MOBILE LEARNING AS THE KEY TO HIGHER EDUCATION INNOVATION

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ABSTRACT – The background of mobile learning and its application in the higher education sector is included with the problem statements that have been identified and explained in order to give the present research a clear direction. The issues such as Hesitation in adopting mobile learning, Low growth rate of mobile learning in higher education, and Unhealthy addiction to smartphones are included. A lot of literature is explored to get an initial understanding. The qualitative research in primary data collection method is included in order to develop understanding on the research topic.

INTRODUCTION

This chapter introduces the study and establishes the objectives and questions that will be explored throughout the course of the research. The background of mobile learning and its application in the higher education sector is examined. Additionally, the problem statements have been identified and explained in order to give the present research a clear direction that it needs to follow. Based on the statement of the problem identified in the study, the aim of the research, and subsequently, the objectives and questions to be answered throughout the study have been established. The significance of this study has been outlined in this chapter to note its contribution to the existing body of research.

Research Background

It is these very developments that serve as the precursor to newer ways of teaching and elearning, along with the more sophisticated ways that have yet to come. The findings of Mohammadi, Sarvestani & Nouroozi (2020) note that there are ample opportunities for the facilitation of collaborative learning via effective sharing of knowledge, development of academic opportunities, and instant communication. Content-based learning entails applications providing access to the original content within a defined cultural environment. For instance, content-based applications in places such as art galleries and museums provide people with much-needed information about the works exhibited there (Talan 2020). Nevertheless, despite some of the challenges of mobile learning that hinder its full adoption in higher educational institutions, the benefits of M-Learning far outweigh the same. There is also the fact that pedagogical choices go a long way in determining the cognition level that students are engaged in (Crompton, Burke & Lin 2019). As such, it is important for students to remain actively involved in thinking and to learn about the educational content in order to develop a deep knowledge retention level instead of simply memorising facts that are forgettable. Overall, it has been noted that mobile devices are predominantly used across higher educational institutions as reinforcement tools to strengthen engagement and motivation. However, it is also being argued that mobile devices are not yet used in a manner that can help to take advantage of the potential of pedagogy, and as such, conventional approaches are relied upon often, wherein students tend to consume content passively.

PROBLEM STATEMENT

The problem statement is the lack of computational power in and efficiency in mobile learning which impacts the technological knowledge of the students and reduces their efficiency for future life. As noted in the study of Al-Hamad et al. (2021), different forms of fear-related emotions have been highlighted by studies conducted previously that are related to the adoption of mobile learning. For example, anxiety is one such fear that challenges technology adoption. Particularly in the educational sector, anxiety tends to influence technology adoption by students. This anxiety can be somewhat attributed to limited expertise and dearth, which further causes a lack of interest in the usage of

technology. Learning and teaching can benefit significantly to a certain degree from the adoption of mobile learning during the pandemic for the purpose of facilitating seamless education.
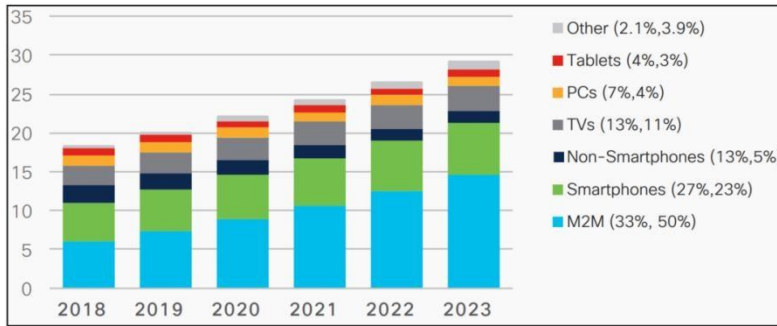

Figure 1. Growth in global mobile devices (Source: Criollo-C et al. 2021)

