

Investigation and Analysis on the Factors Affecting the Effect of College Students' Mobile Learning

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Abstract: *With the development of network information technology and the popularity of mobile devices, college students have taken mobile learning as a new learning method, which has become a supplement to classroom formal learning and meets the needs of learners' informal learning. However, by reading a large number of relevant literature, it is found that the effect of College Students' mobile learning through mobile devices is not satisfactory. Starting with cognitive load theory, learning theory and learning motivation theory, this paper reads a large number of relevant references, systematically and deeply studies the factors affecting college students' mobile learning effect, puts forward the model of factors affecting college students' mobile learning effect, and then designs a targeted questionnaire to investigate college students with mobile learning experience, so as to make an empirical analysis of the theoretical model and research hypothesis. The research results of this paper prove that in the mobile learning environment, the quality of learning platform, the quality of learning resources, cognitive load and other factors will significantly affect the effect of learners' mobile learning. Finally, according to the results of research and practice, the paper puts forward relevant strategies and suggestions on how to improve the effect of College Students' mobile learning, hoping to promote people from all walks of life to improve the quality of mobile learning.*

Keywords: *mobile learning, learning effect, cognitive load, learning performance, learning resource*

1. Introduction

With the advent of the Internet age, the number of college students surfing the Internet has doubled in recent years. According to China Internet Network Information Center in 2019 (according to the statistical report released by CNNIC, as of March 2019, the number of Internet users in China has reached 668 million, and the new number of Internet users in the first half of 2019 reached 18.94 million, including 594 million mobile Internet users, an increase of 36.79 million compared with December 2018, and the proportion of Internet users using mobile Internet is as high as 88.9%. It can be seen from this that mobile devices have gradually become the main choice of Internet users. Among the Internet users using mobile devices, the age is 20-29 years old. It can be seen that young people account for more than 30%, and the largest group in this age group is college students. The convenience of mobile phones has become the first communication and learning tool for contemporary college students. However, due to the uneven quality of mobile learning software, complex operation of learning software, unreasonable design of mobile teaching and low quality of mobile learning resources, the effect of mobile learning cannot satisfy learners [1]. Therefore, I want to find out the impact of mobile learning on college students through the research of this paper, and put forward relevant suggestions and countermeasures. To sum up, although there has been a large number of research literature on the theoretical research of mobile learning in China, but, there is still a lack of research literature on the factors affecting the effect of College Students' mobile learning. Especially for China, the research results on the factors of mobile learning effect are very rare, and the application of mobile learning in school teaching is just beginning.

2. Investigation on the Factors Affecting the Effect of Mobile Learning of College Students

2.1. Purpose of Investigation

Mobile learning is a new thing, but it can be seen everywhere in the current university campus. The

main purpose of this investigation and research is to understand the situation of College Students' mobile learning and the different ways of College Students' mobile learning, so as to understand the different factors affecting college students' mobile learning, and analyze the data accordingly to find out what are the main factors affecting the effect of College Students' mobile learning, Some suggestions are put forward for these factors, so as to better promote the development of mobile learning.

2.2. Questionnaire Design

This questionnaire has 21 questions, 12 single choice questions, 4 multiple choice questions, 4 blank filling questions and 1 matrix single choice. The design mainly includes the following parts:

1) *Basic information collection*: This part designs two single choice questions to understand the comparison between men and women and the distribution of grades, because different grades have different feelings about mobile learning, At the same time, there are differences in the character of boys and girls, and there are some differences in the logical thinking of learning methods, so the acceptance of mobile learning is also different.

2) *Learners' attitude towards mobile learning*: This part designs three single choice questions, which are mainly to understand learners' understanding of mobile learning and their self-cognition attitude towards mobile learning. When they have the opportunity to contact mobile learning, a way for learners to deal with mobile learning resources, so as to summarize learners' cognition of mobile learning and the acceptability of mobile learning.

3) *Learners' attitudes towards using mobile devices*: This part designs two multiple-choice questions and one single choice, mainly to understand the mobile learning media that learners currently own, the frequency of use and what they are doing with mobile devices.

4) *Resource distribution of mobile learning*: This part designs two multiple choices and one single choice, which is mainly to understand what platform learners use for mobile learning, what aspects of knowledge they mainly learn in mobile learning, and the current resource status of mobile learning.

5) *Self-cognition in mobile learning*: This part designs one multi-choice and four single choices. It is mainly to understand when learners will carry out mobile learning, how learning resources should be presented better, and whether self-cognition will be affected by external factors in mobile learning.

