Research on the Influencing Factors and Development Trend of University Students' Mobile Learning

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Abstract: How to use mobile technology to carry out educational and teaching activities, provide learners with high-quality teaching resources, construct learning scenarios anytime and anywhere, and provide rich and personalized learning content, has become a hot area of research and practice at home and abroad. From a practical point of view, the enthusiasm and effect of college students for mobile learning does not match the current development level of mobile technology and digital learning technology; from a research perspective, there have been studies on the factors that hinder the in-depth development of mobile learning, and Researches on specific influencing factors, such as exploring their mechanism of action, are not systematic and comprehensive. This research focuses on the "impeding factors and mechanism of mobile learning for college students", from a systematic perspective, clarifies the core factors that affect college students' mobile learning, deeply analyzes the interaction and restrictive relationship between various elements, and explores the impact of college students' mobile learning The mechanism of action is to propose a scientific, reasonable and feasible mobile learning service system that meets the actual needs of college students. The theoretical level further enriches, improves and expands the mobile learning theoretical system; the practical level promotes the deepening of mobile learning activities for college students, provides them with a richer, scientific and effective mobile learning service system, and improves the effect and quality of mobile learning for college students.

1. Introduction

Mobile information technology is an important part of modern information technology. Mobile information technology is playing an increasingly important role in realizing real-time and fast information transmission and building a convenient and flexible communication platform. It has become the work, life and study of modern society. Essentially, mobile information technology products and services are also playing an increasingly important role in the education field. China Internet Network Information Center's "47th Statistical Report on Internet Development in China" shows that the number of mobile Internet users in my country has reached 986 million, the number of online education users has reached 232 million, and the number of users of mobile online education courses has reached 342 million. The use of mobile terminal devices such as mobile phones to carry out "mobile learning" has become one of the important ways for college students to learn. Mobile learning is a digital learning in which learners use wireless mobile communication network technology and wireless mobile communication equipment to obtain educational information, educational resources and educational services, and realize the rich interaction of teaching and learning through mobile technology under appropriate circumstances, and conduct digital learning anytime, anywhere. With the characteristics of convenience, individualization, interactivity, versatility, flexibility, etc., mobile learning mainly emphasizes placing learners in a credible and appropriate use situation, and in this situation, it promotes learners to realize inter-individual communication through technology. The interactive; through flexible and personalized learning, expanding learning opportunities is the best supplement to traditional learning methods. In 2020, "Classes are not suspended" will be carried out as normal, and it will become necessary and normal for college students to conduct online learning through computers, mobile phones and other devices. Under the above background, how to use mobile technology to carry out educational and teaching activities, how to provide learners with high-quality teaching resources through mobile

networks, to build learning scenarios anytime and anywhere, and to provide rich and personalized learning content, and how to ensure the learning effect of mobile learning It has become a hot area of research, practice and policy support at home and abroad.

2. Influencing Factors of Mobile Learning for College Students

Mobile education is the result of the organic combination of mobile communication, network technology and contemporary education, and is also a cutting-edge achievement of modern education technology. Mobile education refers to the fact that students and teachers can realize interactive education and teaching activities more conveniently and flexibly through the use of mobile devices, relying on the relatively mature wireless mobile networks, the Internet and multimedia technologies. The main features of mobile education are: (1) The form of mobile education includes interactive teaching, management and service activities; (2) Mobile education emphasizes the provision of digital information and content; (3) Teaching auxiliary information (course schedules, academic conferences) Notice, etc.) Contents of mobile education; (4) Mobile education is not restricted by time and place; (5) Mobile education advocates learning by doing; (6) The technical basis of mobile education is mobile internet technology; (7) Mobile education The realization tool is miniaturized mobile terminal equipment. Mobile learning research has gone through the preliminary stage of exploration, and has entered the stage of how to make mobile learning enter the mainstream learning mode of people, and then profoundly affect (enhance support, innovative applications) human education models and learning methods. People are concerned about how to make mobile learning better. Convenient, broader and more universal. The research scope ranges from mobile learning theory to mobile internet technology, from mobile terminals to mobile platforms, from learning resources to mobile teaching design. Carrying out mobile learning in universities, using network technology and smart terminals to carry out learning, can achieve personalized learning for college students, stimulate their interest in learning, expand learning time and space, enrich learning resources, and be more in line with the cognitive characteristics of college students and the technical environment in which they are located. It has important practical significance for cultivating the comprehensive ability and innovative spirit of college students. But from a practical point of view: the enthusiasm and effect of college students for mobile learning does not match the current development level of mobile technology and digital learning technology. Most college students use their mobile phones only for browsing the web, chatting, and gaming, rather than learning; some students develop informal learning based on behavior, motivation, and interest, such as browsing the web, participating in social media, and watching video tutorials, but the effect is not Well, the advantages of mobile learning have not been fully exploited; important challenges faced by mobile learning for college students, such as high contextualization, individualization, collaboration, and continuity of learning, have been exposed. From a research perspective: the existing research on the problems of weak promotion and slow application of mobile learning is more perceptual analysis; for the influencing factors that hinder the in-depth development of mobile learning, more emphasis is placed on technical elements and other elements are ignored Holistic and systematic; less discussion on the mechanism of influencing factors, the scientificity, rationality and operability of the mobile learning service system also need to be improved.

