

College Students' Use of Vocabulary Learning Strategies on Mobile Apps: Problems and Solutions

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Keywords: Mobile Apps, the Levels of Processing Theory, Vocabulary Memorizing Strategies

Abstract: Based on the Levels of Processing theory, this research makes use of a questionnaire to research college students' use of English vocabulary learning strategies. Based on a 253-sample analysis, we've had the following findings: The most frequently used memorizing strategy by college students is repetition strategy, and the least is association strategy; high achievers prefer to use semantic processing while underachievers tend to use formal processing to strengthen memory. The research suggests that the application of multiple vocabulary memorizing strategies on learning apps is beneficial and apps can be a useful supplement to classroom learning, but they also have their drawbacks. The status quo in the use of vocabulary memory strategies among underachievers is far from satisfaction. Learners should change such and try more diverse and effective learning strategies besides the traditional ways such as simple repetition.

1. Introduction

Vocabulary is of great importance in the acquisition of a new language since people will not be able to convey anything without vocabulary. But inefficiency of English vocabulary learning is widespread among college students in China. Facilitating learners' mastery of comprehensive and practical memorizing strategies has become urgent. The popularity of learning apps has given new vitality to such strategies. Undoubtedly, it is of certain practical significance to ponder the problems and countermeasures in the use of vocabulary memorizing strategies in their mobile learning.

As to the use of vocabulary memorizing strategies, scholars have done large amounts of research. Lawson & Hogben. found the most frequently used strategy was rehearsal and learners' choice of memorizing strategies were different for different learning proficiency: elementary and intermediate learners used more mechanical retelling strategies, while high achievers relied more on strategies related to the language itself.[1] Cohen & Aphek conducted an investigation into the association method and proved its efficiency.[2] Rundus focused on the effectiveness of repeated recall during memorization, confirming the assumption that once the depth of processing is attained, continued processing at that depth does not enhance recall ability.[3] Nagy and Herman proposed the hypothesis of incidental vocabulary acquisition, which holds that learners can gradually acquire a large number of vocabulary through context.[4] Researchers in China have also conducted many studies. Chen found that the main reason for students' insufficient vocabulary was the repeatedly used rote memorization, the single method of memory and the improper use of dictionaries.[5] Ding proved through the experiment of "think aloud" that the key to success of lexical learning lies in the appropriate use of lexical learning strategies rather than the frequency of the use of strategies.[6]

Researches related to lexical memorizing strategies have achieved abundant achievements, but few have been conducted on students' use of vocabulary memorizing strategies under the circumstances of using mobile apps. He et al. held the belief that there is still much room for the exploration of mobile learning to assist college English vocabulary learning.[7]

2. The Levels of Processing Theory and Classification of Lexical Memorizing Strategies

Memory is the remembrance, retention, reproduction or recognition of something experienced by the human brain. From the perspective of information processing, memory is the encoding, storage and extraction of the input information. Craik and Lockhart put forward that there exist two levels of cognitive processing for any input words: formal processing level and semantic processing level. [8] The formal coding pays more attention to the form of the words and the pronunciation characteristics of the words, such as their spelling, homonym, repetition and so on. And the semantic coding concentrates on semantic features, such as word-building, context connection and image of use. Memory performance depends on the depth to which the stimulus is analyzed. The level of processing affects the length of information retention: the deeper the processing, the more durable the memory processed. The deeper the memory trace, the slower the word dissipates.

The levels of processing theory provides a theoretical foundation for the classification of lexical memorizing strategies. O' Malley and Chamot classified the learning strategies into two levels: meta-cognitive and cognitive.[9] Lv further categorized them into shallow-encoding mnemonics and deep-encoding mnemonics shown in Table 1.[10] The classification in this study adopted Lv'.

Table 1. The categories of vocabulary memorizing strategies

Categories		Items
Cognitive	Shallow-encoding	Natural spelling strategy, Repetition strategy
	Deep-encoding	Word-building strategy, Context strategy, Flexible using strategy, Association strategy
Meta-cognitive	Other	Meta-cognitive strategy

3. Research Contents

3.1. The Framework

This research makes use of a questionnaire to study college students' English vocabulary learning strategies. Three research questions are mainly focused on: 1) What is the current overall situation in the use of memorizing strategies when learning English words on mobile apps? 2) What are the differences in the choice of vocabulary memorizing strategies between the high achievers and underachievers on mobile apps? 3) Whether the mobile apps are helpful for college students to acquire vocabulary learning strategies ?

3.2. The Subject

The survey is mainly targeted at college students, but not limited to English majors. The questionnaire was sent into the public platform so that students from different areas can fill it in. The students who have been using the learning apps for more than half a year are respondents of the study. If they have never used an app to recite words, their data will not be included in the research. As last 253 valid questionnaires were backed from the university students.