As noted in Figure 1, it is expected that by 2023, mobile subscriptions are likely to increase at an annual growth rate of 2%, which further implies that over 70% of the population of the world will own a mobile phone (Criollo-C et al. 2021). However, it may be noted that the biggest challenge is focused on identifying clearly what is best learned within the classroom, It has been understood from the discussion above that some higher educational institutions are rather reluctant to adopt mobile learning as their chief mode of operations as they fear that it may be counterproductive and cause more damage than good to the students. This problem is all the more prevalent in the case of university and college students as they are much more aware of the benefits and specifications that their devices provide to them. This research is needed as without the research the identified issues will not be reduced and the efficacy in education and the research identify the need of innovation in education which is important to getting the information on innovation.

Research Objectives

The research objectives of the study are:

1. To analyse the role of mobile learning in driving innovation in the higher education sector to develop knowledge on technological approaches

2. To evaluate the impacts of mobile learning on motivating students to remain engaged in their academics

3. To understand the relevance of mobile learning in the higher education sector to improve the efficiency of the students

Research Questions

The research question (RQ) that has been developed based on the objectives are:

RQ1: What role does mobile learning play in driving innovation in the higher education sector to develop knowledge on technological approaches?

RQ2: What are the positive and negative impacts of mobile learning on motivating students to remain engaged in their academics?

RQ3: How relevant is mobile learning in the higher education sector to improve the efficiency of the students?

Significance of the Research

The swift advancements of wireless and mobile technologies have led to an increase in the use of mobile devices in the domain of education and have thus changed learning approaches. This has led to the coining of new terms such as M-Learning and E-Learning. The proposed study shall therefore focus on shedding light on the trend of mobile learning in order to understand its relevance in the educational

sector. Not only that, but it is also frequently observed that the terms 'e-learning' and 'mobile learning' are used synonymously. However, while there might be certain similarities between the two concepts, they are not essentially entirely the same. This study is significant in this respect because it intends to explain the clear differentiations between the two, with the biggest one being that the former refers to learning based on all types of online-based devices such as laptops and computers. At the same time, the latter is the use of only mobile devices used for the purpose of propagating learning.

Definitions of Terms

Mobile device: It signifies a piece of portable electronic equipment that has the ability to be connected to the internet, specifically a tablet computer or smartphone.

Mobile learning: This denotes the acquisition of attitudes, skills, and knowledge by taking advantage of the usage of mobile technology anytime and anywhere, which is likely to produce behavioural changes in students (Criollo-C et al. 2021).

Innovation: It is defined as the implementation of a significantly improved or new service, process, or product, as well as the successful commercialisation of a new idea (Dziallas & Blind 2019).

Educational innovation: Innovation in the field of education implies resolving a real-life problem in a simple, new way in order to promote equitable learning. It matches the solution's scale to the scale of the issue or challenge posed.

Limitation

Owing to time and budgetary constraints, it would not be possible to study and take into consideration each of the peer-reviewed journal articles and textbooks discussing the incorporation of mobile learning in the field of higher education. As such, certain areas that might be relevant to the topic are likely to remain unexplored, thereby posing a major limitation. The scope of mobile learning is vast, and as technology advances every day, it now incorporates a wide range of aspects. Moreover, its scope has expanded significantly over the years as more and more organisations and sectors are gradually incorporating the concept of mobile learning to equip their staff with practical knowledge about how things work. As such, the study shall restrict itself to only a piece of very limited knowledge about the incorporation of mobile learning and how the same is and can be used in future within the domain of higher education for the purpose of driving innovation.

LITERATURE REVIEW

An Overview of Literature Review

Technology has played a vital role in transforming various methods that are involved in different practices. With the rapid advancements that have taken place in recent times, many traditional methods have been transformed into new methods which have resulted in enhancing more user experiences and people have started engaging in online practices to perform their day-to-day activities. This advancement has been identified in almost all sectors across the globe. The new advancements have contributed to various new methods and practices that have drastically changed the way people used to perform activities earlier. Therefore, there has been a wide shift in traditional practices. The new advancements have contributed to developing new practices to enhance the user experience as well as transforming a few earlier techniques into new innovative models.