For this research theme, the current research situation mainly focuses on the influencing factors and service system of college students' mobile learning. In terms of the influencing factors of mobile learning, many scholars construct research hypotheses based on the theoretical guidance of the technology acceptance model (TAM, TAM2, TAM3) and the technology acceptance and use model (UTAUT). Many aspects such as entertainment, learning resource optimization, etc. discuss the influencing factors of mobile learning [1]. For example, Mohammed Amin Almaiah et al. (2019) combined the technology acceptance model (TAM) with the updated DeLone McLean's model (DL&ML) to explore the satisfaction of quality factors and personal beliefs for mobile learning. The results showed that quality factors (including system quality, information quality) And service quality) have a significant impact on students' academic performance, and the

satisfaction and willingness to use mobile learning. In addition, perceived usefulness has a significant and strong impact on the willingness, satisfaction and satisfaction of using mobile learning [2]; at the same time, In another empirical survey, it was found that technical factors (security, privacy, compatibility, relative advantage and trust), organizational factors (resistance to change and technology), cultural factors, and quality factors (service content and quality) are more effective in mobile learning. Strong influence, while resistance to change, security and privacy issues, technological maturity and other factors also have different influences [3]. Xu Xueqi et al. (2020) found that flow experience, perceived mobility, and service quality have a significant impact on the willingness to continue use of learning users based on the Unified Integration Theory of Acceptance and Use of Information System Technology (UTUAT). Streaming experience has an indirect impact on user behavior, and paid mobile learning platforms have a more significant impact on user behavior than free platforms. The mobile learning service system includes activity design, scenario design, environment design, resource design, etc., and integrates planning of mobile learning technology, resources, platforms, strategies, activities, scenarios and other aspects. Li Su et al. (2018) proposed mobile learning activities based on the subject, object, tools, rules, community, and role division, and carried out the design of mobile learning activities from front-end analysis, activity elements, media design, process design, and evaluation design. Huang Boping (2019) proposed the design of mobile learning resources for hybrid and flexible learning, comprehensively considering the dimensions of learner characteristics, learning process and presentation terminal, and proposed mobile learning implementation principles, technical reference specifications, carrier function design, etc. Sailer et al. (2019) explored the positive role of head-mounted displays (HMD) in mobile learning, and believed that it achieved unlimited screen size, broad field of view, and novel interaction methods.

Based on the above analysis, it can be considered that the influencing factors of college students' mobility include: (1) Individual factors, learning willingness, learning motivation (ability improvement, problem solving, honoring), role perception and computer self-efficacy (computer operation ability, network application ability), etc. 4 sub-elements; (2) Platform and environment, consisting of supporting environment (Internet speed, computer ownership, platform stability), ease of use (clear navigation, simple operation, convenient management) and usefulness (promoting communication and helping learning) (3) Learning design, consisting of three sub-elements: activity design, resource design, and evaluation design; (4) Subjective norms, consisting of external norms (teacher requirements, assessment method requirements, learning system requirements) and group Influence (participation by peers, timely feedback) and other two sub-elements; (5) Interactive perception, consisting of opinion leaders (existence of opinion leaders, guiding speech), teacher support and guidance (existence of teachers, timely support, leading learning) and inter-learners Interaction (timely feedback, effect evaluation) and other three sub-elements; (6) Support and help, which is composed of emotional support (harmonious relationship, personality development) and technical support (technical problem solving, technical assistance).

