

THE INTEGRATED FRAMEWORK OF COLLEGE CLASS ACTIVITIES—USING LEARN MODE WITH THE INTRODUCTION OF EDUCATIONAL TECHNOLOGY AS AN EXAMPLE

Chia-Ling Tsai¹ and David Tawei Ku²

¹*Department of Educational Technology, Tamkang University, Taiwan*

²*Associate Professor, Chair of the Department of Educational Technology, Tamkang University, Taiwan*

ABSTRACT

This paper takes the undergraduate course “The Introduction of Educational Technology” as an example, and carries out the practice based on the application of Learn Mode. In Taiwan, there were plenty of attempts for the implementation of mobile learning on both elementary and high schools; yet, it has not been extended to the higher education level. As the partnership of the Faith Hope & Love Foundation, HTC Corporation, we made use of the Learn Mode application and conducted the first practice of mobile learning in university.

In this study, a design-based research model and the instructional design of the Learn Mode class activities were both pre-developed before the formal implementation. The questionnaires were empirically tested against data collected from 71 undergraduate students. We surveyed the relationship between user satisfaction (via classroom management, software, hardware) and acceptance (via Technology Acceptance Model) for mobile learning, figuring out the enhancement of motivation of learning as well. Through designing and developing class activities with the functions of Learn Mode application, we provide some mobile learning references and suggestions for other higher education institutions and universities.

KEYWORDS

Mobile learning, Mobile device, Technology Acceptance Model, HTC Learn Mode application, The Introduction of Educational Technology.

1. INTRODUCTION

The trend of the rapid development of information technology and the common wireless high-bandwidth network have resulted in the high penetration of mobile devices. In recent years, with the popularity of internet technology and mobile devices, mobile learning plays an important role in our education. (Motiwalla, 2007; Virvou & Alepis, 2005; Sung, Zhang and Yu, 2006; Xu & Luo, 2007)

There were many practical mobile learning cases internationally, including Africa, Middle-East, Asia, Europe, Latin America, and North America. (UNESCO, 2012) Now, innovative ways of mobile learning is a trend in Taiwan. To enhance the country’s economic development in order to respond to new century challenges and promote the country’s overall development, developing excellent mobile learning is an important education policy for the Government and Administrative Ministry; the “M-Taiwan program” was in the New 10 Infrastructure Developing Program. (Wang, 2004; Wu, 2003; Lee et al, 2004)

The Ministry of Education (2014) implemented the 4 year E-learning program, and one of the programs, The Mobile Learning of Secondary and Elementary School Program, has been implemented and promoted in approximately 74 junior high and elementary schools; 39 senior high and vocational high schools. Besides, to develop and build models of Taiwanese experience of mobile learning, the Ministry of Education collaborated with Faith Hope & Love Foundation, HTC Corporation; Yonglin Charity Foundation and Wistron Foundation. With the support of Faith Hope & Love Foundation, over a hundred of schools, including elementary and high schools in Taiwan are able to make use of the Learn Mode application, a built-in platform to create interactions between teachers and students in classroom learning.

As the first university to implement the program, the purpose of this research is to design and develop classroom activities that integrates the several functions of Learn Mode application into the undergraduates' course "The Introduction of Educational Technology".

A design-based research model were pre-developed and empirically tested against data collected from 71 undergraduate students. We surveyed the relationship between user satisfaction questionnaire (via classroom management, software, hardware) and acceptance questionnaire (via Technology Acceptance Model) for mobile learning, figuring out the enhancement of motivation of learning as well. With the collected data from the questionnaires, we analyzed the data and interviewed with our targeted audiences personally. Consequently, by designing and developing class activities with the functions of Learn Mode application, we provide some mobile learning references and suggestions for other higher education institutions and universities.

