Adjustment is Crucial: Self-Regulation of English Learning Application and English Academic Achievement

Hong Ma[*]

International Department, Beijing Youth Politics College, Beijing, China, 100102

[*]*Corresponding author. Email: 15901209097@139.com*

ABSTRACT

Memorizing words by English vocabulary application is a popular trend in English language learning so as to improve English academic achievement. This paper explored the relationship between English learning app and English academic achievement through questionnaires and scales of 138 English learners. The results showed that English learning app was an effective way to build up English vocabulary as well as improve English academic achievement. Regression equation results demonstrated that the environment adjustment and the goal adjustment of the English learning app had the strongest influence on English academic achievement. Learners can ultimately benefit from apps only if they have strong control of E-learning environment adjustment and goal adjustment.

Keywords: App, Self-regulation, English academic achievement, Environment adjustment, Goal adjustment.

1. INTRODUCTION

It is well-known that lexical richness is the foundation of learning any language. Commonly, a wide vocabulary is essential to the effectiveness of language proficiency and can lead to successful academic achievement. Nowadays, owing to the development of information technology, mobile technology is constantly applied to language learning. Mobile apps as tools have brought many advantages for enhancing students' participative language learning and vocabulary acquisition by multimodal supports. (Liakin, Cardoso & Liakina, 2017; Rosell-Aguilar, 2017) [1, 2].

It is widely recognized that technology-embedded applications help learners develop language skills through freeing them from the constraints of place and time. Furthermore, applications can also provide students with plenty of learning materials that couldn't be easily got many years ago (Douglas, Wojcik, & Thompson, 2012)[3]. Kalke et al. (2018) reported that mobile applications had great potentials to attract young people and provide appropriate resources without the inconvenience in traditional teaching[4]. From the perspective of social culture, educational apps mainly contributed to manage students' cognitive behavior and promote interaction. Apps as a potential arena for language learning had also been in focus in light of both popularity and convenience. During pandemics, a variety of apps have been considered as the useful mediums in and out of the classrooms serving with learning pathways across time and place (Carley, 2019)[5]. Learning activities of apps based on interactive games rather than dull recitation activities can meaningfully improve learners' language skills. More specifically, a large number of English learning apps have been able to create personalized learning activities to help learners in terms of pronunciation, grammar, vocabulary and other language skills. Mobile apps also urge learners to cooperate with their peers in virtual environments and gain the accuracy of English practice (Crisp, 2014)[6]. English vocabulary apps can correctly evaluate learners' vocabulary knowledge in certain context (Grace, 2000)[7]. In addition, numerous short and delicate testing activities of English learning apps are conducive to enhance learners' concentration and memory.

The current studies in educational psychology have shown that self-regulation was related to academic performance (Pintrich & De Groot, 1990)[8]. Most

successful learners tend to be well motivated and able to rule their learning process. Particularly during the Covid-19 epidemic, self-regulation has become the essence of success regarding every aspect of life. Self-regulation skills help to narrow English gap grounded on academic performance.

English vocabulary, to a certain extent, restricts the development of learners' English capability. Especially, when information technology is integrated with linguistic activities, it can build up linguistic and cultural development (Clements & Sarama, 2007)[9]. English vocabulary apps help learners to stay on the task and memorize English vocabulary gradually through example sentences, word roots, and etymological explanations. Strong evidence exists that the abundant vocabulary plays a facilitative role with regard to academic achievement. This study built on past researches involved in English academic achievement through English learning app. The following questions were underlined in this paper: 1. Do learners enjoy learning English by English learning app? 2. Is English learning app beneficial to English academic achievement? 3. Are there any significant differences in self-regulation of English learning app regarding English academic achievement?

2. THE DEVELOPMENT OF MOBILE APP AND SELF-REGULATION

2.1. Using Mobile App to Support Language Learning

Due to the convenience of mobile technology, students could boost the efficiency of language learning by using apps (Cavus & Ibrahim, 2009)[10]. It could be distinctly found out that vocabulary acquisition was the leading research focus respecting mobile learning (Kabiri & Khatibi, 2013)[11]. Vesselinov & Grego (2016) argued that learners could improve their written and oral expression skills by practicing with apps[12]. Thornton & Houser (2005) pointed out that mobile app would drive students to conduct English activities and interact with peers and teachers[13]. English learning app would intelligently manage and monitor the learning process, in the meantime, it required learners to engage in practice thoughtfully (Kuo et al., 2014)[14]. Sandberg et al.(2011) claimed that it was much more effective for students to exceed learning expectations using smart apps step by step[15].