3.3. The Instrument

The first part of the questionnaire focuses on the usage of mobile learning apps when learning English words, with 3 questions of multiple choices including the time of learning, frequency, the number of words. The second part is about the usage of lexical memorizing strategies, 18 questions in total, which are based on Hong's[11] and Wen's[12] questionnaires and stand for the 7 strategy items as shown in Table 1. For each question, there is a five-point Likert scale ranging from 1 to 5. 1 equals to "this practice is never or almost never true of me" and 5 equals to "this practice is always or almost always true of me". Students can choose one from 1-5 to report their practice for each item. What's more, the reliability of this questionnaire is tested by means of SPSS19.0(Alpha=.824, indicating its credibility).

The author used *Wenjuanxing* to design the electronic questionnaire and sent it to social media

platforms like micro-blog and we-chat. Then, Excel and SPSS 19.0 are used to analyze the data.

4. Statistical Results

4.1. Learners' Learning Practice on Vocabulary Apps

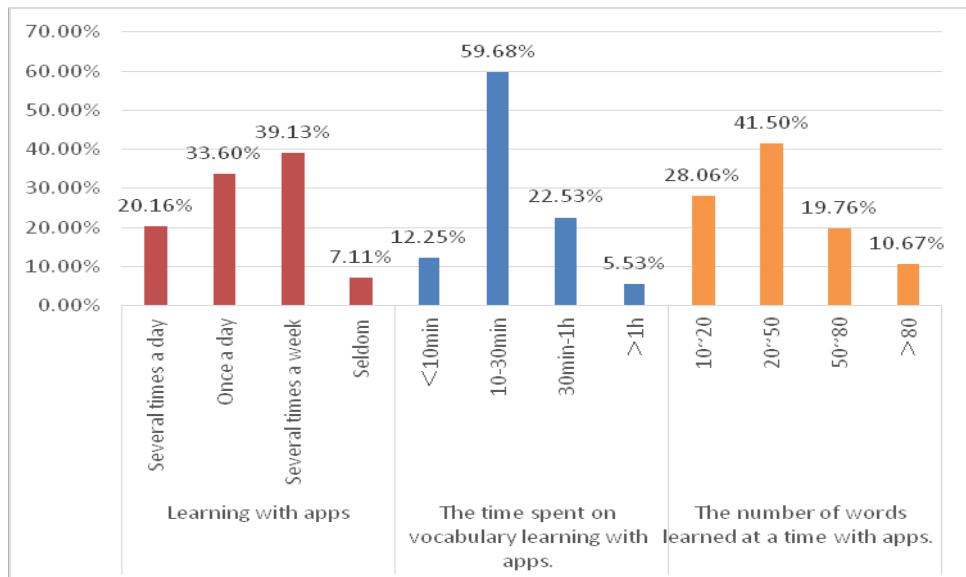


Figure 1. Students' practice when learning words on mobile apps

It's clear to see from Figure 1 that 53.76% of the students recite words every day with mobile learning devices and only less than 8% of students don't often use their app. As for the time on vocabulary apps, almost 60% of the respondents spend around 10 to 30 minutes a day reciting words, suggesting that most students like learning vocabulary with an app when time is available. In addition, around 70% of students recite 10-50 words on apps. The convenience of using cell phone contributes to the high frequency of learning with apps. Students can pick up the phone whenever and wherever, not limited by time and space.

4.2. Learners' Use of Memorizing Strategies When Learning on Vocabulary Apps

Table 2. The statistical result in the use of vocabulary strategies

	Repetition strategy	Flexible using strategy	Word-building strategy	Natural spelling strategy	Context strategy	Meta-cognitive strategy	Association strategy
Mean	3.49	3.27	3.21	3.20	3.15	3.07	2.90
Std.	.837	1.038	1.041	.951	.951	.863	.811

The results in Table 2 show that the most selected strategy is repetition (Mean=3.49), which reflects that college students tend to repeat words once and once again so as to bear the words in their mind. Flexible using strategy and word-building strategy are followed, indicating that students tend to use the new words in conversation or writing to imprint their memory and are attentive to rules of word formation, such as root and affixes to help them memorize words better.

As we know, a word has different meanings in different contexts. Such flexibility can lead to the infrequency in the use of context strategy. Another possible reason comes from the influence of the traditional way of language learning, i.e. memorizing words by rote, so "natural acquisition" is hard to believe, let alone put into practice. Meta-cognitive strategy is used at a low level. Association strategy is used the least. It is regarded as a way of using imaginary or visual images or pictures or by remembering its synonyms, antonyms, homonyms, polysemy and so on to remember difficult words. So, this strategy is high-demanding for those with no fertile imagination.