2. LITERATURE REVIEW

Recently, teachers have recognized that the Mobile Learning (or M-Learning) is a trend which plays an important role in education nowadays. It is a type of e-learning that delivers educational contents and learning support materials through wireless communication devices. The role that communication and interaction plays in the learning process is a critical success factor. It is within this context that m-learning can contribute to the quality of education. (Brown, T.H, 2005)

Kumar (2011) pointed out that smart phones or mobile devices will become the dominant computing platform for humanity. M-Learning happens anywhere and anytime with the assistance of a mobile device presenting the content of learning and provides a wireless two-way communication channel between teachers and students. (Ruchter, Klar and Geiger, 2010)

Moreover, Traxler (2005) interpreted mobile learning as a personalized, connected, and interactive use of handheld computers in classrooms, in collaborative learning during fieldwork, and in counseling and guidance. According to the above, in this study, as the Learn Mode interactive activities were designed in a classroom environment, mobile learning is depicted as the learning process and communication between students, peers and teachers using the tablets in a ubiquitous learning environment.

While cases of elementary and high schools have implemented the Learn Mode application into their m-learning, the Learn Mode application could also be an attempt to engage and motivate student learning in higher education.

Since 2009, the Ministry of Education had selected Zhongyi and Dahu Elementary School in Taipei City; Jian-An Elementary School, New Taipei City; Chang-Chiau Elementary School, Hualien County; and Tzu-Ying Elementary School, Kaohsiung, these five elementary schools as the pilot schools of mobile device learning. The Taipei Education Bureau also said that, in order to encourage teaching teams using information technology equipment to improve the curriculum and instructions, a "Mobile Learning Experiment Project" launched in the year 2012 with budget of NT 24,840,800, total granted 30 schools. (Department of Education, Taipei City Government, 2012)

In other countries, for example, South Korea announced the completion of a paperless engineering teaching project in 2015 from the elementary schools to high schools; in Japan, more than 10 million students will be provided with an electronic backpack by 2015; and the United States will entirely transform their textbooks into electronic textbook before year 2017. These all indicates that not only Taiwan, mobile learning and mobile teaching are even more quickly carrying out around the world. Mobile learning and teaching resulted in instructional models for ubiquitous learning, and activated lots of technological and innovative teaching models. It has become the main direction of educational researches in recent years, and a collection and brief analysis is as follows:

Firstly, Wang (2012) studied "A gamification approach to developing Mobile Insect Learning System for improving the learning motivation and achievements." This study used gamification in a context-aware learning environment; students used the Mobile Insect Learning System (MILS), which combines with game elements, and used it on their mobile smartphones for learning science courses in outdoors in the learning process. The questionnaire results indicated that students' thinking through the smartphone can be of help.

Furthermore, with the combination of mobile technology and gamification techniques, mobile learning showed better learning efficiency than traditional non-gaming oriented mobile learning and traditional teaching methods. Also, a positive influence between the relationships of learning and motivation were further noted.

Secondly, Yang (2012) studied "Effects Of The English Vocabulary Learning With Mobility Device: A Case Study In Second Grade Students." the research integrates QR Code barcode technology into the English vocabulary learning system for the study of 59 persons. Research showed that the experimental group of English vocabulary listening were higher than the traditional education group in learning efficiency. Besides, students hold a positive view of using mobile devices for learning English vocabulary teaching, and said they would continue using mobile devices for learning and teaching. Above is shown that students had high interest in mobile-learning and teaching.

Thirdly, Hsu (2011) studied "An E-learning System Design of Math Remedial Programs in Elementary Schools by Using Android Mobile Devices." This study transformed boring academic learning into challenges, entertainment, special lighting and visual effects in math games. For remedial instructions, the investigation pointed out experimental group of students who used the remedial learning platform were better than those who did not use it; high information capacity of students showed better learning efficiency than low information capacity of students. The results indicated that up to 83% of the students believed that this type of learning improved learning motivation, and brought in diverse, convenient learning, and more frequent interaction.

According to the above summaries, in contrast to traditional learning which emphasizes direct instruction and lectures, mobile learning has more interactive stimulus such as the mobility, sounds and lightening effects, and videos. Students tend to prefer learning with mobile devices and generally have better performance than the traditional ways. Teachers and students also hold a positive attitude towards mobile device learning.