2.2. Self-regulation as a Robust Predicator

Self-regulation was an integral determinant of academic domain (Schnell et al., 2015)[16], and academic self-regulation was also the decisive factor of learning strategies (Kim et al., 2015)[17]. Previous studies demonstrated that self-regulation could positively predicted children's academic scores (McClelland et al.,

2014)[18]. Basically, self-regulated skills coordinate the competence and fuel persistence in the learning process. For this reason, self-regulated learners have incentives and are full of confidence in the learning course (Boekaerts & Corno, 2005)[19]. In the field of language learning, studies have approved the reciprocal interaction between self-regulated learning and vocabulary acquisition (Tseng, Drnyei, & Schmitt, 2006)[20]. Students with good self-regulation ability generally adopted appropriate vocabulary learning strategies and resulted in great learning outcome (Aldan Karademir & Gorgun, 2019)[21].

3. RESEARCH METHOD

3.1. Background of Participants

The participants were recruited from one Beijing vocational college. They were all first-year students and learn English in the English course. All of the participants have no experience in using apps in view of language learning, especially in the process of vocabulary learning. The English language placement test was carried out at the beginning of the semester in order to choose more homogenous participants, who were assigned into two groups, EG(experimental group) and CG(control group).To investigate the differences in the English learning achievement of the students in the two groups, the experimental group memorize English words only by Shanbay app. All of the participants and teachers signed a consent form for data collection prior to data collection.

3.2. Research Tools

3.2.1. English Academic Achievement

English academic achievement was assessed by the score on the Practical English Test for Colleges. Practical English Test for Colleges is an English application level test designed by the Test Committee approved by the Ministry of Education. Vocabulary cognition is a major part of the test paper, which largely determines the score of the whole test paper. The test is classified into A and B level, which allows us to take into account the varying participants' English level. In order to fairly measure the student' English academic achievement, we adopted B level test based on the participants' English ability.

3.2.2. Self-regulation Survey of English Learning App

Self-regulation scale of English Learning app was adapted from Brown et al. (1999) scale depending on the purpose of exploring participants' opinions on learning English learning by app[22]. The adapted multidimensional scale consisted of 22 questions, each question should be answered from 5-point rating choices (1=strongly disagreement, 5= strongly agreement).

Table 1. English learning app's self-regulation scale

Goal adjustment	Metacognition adjustment	Satiation adjustment	Emotion adjustment	Environment adjustment
4. I set my concrete goal first and work out to achieve it when using app. 7. Learning English through app, I use a deliberate and organized approach to finish a certain task.10. I firmly believe in myself that all the problems related to English learning can be conquered by my efforts. 13. I concentrate when learning English through app.	3. When using English learning app, I can reach my aim faster than expected. 12. I never give up and always persist in until I make progress.14. App helps me set up confidence in my study. 16. English learning app positively impacts on my learning behavior. 21. I very much appreciate the feedback function of English learning app.	1. I feel very satisfied with the functions of the app. 8. Whenever I feel pressed, I try to get over it by playing English games in the app. 18.Interacting with app helps me remember English vocabulary better. 22. I love to use mobile apps to learn English.	2. Using English learning app helps to relieve the burden of vocabulary recitation. 6. Adjusting mood should be important in learning English, especially learning English by app. 9. In the process of learning English through app, I can overcome any boredom.11. Once the freshness of learning English through app is gone, I lose patience.	5. When learning English, I need a good learning environment. When the learning environment changes, it is difficult for me to get into study. 15. English learning app is more accessible than books. 17. English learning app offers me a good opportunity to learn words more frequently. 19. With the app, I can regularly review and learn the new words. 20. Using the app to test my vocabulary knowledge is simple and impressive.

3.2.3. Shanbay App

Shanbay App is an app that can be used on mobile phone or computer. It aims to help learners learn English, especially emphasizes the accumulation of vocabulary, and upgrades learners' language skills in an interactive environment. The difficulty of English vocabulary in the app progressively increases, starting from basic vocabulary activities to word guessing test and complicated English games. When using the app, students must interpret the word or phrase in English, because each word is put into a given situation. In conjunction with vocabulary reciting, the app can be set automatically to remind students to learn English on time.