6) *Factors affecting the effect of College Students' mobile learning*: This part designs a rectangular single choice, a subjective question contains 17 factors, followed by other factors other than those listed above.

7) *The current construction of mobile learning platform*: This part designs three subjective questions, which mainly understand the role of mobile learning platform in mobile learning for learners,5. Whether there are certain supervision measures during learning, whether there are ways to communicate with peers through learning feedback, and finally design an investigation on the reasons why mobile learning cannot be adhered to.

2.3. Implementation of the Survey Process

This survey targets some students of Hunan University of science and technology. It is expected to issue 120 questionnaires, mainly in the form of online questionnaires. The questionnaire is distributed for 3 days. After the collection, the data statistical function of the questionnaire star is used to analyze the data, summarize and draw a conclusion according to the filling situation of the questionnaire [2].

2.4. Statistical Analysis of Questionnaires

During the questionnaire recovery process, 120 questionnaires were distributed and 101 questionnaires were recovered, of which 101 were valid questionnaires. The specific analysis content is as follows:

The proportions of males and females in the questionnaires collected in this questionnaire were close, with 45% boys and 55% girls. The grade distribution even ranges from first year to senior year, providing a good foundation for the generality of the experiment.

As can be seen from the data in Figure 1, people have a general understanding of the concept of mobile learning. Only a minority of students have not been exposed to mobile learning, or they do not

know the concept of mobile learning. At the same time, the use of mobile learning by most students depends on the situation, they just browse the promoted mobile learning resources, indicating that mobile learning is not taken seriously.

At present, college students basically have mobile phones and computers, and the frequency of using devices is also relatively frequent. Most of them are mainly used for browsing the web, watching videos, watching and listening to music, and using social software for information exchange. For the development of mobile learning, mobile learning platforms are mainly learning websites, WeChat accounts, etc. From the perspective of the resource construction of mobile learning, the current construction of mobile learning resources is very powerful, and the amount of resources is relatively large. Among them, learners mainly use mobile learning on WeChat, WeChat, mobile APP and learning website. In this process, mobile learning is gradually pushed to mobile terminals, so that learners can make full use of mobile learning and use fragmented time for learning. In mobile learning, most learners undertake relevant expertise, obtain qualifications, and ask about their day-to-day needs. At the same time, under what circumstances will learners conduct mobile learning. Most people will query Baidu when they encounter difficulties in life or study. Baidu is basically the most visited website in our life. Data integration is achieved by integrating different information consultations.

In terms of mobile learning resources, learners are more willing to accept the combination of pictures, texts and auditions. They are disgusted by the comparison of plain text to pictures, and have higher demands on the quality, new speed and effect of mobile learning resources. The main reason why learners tend to be distracted during mobile learning is that mobile learning resources are more interesting than entertainment materials and most learners are more focused on the learning content.

For the investigation of factors affecting mobile learning, it can be seen from the experimental data that the most important are the learner's own factors, their own learning motivation and learning autonomy, while the construction of mobile learning platforms and resources belongs to the category of greater influence. Including the difficulty and attractiveness of learning resources, while learners of mobile learning media feel less impact, a learning atmosphere has a greater impact on mobile learning. (See Table 1).