Impact of mobile learning on driving innovation

New technological advancements have highly contributed to the new innovative tools and techniques to be used in various sectors. Technology has been one of the integral parts of the way people perform their day-to-day activities. Because of new advancements, there has been a shift in traditional methods that were earlier used in performing activities. In some cases, the traditional methods have been transformed by incorporating new technical systems that have changed the way people used them. The changes and advancements can be identified almost across all sectors and one of them is the educational sector. As per Baz (2018), new advancements have contributed to the creation of new tools and techniques that have been helpful for students and have been an aid in the e-learning process. Due to these advancements, various learning processes have been transformed into new modern methods. It has created various new dimensions that have enhanced the learning experience of students, as well as teachers, have adopted the new methods through which they can guide students with the help of multiple new innovative features.

Positive negative impacts of mobile learning

According to Sattarov & Khaitova (2020), mobile learning can help students in many ways to perform various activities in a less time-consuming process and helps to perform various complex tasks easily. Klimova (2019), states that mobile learning features have numerous benefits that help students learn anytime from anywhere and also provide help in timely feedback. The advancement of technology has contributed to the development of various tools and techniques that provide more advanced learning features. As per MuthuPrasad et al. (2021) flexibility and convenience are mentioned to be two of the major benefits that students get while learning online. While pursuing higher studies the advancements have enabled students to attend classes through online platforms by sitting at their homes. According to Sadeghi (2019), various students pursue different courses from different institutes and universities across the globe through distance learning. According to Throuvala et al. (2020), students are involved in using their phones more often which results in creating distractions occurring every 3-4 minutes of duration. This has been possible due to the innovation that has rapidly taken place across all sectors of the world. Mobile learning has helped to transform a lot of practices to be performed in an effective manner. According to Yulia (2020), mobile learning along with the services that online learning offers has helped with cost-effectiveness and flexibility.

How technological advancements have driven mobile learning

Modern methods have impacted widely and have tended to create major changes in people's lives. The traditional methods have almost shifted and have been transformed into new advanced methods. Smart devices have become integral parts of how individuals perform their day-to-day activities. These advancements have been identified in almost all sectors across the globe, one of them being the educational sector. According to Parida, Sjödin & Reim (2019), technology has highly contributed to the functions that are involved in academic practices. The evolving new features and development of new systems have created a path to digitally conduct activities and interact with a wide range of user experiences available to the users. As a result, few of the innovative practices were already popularised making the activities in the learning process but the use of these features and innovative technological methods have gained momentum after the pandemic. Most of the activities were performed through online platforms and people were highly engaged with digital practices during the pandemic. According to Iatsyshyn et al. (2020), use of Augmented reality and virtual reality has enhanced the learning experience while students study their subject course and understand various mechanisms. According to Jain & Gupta (2022), there are various applications available on the internet for mobile-based learning that provide users with a whole lot of different and unique experience in learning. There are various virtual platforms that are developed in which students can perform activities that are relevant to their course and concepts in various lessons.

Impact of mobile learning on student behaviour

Research studies have found that most students' opinions have a positive response towards mobile learning apps and it has a positive impact on their study behaviour Klimova (2019), People are mostly

involved in surfing content on the internet, interacting through online platforms, ordering products and services and many other functions that internet services provide. Kacetl & Klímová (2019), states mobile learning in the field of education has resulted in students investing more of their time in smart gadgets. They are almost always working and performing multiple activities online. As per Krouwel et al. (2019), recently it has changed how people interact with each other, people are more involved in virtually contacting each other through video chat and texting over multiple online platforms available. Students pursuing higher studies perform multiple activities through online platforms. According to Fu & Hwang (2018), mobile technologies can impact the perceptions and interactive behaviour that is involved in collaborative learning and outcomes. As students are learning new things, they are developing new perceptions regarding various concepts that are impacting the behaviour of students and how they react to different situations. These behaviours overall impact the environment they are present in and how they perform activities that have the implementation of the behaviours.