3. METHOD

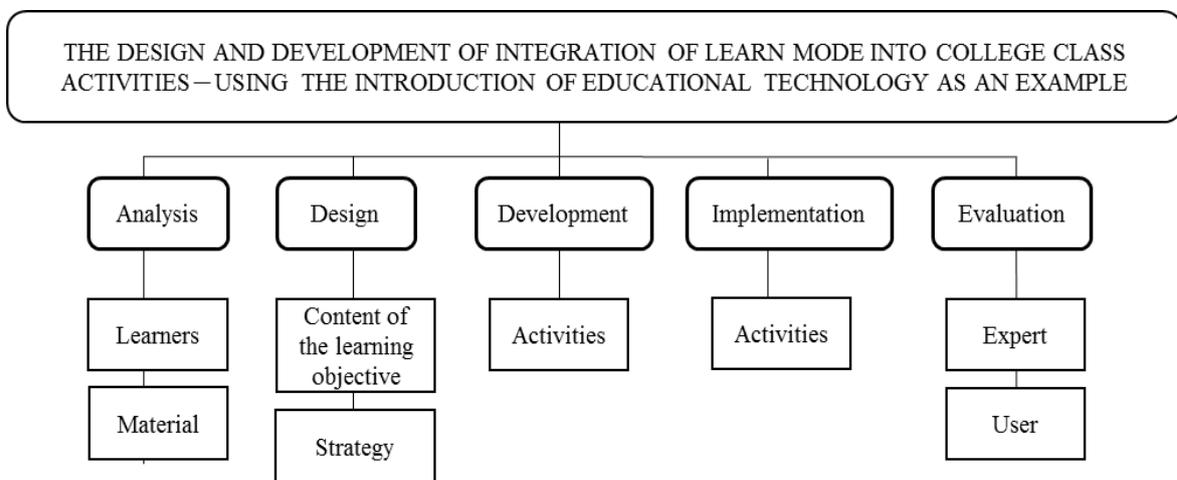


Figure 1. The Design-based Research Model Framework

The figure above is a design-based research model study conducted through structured questionnaires. The target population of this study consisted of 71 undergraduate students. We gave out 2 questionnaires, namely the satisfaction questionnaire (via specific items: classroom management, software, hardware) and the acceptance questionnaire (via Technology Acceptance Model) of mobile learning.

A four point Likert Scale with strongly agree; agree; disagree; and strongly disagree, is used from the main items. To study the attitudes and perception of students on the use of mobile learning, the questionnaires were developed and designed to measure students' attitudes and perception on the use of mobile learning.

By surveying through the questionnaires, we analyzed the relationship between user satisfaction (via classroom management, software, hardware) and acceptance (via Technology Acceptance Model) for mobile learning, figuring out the enhancement of motivation of learning as well. After collecting data from the questionnaires, invitations also sent to targeted students for interview.

4. CONCLUSION

This study was done to analyze learners' perception and satisfaction on the use of mobile learning and its instructional design of the course. We proposed the framework, designed and implemented a mobile learning model for higher education level; however, as a preliminary study, several expected and unexpected limitations would occur to different circumstances in real class scenario.

Hence, we could merely hypothesize for about 3 circumstances that will happen in a mobile learning class:

A. The result could not be used in other fields of courses.

B. We mainly focus on the design of Learn Mode activities, so student's whole learning efficacy would not be seen.

C. The learning activity takes place in class, so we could not track students' status of learning outside of class.

Thanks to the Faith Hope and Love Foundation, HTC Corporation, we took advantage of the donated tablets: HTC Flyer, and made use of its Learn Mode application to create interactive activities in class. Via conducting experiment on the college class, we found improvements in software, hardware, and classroom management; whether it is for user adoption or for satisfaction for the intention of mobile learning.