Table 1: Statistics of Factors Affecting Mobile Learning

| | | | | | |
|---|------------|------------|------------|------------|------------|
| Self-learning motivation | 62(61.39%) | 25(24.75%) | 7(6.93%) | 5(4.95%) | 2(1.98%) |
| self-learning autonomy | 65(64.36%) | 24(23.76%) | 5(4.95%) | 2(1.98%) | 5(4.95%) |
| self-attention in learning | 39(38.61%) | 45(44.55%) | 10(9.9%) | 5(4.95%) | 2(1.98%) |
| difficulty of learning resources | 20(19.8%) | 48(47.52%) | 28(27.72%) | 3(2.97%) | 2(1.98%) |
| Attractiveness of learning resources | 17(16.83%) | 42(41.58%) | 29(28.71%) | 11(10.89%) | 2(1.98%) |
| The variety of learning resources | 16(15.84%) | 33(32.67%) | 37(36.63%) | 14(13.86%) | 1(0.99%) |
| The complete learning resource system | 16(15.84%) | 35(34.65%) | 34(33.66%) | 14(13.86%) | 2(1.98%) |
| The update speed of learning resources | 16(15.84%) | 27(26.73%) | 35(34.65%) | 22(21.78%) | 1(0.99%) |
| The duration of learning resources controls | 11(10.89%) | 37(36.63%) | 35(34.65%) | 16(15.84%) | 2(1.98%) |
| The screen size of learning equipment | 11(10.89%) | 13(12.87%) | 19(18.81%) | 23(22.77%) | 35(34.65%) |
| Duration of sustainable learning of learning equipment | 10(9.9%) | 18(17.82%) | 51(50.5%) | 14(13.86%) | 8(7.92%) |
| Ease of learning software | 14(13.86%) | 32(31.68%) | 37(36.63%) | 16(15.84%) | 2(1.98%) |
| The use of mobile learning by roommates | 13(12.87%) | 38(37.62%) | 37(36.63%) | 10(9.9%) | 3(2.97%) |
| Roommates and friends' use of mobile learning | 12(11.88%) | 29(28.71%) | 44(43.56%) | 14(13.86%) | 2(1.98%) |
| learning methods supported by mobile learning | 11(10.89%) | 32(31.68%) | 46(45.54%) | 9(8.91%) | 3(2.97%) |
| information interference unrelated to learning in mobile learning | 18(17.82%) | 35(34.65%) | 35(34.65%) | 10(9.9%) | 3(2.97%) |

To sum up, the questionnaire on the factors that affect the effect of college students' mobile learning shows that mobile learning is developing step by step in college campuses at present. From the national training plan for college students, as far as our school is concerned, we need to take four different modules of general education courses, and the school of general education courses recognizes the validity of its certificate [3]. However, a big problem in this questionnaire is that mobile learning brings people a benefit. Among them, it is well recognized by the society and schools, and it also has a lot to do with the mechanism of mobile learning resources and platforms. In the society with the rapid development of information, mobile learning will be gradually improved step by step, and it is very likely that mobile learning will become a major learning method in the future. By combining mobile learning with traditional classroom teaching, learners' learning enthusiasm and autonomy can be effectively improved.

3. Strategies and suggestions to improve the effect of college students' mobile learning

3.1. Enhance Awareness of Mobile Learning and Improve Learning Methods

With the development of mobile Internet, the ability of data transmission is also increasing, and college students can use their mobile phones to obtain the required data information anytime and anywhere. With the convenience of mobile phones, college students can choose the appropriate learning content and learning methods according to their actual situation, and arrange their studies according to their own conditions and time. Therefore, for educators, we should enhance the awareness of mobile learning, give full play to the advantages of mobile learning and make up for the shortcomings of traditional classroom learning.

3.2. Improving the Quality of Mobile Learning Resources

Through research practice, it is found that learners have the highest average reading amount for learning content, followed by life content, then entertainment content and finally news content. For mobile learning, students are very concerned about the learning contents provided on the mobile learning platform [4]. These learning contents can be the learning of professional knowledge on the one hand, and the learning of ability development on the other. Among them, the quality of learning resources is a big problem. Good mobile learning resources will give learners a better feeling visually and feel, and will attract learners' attention from the beginning. And mobile learning is to make learners like to learn, rather than finish it as a task.

3.3. Time Management for Mobile Learning

The most fundamental purpose of time management for mobile learning is self-monitoring. Because of the flexibility and mobility of mobile learning, it is difficult to plan a learning schedule, but learners can make an approximate budget for their spare time and then make arrangements, so that they can make full use of their time. Because of the inconsistency of mobile learning, they should pay attention to self-marking. At the same time, try to choose micro-courses to study, which can improve the efficiency of study, and you can master one knowledge point in a short time, and then learn another knowledge point next time. As a qualified college student, you should have a substantial schedule, so that your life will be carried out in an orderly way, and your work and study efficiency will be improved [5].

3.4. Appropriately Reduce the Difficulty of Mobile Learning

For learning content, course teachers should be good at decomposing the difficulty of learning content, from simple to difficult, and gradually rising according to the level. For knowledge points that are difficult to understand, they should be displayed step by step, giving learners a cached time point. At the same time, they should combine different cases to explain. It is best to build on the learners' original cognition based on common practices in life. Instruct learners to solve problems according to their experience. Secondly, in mobile learning, the difficult knowledge points can be explored after class, and learners in need can learn, so as to avoid hurting learners' self-confidence. To sum up, college students' acceptance of mobile learning and the richness of teaching tools and means of online courses in the future post-epidemic era deserve our further development and research in the future research.

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