Factors associated with M-learning in the higher education

Identifying the learning process of students mainly affect different kinds of perspectives which enable them in learning activities in higher education. Based on the view of Dumford & Miller (2018), the Learning process student needs, reinforces, measures and input are the key factors. Success in the school and Higher Education education my learning approaches are highly appreciated. On the other hand physical, mental, emotional teachers, personality, environmental factors and social needs are the most important in the learning process. But changing the education system in m-learning approaches new government policy, funding, and the shape of the admission process is necessary. Incorporating all the factors is bound to help students in future. Students approach m-learning or not affected by one or two months. As per the view of Alexander et al., (2019), the new learning process has been changed to maintain a balanced society and AI and blockchain are the new technologies. After incorporating Technology into the education system, it gets affected by different parameters such as institutions, teachers, environment and learners. But all these factors make it easy to smooth the learning process for students to build their career, personal and professional life. Education on the International stage has shown another direction where it is necessary to keep forwarding individual steps. Universities and colleges maintain the same factors and take the learning approaches by innovative methods where most of the students easily get feedback on their devices without visiting the institutions on a regular basis.
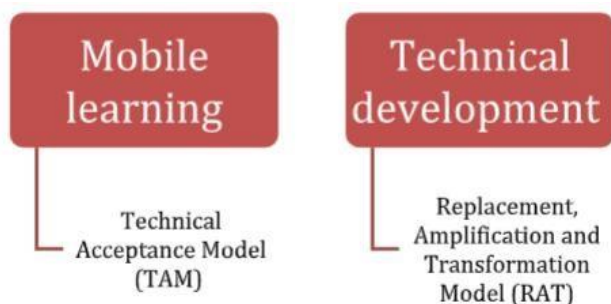
Theoretical Framework

Figure 2. Theoretical Framework

TAM (Technology acceptance model)

Analysing the present research, it has been identified that a technology-acceptable model is perfect to describe the core areas of the learning system. According to Zhang, Ghandour, and Shestak (2020), Students are most interested in new technology because the learning process improves overall performance in both personal and professional life. As a result, the use of technology has increased by perceived usefulness and perceived ease. The involvement of IT creates a good influence on the new advanced system. In higher education systems, m-learning is considered a learning and teaching solution. The research has focused on the new updated TAM paradigm adoption in higher education, such as colleges and universities, helping the whole process of sustainability development. In the higher

education system, students must keep focus on standards and quality, which regularly helps them to enhance their performance (Scherer et al., 2019).
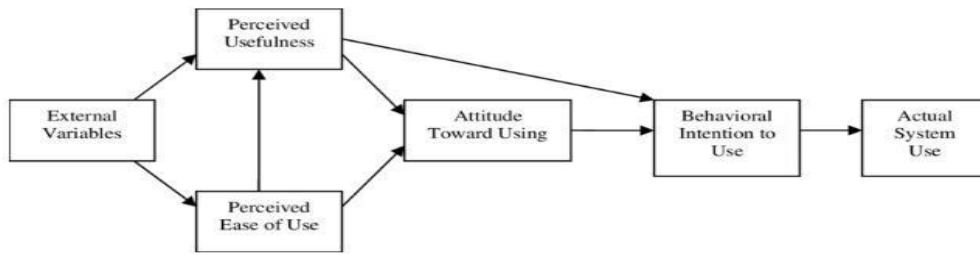

Figure 3. TAM (Technology acceptance model)