Shanbay App can detect a misunderstanding or an error when you preview and review the word tests, in other words, this practice will ensure that language learners remember and understand vocabulary by correcting errors. The general vocabulary memorizing process include word meaning, word spelling, pronunciation, word forms, and collocations.

3.3. Research Process

138 first-year students (82 girls and 56 boys) were equally assigned into two similar groups, namely, experimental group and control group. The students in the control group used a traditional approach (learning English without any apps), whereas the learners in the experimental group used the Shanbay app for English learning. English academic achievement was evaluated by the test of the Practical English Test for Colleges (B level), which was carried out at the end of the semester. The participants in experimental group completed the self-regulation questionnaire of English learning app at the end of the second half of semester when they completed the courses.

4. DATA ANALYSIS

Scales were tested through SPSS 21. Independent sample t-test and regression analysis were conducted to solve the questions mentioned before.

4.1. Reliability of the Adapted Scale

The reliability of the scale was calculated by Cronbach α. The internal consistency Cronbach coefficient of self-regulation scale of English learning app was 0.894.

4.2. Descriptive Statistical Analysis

Since the participants came from the same college, we believed that learners' sociocultural and learning environment were consistent. For this reason, the gender, English learning background, time of learning English and frequency of using English were all examined. An initial analysis was run to obtain statistical data. As a whole, 40.6% of participants were male, 59.4 percent were girls; the control group (CG) was composed of 69 students (51.2% male; 48.8% female), while the experimental group (EG) was made up of 69 students (12.2% male; 87.8% female).About 12% of participants have studied English for no more than nine years, 88 percent of them have studied English for more than nine years; ninety-two percent of participants spent more than half an hour learning English daily, 8 percent of participants spent less than half an hour every day. About 5% of the participants hardly used any English in life, the

remaining 95% of participants used English regularly. Because of the careful placement tests before, the composition characteristics of the experimental group and the control group were basically the same.

Table 2. Descriptive statistics for the experimental group by self-regulation of English learning app

Self-regulation of English learning app	Max	Min	Mean	SD
Goal adjustment	16	9	12.18	1.44
Metacognition adjustment	25	15	18.61	2.03
Satiation adjustment	20	12	15.24	1.76
Emotion adjustment	20	11	15.03	2.20
Environment adjustment	16	9	12.03	1.78
Total	97	56	73.08	2.18

Table 2 showed that the mean of self-regulation of English learning app was 73.08(SD= 2.18); the mean of goal adjustment was 12.18(SD=1.44); Metacognitive adjustment mean was 18.61(SD=2.03); the mean of satiation adjustment was 15.24(SD=1.76); the mean of emotion adjustment was 15.03(SD=2.20); the mean of environment adjustment was 12.03(SD= 1.78). The data demonstrated that learners' self-regulation of English learning app was in the middle level.

4.3. Independent Samples T Test

T-test was used to look into whether there was any difference between the experimental group and the control group. The mean of Practical English Test for Colleges (level B) was put to use as the English learning achievement.

Table 3. Results of t-test for the control and experimental group

Group	Number	Mean	SD	t	df	P
Control Group	69	86.3	1.23	2.14	68	.03
Experimental group	69	92.2	0.89			

In line with our forecasting, concerning the independent t-test analysis, the significant difference in the English academic achievement between two groups has been verified. It could be seen that the mean of the experimental group is 92.2(SD=0.89), while the mean of the control group is 86.3(SD=1.23), t=2.14, P=0.03. Hence, the results showed that the learners in the experimental group and control group significantly differed in terms of their English academic achievement. The data said that the students who learned with the conventional English learning approach had significantly lower scores than those who applied the English learning app.