4.3. Differences in the Use of Memorizing Strategies between Students of Different Levels

Table 3. The differences between good learners and poor learners

	Descriptive			Levene's Test for Equality of Variances		t-test for Equality of Means		
	Group	N	Mean	F	Sig.	t	df	Sig.(2-Tail)
Natural spelling strategy	1	163	3.37	4.654	.032	4.172	213	.000*
	2	52	2.74			3.706	72.63	.000
Repetition strategy	1	163	3.56	.060	.807	1.770	213	.078
	2	52	3.33			1.750	84.45	.084
Word-building strategy	1	163	3.39	.408	.524	4.498	213	.000*
	2	52	2.66			4.441	84.26	.000
Context strategy	1	163	3.37	.600	.440	6.037	213	.000*
	2	52	2.51			5.659	77.96	.000
Association strategy	1	163	3.05	.736	.392	4.013	213	.031*
	2	52	2.55			4.145	90.82	.000
Flexible using strategy	1	163	3.40	3.235	.073	3.174	213	.002*
	2	52	2.88			2.995	78.67	.004
Meta-cognitive strategy	1	163	3.24	1.108	.294	4.916	213	.000*
	2	52	2.59			5.226	95.63	.000

The differences in the choice of strategies between the good and poor learners are shown in Table 3. Those who have passed the CET-6 or TEM-4 are classified as Group 1, and those who haven't passed the CET-4 are Group 2. What they have in common is the frequent use of repetition strategy. By contrast, significant differences exist in the use of the rest strategies(Sig<0.05). It's not difficult to understand. With the improvement of students' ability, they are able to process the word phonetically, formally, semantically and contextually as well as its association with other things. Therefore, good learners rely more on deep coding to memorize words. In parenthesis, they use meta-cognitive strategy more to manage their learning activities, but underachievers don't.

5. Problems and Discussions

5.1. Students' Preference for Formal Processing to Semantic Processing

As analyzed before, formal processing method, such as repetition strategy, is employed the most frequently by students while the semantic processing methods like context strategy and association strategy are less used. The foremost reason is that college students always have a clear purpose while memorizing words. In general, they will be devoted to learning just before the final exam or the national exam. In order to pass the exam, they will set a goal, such as reciting a certain number of words in one month. They want to keep the words in mind in a short time, resulting in that they cannot use different strategies and often recourse to rote memorization. Using semantic processing method is too complex, high-demanding and time-consuming for them. Many learners have trouble in enlarging their vocabulary, not because they're dumb but because they don't want to spend time laboring for a better approach. When about to prepare for the test, they will turn to the word-list, reciting words from the first page to the end without knowing the depth of a particular word and how to use it correctly. This method of memorization is hard and tiring, and it is not effective.

Thus, while using the memorizing apps, learners should not only pay attention to the Chinese meanings, just glancing at them with a vague impression and then continuing to recite the next word in the same way. They should also use the semantic processing method by concentrating on the

example sentences, the part of speech, phrases, the context which it can be used and other derived knowledge, so as to maximize the effect of mobile learning. Such change should happen under the guidance of teachers and repeated practice by themselves.

5.2. Students' Infrequent Use of Meta-cognitive Strategy

Meta-cognitive strategy, a general management of procedures for effective learning of a foreign language such as planning, monitoring and evaluating plays a dominant role in all learning strategies as a kind of advanced management strategy. Although meta-cognitive strategy only assists in language acquisition indirectly, it is vital to success. However, meta-cognitive strategy among college students is less applied less frequently. In other words, college students cannot plan, adjust and monitor their study consciously. Chances are high that some of them haven't realized the importance of meta-cognitive strategy, or they have no access to the training of meta-cognitive strategy.

The vocabulary learning app is of certain help for learning and planning. Students are free to choose the number of words they want to memorize each day. The most principal is that students will be reminded of punching in every day by a clock set by the user beforehand to ensure lasting learning. Just the old saying goes, give a man a fish, and you feed him for a day; teach a man to fish, and you feed him for a lifetime. Teachers should guide students actively to carry out effective meta-cognitive strategy training, cultivate students' independent planning ability. Furthermore, teachers should combine vocabulary teaching with modern educational technology, making use of the variety of functions on apps to inspire students' interest in words learning, motivate their efforts and strengthen their sense of self-efficacy.

5.3. The Gap between the Functions of Mobile Apps and the Requirements of Lexical Memorizing Strategies by Students

Students' infrequent use of a particular strategy is, to a certain degree, related to the insufficient application of the strategy on an app. The design and development of vocabulary learning apps should coincide with users' requirement of, guiding learners to carry out formal processing, semantic processing and elaborative encoding step by step. Their design concept should be conducive to leading students to the internal acquisition of all sorts of English lexical memory strategies after repeated application in different words.

As shown before, the flexible using strategy is seldom used by learners. It means exercises like filling in blanks, multiple choices or translation, are missing, so words can't be correctly used in practice even though meanings are memorized. It is advisable that the gap should be fixed. In addition, it is worth mentioning that, if too many entertaining elements are inserted in the app, students may easily get distracted and will probably depart from their original intentions. So the design of apps should be function-oriented.

Conclusion

To conclude, the lexical learning app is beneficial to memorization thanks to the application of multiple memorization strategies in design, so it can serve as an auxiliary teaching means to help students master a larger vocabulary for its convenience, vivid demonstrations of words and rich mnemonics. But more functions that are in line with learners' requirement should be integrated into the design of the apps.

Acknowledgements

This paper is one of the phased results of Project No. 2019XJWK19 of Huzhou University, namely, *Research on the Problems in Non-English Major's Use of Listening Strategies on Mobile Apps and Solutions* and the Project No. JGBA1849Q of Huzhou University, namely, *Blended Teaching of College English*.

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