RAT model

RAT is an effective framework which is also applicable to understanding the technology and the role of learning parts of teachers and students. The framework is useful in the field of PK-12 education systems (techedges.org, 2022), but it is also suitable for higher education. Understanding the model has basically three effective stages: Replacement, Amplification, and transformation. Adopting the model in the classroom, digital technology such as m-learning can be used as replacement, amplification and transformation. Based on the model, replacement as technology in the education field means that there is no use or any kind of alternative to technology. Based on the view of Rizun Strzelecki (2020), technology is one of the significant factors which are applied in the classroom of higher education to mitigate the current goal and effective learning process. Technology plays a major role in aiding the student's efficiency, effectiveness, and productivity of the learning process. Going with the view of Joshi, Vinay, and Bhaskar (2020), the contribution of technology in the education field has changed the whole patterns of the learning system.
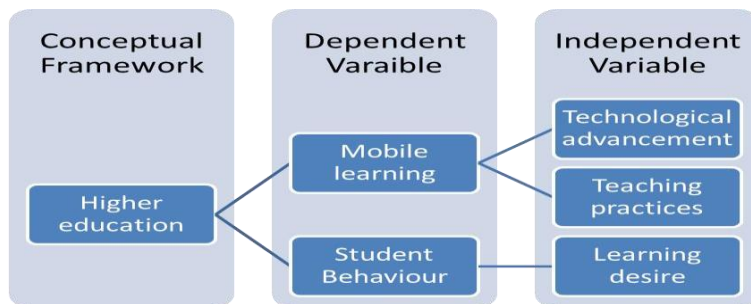
Conceptual framework

Figure 4. Conceptual framework

Literature gap

The gap in the literature is not to incorporate the whole research. Based on the research study, most of the researchers have focused on similar studies and only focused on the students' m-learning process, which impacts the higher education process. However, most of the researchers do not have any idea about the factors that influence behaviour education practices. The current piece of work will be helpful to bridge the gap permanently, which will help the next researcher to acquire more data. The study will be fruitful if the members of data about the concept are found. Data about the recent trends of m-learning give some ideas to bridge the gap, but the study is a wider range, so the lack of present data on this concept will not help the next researcher about the adoption of m-learning in higher education.

METHODOLOGY

Research methodology is a crucial part of the research paper in which the discussion will be on mobile learning in higher education for innovative approaches. In this research study, the discussion

will be on the selection of research philosophy that helps to develop an understanding of the circumstances of the research process. In addition, a research approach and data collection method will be highlighted that helps to improve the collection of data and helps to achieve quality data, which is needed to improve the situations. In addition, the sampling method and data analysis technique will be explored to identify the selected participants and the process of interpretation of the gathered data. The principles of ethical consideration and the process of reliability test improved the understanding of the entire data collection and interpretation process.

Research Design

In this research, the mixed method will be used in which the qualitative and quantitative data collection methods are used and needed to develop the process of collecting data, which helps to interpret the entire process and gain information on the impact of the mobile learning process. The research will conduct surveys and interviews, which will be helpful to gain information on the perspective of the participants. The positive research philosophy has been used, which provides information on the factual investigation and focuses on broad perspectives (Corry et al., 2019). The deductive research approach has been selected in which the plan and procedure of the research are outlined, and data on hypotheses are (Hall et al., 2022). This research evaluates the knowledge of the research on higher education and their initiative on mobile learning to develop innovation. Hence, it is observed that the research has included multiple data from various sources that influence the future generation to develop mobile learning in the educational sector and develop innovation for the development of the nation in the future.

Data Collection

In this research, primary and secondary methods have been used in which information on higher studies and the improvement through mobile education can be gathered (Feng et al., 2021). Based on the primary research, interviews and surveys will be conducted in which it is needed to involve students of higher education and improve mobile education for innovation. The interview will be conducted in which the five professors of the universities can provide accurate information on the university students and educational structure for the improvement of the students. On the other hand, a survey will be conducted with 200 students in the second year to provide knowledge on the need for mobile learning and their views on the innovation to be included in the educational structure. In addition, for secondary sources, new articles, scholarly articles, journals and government websites are also included that provide information on higher education and innovation.