4.4. Regression Analysis

For the sake of probing into the role of self-regulation in English learning app and English academic achievement, we carried out simple correlation and multiple regression analysis, taking the five subscales of self-regulation of English learning app in the experimental group as independent variables, and taking English academic achievement as dependent variable. The results were listed in table 4:

Table 4. Simple correlation and multiple regression analysis for English learning app's self-regulation on English academic achievement

Scale	Mean of the English academic achievement	
	r	β
Goal adjustment	0.17**	0.138**
Metacognition adjustment	0.20*	0.172
Satiation adjustment	0.18**	0.146
Emotion adjustment	0.12*	0.152
Environment adjustment	0.24*	0.234**
Multiple Correlation (R)		0.31**

*P<0.05 **P<0.01

As indicated in table 4, we could find a consistently strong, independent and positive relationship between English app's self-regulation and English academic achievement. No significant relation was found between gender, length, frequency of learning English and the English academic achievement. Five adjustment dimensions of self-regulation were significantly correlated with the English academic achievements (P<0.05). The influence of two dimensions of self-regulation upon English academic achievement was significant. It was notable the goal adjustment and environment adjustment variables in the self-regulation of English learning app had entered the regression equation of English academic achievement, which meant the goal adjustment and environment adjustment had an important influence on the achievement of English. It was critical to note that the standardized regression weights (β) indicated the environment adjustment variables were the highest influencing factors, suggesting that the environmental coordination ability of English learning app was the core path that affected the learning achievement of English.

5. CONCLUSION AND DISCUSSION

5.1. English Learning App Promotes English Learning

These findings from this study supported the validity

of English learning app for English learning. The participants who used Shanbay app as a learning tool to learn English felt comfortable and productive during the learning process, which could be likely attributed to the prevalence of English learning app. Participants (the experimental group students) showed great enthusiasm for using English learning app and excellent ability to interact with English learning app, which made positive contributions to their English academic achievements. The conclusion accorded with the research results of McMahon et al.(2016), which confirmed that memorizing words with English learning app was responsible for accumulating English vocabulary[23].

We held the interpretation that there appeared to be the enjoyable and fun activities with the vocabulary-centered mobile application made English learning meaningful and fruitful. Compared to the conventional vocabulary reciting, digital app creates challenged and stimulated advancement to maintain motivation and enable learners to immerse themselves into English. Further, it was the interactive and game-based features of English learning app that promote participants to challenge themselves again and again and consolidate their memories through repeated and continuous reinforcement exercises. Most importantly, apps offer the benefits of self-paced learning. During the learning process, students' learning behaviors were automatically recorded by the system. Through learning analytics and automated customization, apps incorporated learning analytics, reinforced lexis by having students encounter it multiple times. Apps supporting English learning would encourage students' participation and improve learning effect better (Ok & Ratliffe, 2018)[24].

5.2. The Influence of English Learning App's Self-regulation on English Academic Achievement

The results of regression equation proved that self-regulation was closely correlated with English academic achievement significantly. Moreover, the goal adjustment and the environment adjustment of English learning app had the strongest influence on English academic achievement. The results aligned with prior work of Kukulska-Hulme & Viberg (2018)[25].This provided evidence that learners need to set goals reasonably as same as monitor their goals according to their learning progress in applying English learning app. Mobile apps guided learning and supported personal mediation through depth algorithms. Therefore, objective adjustment ability played a significant role in English learning. Setting up competitive objectives could help learners learn target knowledge more purposefully and actively, thus learners could achieve better performance dynamically.

Bandura (2010) made it clear that proximal goals were also an effective tool for developing personal efficacy[26]. Participants use apps to pursue their progresses and performances, compete with themselves (last performance), and redirect unsuccessful efforts or comparing with other participants and trying to improve their learning outcomes on subsequent tests, are better at maintaining positive emotional states during learning. However, participants themselves should have a high degree of self-motivation. In the process of learning, they must always strengthen their own needs and manage their goals well, continuously persist on a learning task when they cope with challenges. Otherwise, they will get lost in the entertainment of technology and fail to achieve the purpose of previewing and reviewing.

In case of the regression equation coefficient, the influence coefficient of environment adjustment was the highest, suggesting that the precondition for participants to use English learning app was to adapt to the digital learning environment and actively interconnect with English learning app, so as to accelerate the transfer of the happiness and satisfaction of digital learning to English achievement. Eventually, self-regulation occurs and develops in social interactions and becomes internalized over time.

In a word, English learning app is a kind of scaffolding, which not only increases the freshness of memorizing words, but also intelligently manages learners, dynamically adjusts the learning progress in the light of users' habits. The key to improving English academic achievement through English learning app is learners' self-regulation skills. Only learners targeting environment adjustment and goal adjustment skills can benefit a lot from apps.

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