While processing the mobile learning program, qualitative data could be collected for the future promotion of mobile learning in universities. All in all, our study could provide references and suggestions for other universities and higher education institutions.

ACKNOWLEDGEMENT

This work is partially supported by the grant from the Faith Hope & Love Foundation, HTC Corporation, and the grants from the Educational Technology Department of Tamkang University, Tamsui, New Taipei City, Taiwan.

REFERENCES

- Anderson et al., 2007, Supporting Active Learning and Example Based Instruction with Classroom Technology, *SIGCSE Bull*, vol. 39, pp. 2007.
- Brown, T.H., 2005, Towards a model for m-learning in Africa. *International Journal on E-Learning*, vol. 4, no. 3, pp. 299-315, Norfolk, VA: AACE.
- Davis, F.D., 1989, Perceived Usefulness, Perceived Ease Of Use, And User Acceptance of Information Technology. *MIS Quarterly*, vol. 13, no. 3, pp. 319-340.
- Greenhow, C & Robelia, B, 2009, Informal learning and Identity Formation in Online Social Networks, *Learning, Media and Technology*, vol. 34, no. 2, pp. 119-140.
- Gururajan et al., 2011, *Student Perceptions and Uses of Wireless Handheld Devices: Implications for Implementing Blended and Mobile Learning in an Australian University*, Southern Queensland, Australia, pp. 231-246. Available from: <http://www.igi-global.com/>. [7 July 2014]
- Hsu, 2012, *The Exploration of Feasibility for Peer Tutoring Supported by Plate Computers for Elementary School Students in Mathematical Learning*. National Chiayi University, Available from: <http://ndltd.ncl.edu.tw/>. [10 July 2014]
- Jeong, Vosloo & West (eds.), 2012, *Turning on Mobile Learning in Asia, Illustrative Initiatives and Policy Implications*, United Nations Educational, Scientific and Cultural Organization, Paris, France.

- Kumar, 2011, Impact of the Evolution of Smart Phones in Education Technology and its Application in Technical and Professional Studies: Indian Perspective, *International Journal of Managing Information Technology*, vol. 3, no. 3, pp. 39-46.
- Lin, 2013, *The study in vocabulary learning using mobile learning devices on stimulus fading strategies for mental retardation kids*. Tatung University, Available from: <http://ndltd.ncl.edu.tw/>. [10 July 2014]
- Motiwalla, L.F., 2007, Mobile learning: A framework and evaluation, *Computers & Education*, vol. 49, no. 3, pp. 581-596.
- Organisation for Economic Co-operation and Development, International Telecommunication Union & United Nations Department of Economic and Social Affairs, 2011, *M-Government: Mobile Technologies for Responsive Governments and Connected Societies*. OECD Publishing, Switzerland. Available from: <http://www.oecd-ilibrary.org>. [7 July 2014]
- Pachler et al., 2010, *Mobile Learning Structures, Agency, Practice*. Springer, New York, USA. Available from: Springer books. [7 July 2014]
- Shuler et al., 2013, *The Future of Mobile Learning Implications for Policy Makers and Planners*, United Nations Educational, Scientific and Cultural Organization, Paris, France.
- Song, 2010, Investigating Undergraduate Student Mobile Device Use in Context in *Models for Interdisciplinary Mobile Learning*, ed. Andrew Kitchenham, IGI Global, pp. 121-132.
- Tsai, 2013, *The Factors Affecting Elementary School Teachers towards Adopting E-Schoolbag*. Kainan University, Available from: <http://ndltd.ncl.edu.tw/>. [10 July 2014]
- Wu et al., 2011, *Information Technology and Teaching Applications: Issues, Theories and Practice*. Bookcity Publishers, New Taipei City, Taiwan.
- Yang, 2013, An Emerging Learning Mode: The Effects of Instrumental Beliefs, Extrinsic Influences and Personal Traits on Undergraduate Students' Adoption of Mobile Learning, *JDCTA* , vol. 7, no. 5, pp. 697-706.