Instrumentation

Based on the instrumentation, the researcher will identify that there are some of the tools and techniques which will be needed during the data collection and data analysis process and for that, an understanding of the instruments is needed. Based on the qualitative research, the researcher will need interview questions, consent of the professors, recording instruments, recording of the speech, documentation, coding process and thematic analysis. In addition, for the quantitative research process, it is identified that the research will need a survey questionnaire, SPSS software, descriptive analysis, recording, and Google form for sending the questions and documentation. These instruments will help to accomplish the data collection and interpretation process.

Population and Sampling

Sampling is a crucial part in which the population is selected to gather information on mobile education in higher education in China for innovation (Bhardwaj, 2019). In this research, probability and non-probability sampling are used in which interviews and surveys are conducted. For surveys, probability sampling is used in which simple random sampling is used. The universities of Jiangxi province were selected to provide the survey questionnaire, and 200 students got a chance to provide their views on the need for innovation and their motivation to be involved in mobile learning for innovation. It is also identified that the interviews are conducted with the professors of the universities, in which five professors are engaged in the process. Stratified sampling has been used in which the participants are selected based on their knowledge. As a result, the professors are the most accurate

selection in that they have accurate information on the need for mobile learning and the implementation process.

Data Analysis technique

The data analysis technique is one of the most vital processes that help to interpret the data and get accurate outcomes. The descriptive analysis has been used to get proper summarised results (Rizvi & Nabi, 2021). In addition, qualitative and quantitative research has been used in which information on mobile learning in higher education in Chinese universities is included. For the qualitative data, the interview result is interpreted to get information on mobile learning and its need to develop innovation in higher education. In addition, the quantitative analysis used in the survey results is interpreted. The answers for the professors and students are included to get accurate information on the need for mobile learning in higher education. The SPSS tools are used to get the results on the research topic. In the research, qualitative research will develop thematic analysis, and the quantitative research will need descriptive analysis, which helps to interpret the data. In addition, it is also identified to develop a pilot test to improve the data collection and interpretation process on mobile learning in higher education. Hence, it is observed that the research develops information on the future need for mobile learning and innovation that helps to contribute to their efficiency in national development.

Pilot study

A pilot study will be done to gain information regarding the data collection and interpretation process, which will help to provide knowledge on the accurate direction of the research. For the pilot study, the researcher will focus on the 30 students and make short survey questions in which the need for the actual survey can be identified and prepare the research for future research.

Reliability and viability

Reliability and viability are needed for a research paper in which the survey and interview process increase the reliability of the research and increase the accuracy and authenticity of the paper. There are 200 students added to the survey process in which the accuracy of the answers based on the proper approaches and improvement of mobile learning is included. In addition, the interview process helps to develop an understanding of the experiences and perceptions of the professors, which has provided the appropriate answer to the impact of mobile learning and associated opportunities in the learning process. Hence, it is observed that the collected data will be reliable and viable.

Ethical considerations

Ethical consideration is one of the vital things in the research process in which a set of principles are provided that helps to develop the information on mobile learning in higher education (Vlahou et al., 2021). For the interview and survey, respect and dignity are provided. In addition, respect and dignity are provided to the participants. The questions for the interview and survey should be clear and concise in confidentiality and must be maintained. Apart from this, it has been ensured that only legitimate secondary resources are available on well-known databases such as Google Scholar.

CONCLUSION

This research is on mobile learning and innovation in higher education in China, in which the methods and tools are selected. In the initial process, the positivist philosophy and the deductive approach have been used. In addition to this, the primary and secondary research processes are used and include interviews and surveys for information and knowledge on the Chinese educational system. Hence, it is observed that the research provides information on the educational structure for higher education and develops the implementation process for mobile learning to get innovation in the future.

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