3. The Development Trend of Mobile Learning for College Students

Based on the influencing factors of mobile learning of college students, this research believes that the development trend of mobile learning of college students exists in the following aspects:

3.1 Integrate Network Technology to Form a Ubiquitous Learning Environment

The development of modern communication systems represented by communication satellites, cellular telephones, and digital transmission networks has made it possible for college students to transmit information anytime and anywhere in the "global village", especially with the Internet, cellular mobile networks and wireless networks in recent years. The advancement of communication technology has greatly shortened the distance between people and information. This ubiquitous communication network and user-centric information services have created a ubiquitous learning environment for college students.

3.2 The Application of Mobile Interactive Technology Makes the Development of Mobile Learning More Convenient

The usability of mobile terminals is one of the main bottlenecks restricting its learning applications. The mobile human-machine interface directly affects the usability of mobile terminals, and its development will influence the industrialization process of mobile learning and the scale of the applicable population. Effective human-computer interaction can make the mobile learning experience easier, more efficient, more satisfying, and even more surprising, which greatly promotes the popularization of mobile learning among college students and the creation of new application models.

3.3 The Introduction of Different Educational and Learning Concepts Makes It Possible to Learn Anytime, Anywhere with the Support of Modern Mobile Technology

From the perspective of future education, education refers to a person's development process. Although we are not born capable of being self-reliant, our potential is limitless. In a sense, education is a kind of "software" that allows us to become capable and self-reliant adults. Education takes place through "anytime, anywhere" learning. Toffler believes that after the advent of the Internet, schools can be eliminated and replaced by a global education system. Although this view is difficult to establish, the school education in the future will definitely change. With the support of mobile learning related technologies, anyone can learn at any time, even throughout their entire life.

3.4 The Outlook on Lifelong Education of College Students Has Been Further Developed

The application of mobile learning in adult education is still in its infancy. However, with the support of the gradual maturity of educational technology, it exerts and extends the advantages of online distance education, makes up for the lack of classroom education in schools, conforms to the concept of lifelong education, and has huge development potential. With the further development of economy and technology, the learning concept of mobile learning will become more popular and will be among the mainstream education. We should strengthen the research on mobile learning applications for college students, overcome the current difficulties, and let them play a greater role in promoting and improving the learning methods of adult education.

3.5 Focus on the Exploration of the Relationship between Teaching and Learning, Learning Methods, Teaching Models, Curriculum Resource Development and Construction, Etc.

From many mobile learning research projects abroad, it can be seen that some developed countries abroad already have the basic conditions for developing mobile learning for college students, such as infrastructure, material security, and technical conditions. Therefore, the research focus of mobile learning began to shift to exploring how to deal with the relationship between teaching and learning in mobile learning, effective learning methods of mobile learning, and teaching guidance mode, etc., and focus on the development and construction of curriculum resources suitable for mobile learning.

3.6 The Application Model of Mobile Learning for College Students Presents a Diversified Development Trend

The application research of mobile learning involves the feasibility study of mobile learning, resource development of mobile learning, WAP site construction, short message service, problem-based learning, work-based learning, collaborative learning, lifelong learning, etc. Mobile learning application models such as mobile learning based on mobile phone short message SMS (Short Messaging Service) or multimedia messaging service MMS, mobile learning based on WAP connection browsing, and mobile learning based on mobile blogs have gradually shown a diversified development trend.

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References

[1] Bakhsh, Muhammad, Mahmood, Amjad, Sangi, A Nazir. Examination of factors influencing students and faculty behavior behavior towards m-learning acceptance: An empirical study. International Journal of Information & Learning Technology, 2017,34 (3):166-188.

[2] Mohammed Amin Almaiah, Omar Abdulwahab Alismaiel. Examination of factors influencing the use of mobile learning system: An empirical study. Education and Information Technologies, 2019, 24(1):885-909.

[3] Mohammed Amin Almaiah, Ahmed Mulhem. Analysis of the essential factors affecting of intention to use of mobile learning applications: A comparison between universities adopters and non-adopters. Education and Information Technologies, 2019, 24(2): 1433–1468.