When learners interact with others , it is also a process of exchanging information and thinking collision. In turn, these apps support user interaction, that is, cooperation and conversation.

Based on the information collected in last chapter, it is obvious that Baicizhan and Hujiang Fun Word Games are better than other apps in terms of user interaction, because only these two apps have two types of user interaction, two-person interaction and multi-person interaction respectively. Baicizhan supplies learners with word PK and learning groups. Hujiang Fun Word Game allows learners to PK word with other learners and form a team, Therefore, learners of Baicizhan and Hujiang Fun Word Games have more choice to interact and communicate with others, and these two apps do best in cooperation and communication.

Shanbay Word, ToWords and ZhimiEnglish all have provide interaction function with a single type for learners, but their function of interaction are different in details. Shanbay Word only supports word PK, and ToWords permits learners to find a deskmate. While ZhimiEnglish has an Zhimi small class. Though Shanbay Word, ToWords and ZhimiEnglish allows learners to interact, however, they are limited to one of two-person interaction or multi-person interaction, so these three apps need to be improved continuously to better meet the needs of learners to interact in various ways.

Bubeidanci, Maimemo Memory Keeper ,Youdao, Duolingo, Drops and Lingvist fail to provide learners with user interaction function. So learners in these six English vocabulary learning apps have no access to interact and communicate with other learners or their friends.

The advantages of English vocabulary learning apps embodying cooperation and conversation are as follows. First of all, cooperation and conversation change the traditional self vocabulary learning and enables learners to learn in real communication. Learners communicate with each other to learn from each other. Secondly, English vocabulary learning apps that support user interaction make it easier for learners to construct word meaning. When learners want to answer questions for other learners, they must try their best to clarify their own ideas, use their own language and express their own ideas. In this process, it can not only consolidate learners' understanding of vocabulary, but also improve learners' abilities to construct meaning based on their own knowledge. Thirdly, learners' learning ability and level are different. If learners have any confusion about English vocabulary learning, they can solve the problem in time by seeking the help of learning group members. Finally, collaboration and communication performance enhance students' enthusiasm for learning and motivate learners to explore independently.

As the function of user interaction in English vocabulary learning apps embodies the cooperation and conversation of constructivism learning theory, Bubeidanci, Maimemo Memory Keeper, Youdao, Duolingo, Drops and Lingvist should add user interaction function. Only in this way, can these six apps provide a better scientific learning environment for learners and will not be eliminated with the development of the times.

4.4. Summary

Based on the analysis of the collected English vocabulary learning apps, we can draw some conclusions. In the aspect of meaning construction, Baicizhan, Shanbay Word, ToWords, ZhimiEnglish, Maimemo Memory Keeper and Youdao do better than Drops, because they provide learners with more opportunities to make use of their own knowledge to construct word meaning. In terms of situation, ZhimiEnglish, Baicizhan, Drops and Duolingo provide corresponding pictures for learners so that they can learn vocabulary in authentic situations. While Shanbay Word, Bubeidanci, ToWords, Maimemo Memory Keeper, Youdao, Lingvist and Hujiang Fun Word Games fail to offer learners visual clues. As for user interaction, Bubeidanci, Maimemo Memory Keeper, Youdao, Duolingo, Drops and Lingvist should add user interaction function. Because it enables learners to learn in real communication makes it easier for learners to construct word meaning.

5. Conclusion

Vocabulary plays an important role in learning English. This paper analyzes 11 English vocabulary learning apps collected by the author from three aspects, namely, the personalized setting of app, the learning mode and user interaction. Guided by constructivism learning theory, the three aspects of app are combined with the meaning construction, situation and cooperation in the learning theory of constructivism. In terms of personalized setting, Baicizhan, Shanbay Word, Bubeidanci, Huang fun word games, ToWords, ZhimiEnglish, Maimemo Memory Keeper, Youdao, Lingvist and Duolingo all support learners' independent settings and construct meaning based on their previous knowledge, so these apps are suitable for autonomous learners. In terms of learning mode of apps, Baicizhan, ZhimiEnglish, Duolingo and Drops all provide the illustration ot word meaning with pictures, so as to create a situation for learners to make vocabulary more effective. In terms of user interaction, Shanbay Word, Huang Fun Word Games, ToWords, ZhimiEnglish and Baicizhan support user interaction, so they can enable learners to interact and cooperate with each other to learn together.

This paper aims at analyzing the advantages and disadvantages collected apps in terms of learning mode, personalized settings and user interaction under the guidance of constructivism learning theory in order to have a better understanding of English vocabulary learning apps

and screen apps for choosing and making better use of English vocabulary learning apps, and then learn English vocabulary more effectively and efficiently.

The significance of this paper is based on constructivism learning theory, to analyze collected apps with the development of mobile learning. On the basis of above analysis, more suggestions for learners to choose and use suitable apps and for system updating and improvement of app will be put forward so that to meet the needs of learners for English vocabulary learning.

Acknowledgments

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