

# A Case Study on the Students' Attitude and Acceptance of Mobile Learning

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**Abstract.** Transcending the time and geographical constraints of traditional classroom-based learning, mobile learning allows students to study anywhere and at any time. Learning is facilitated, and students generally welcome this flexible mode of learning. According to a study recently conducted by the Open University of Hong Kong, mobile learning is effective for enhancing language proficiency. This paper reports the results of this case study. In brief, it is found that students generally show a positive attitude towards mobile learning and its effectiveness in learning languages. There is a significant acceptance among students towards mobile learning, especially on the usefulness, efficiency, interactivity and convenience. The results further affirm that mobile learning can be an effective means to delivering language proficiency courses, not only for its accessibility from virtually anywhere and allowing the students to learn at any time, but also for enriching learning experience and arousing learning interest by making good use of multimedia components and features.

**Keywords:** mobile learning, e-learning, online learning, students' acceptance, learning effectiveness, learning experience.

## 1 Introduction

Evolved as a new mode of learning, mobile learning is usually regarded as a logical extension or a variety of e-learning or online learning that possesses the potentials to further expand and make learning available anywhere and anytime through mobile or portable devices [1][2]. In the past decade, with the advent of new mobile devices (mobile phones, smart phones, tablets, etc.) offering sophisticated functional features, students become adapted to mobile learning.

Mobile learning essentially transforms the learning process and changes the ways of learning. A number of unique advantages and pedagogical outcomes are identified, as reported in the literature [3][4][5][6][7]. In summary, mobile learning creates learning opportunities beyond the traditional classrooms, offers flexibility and mobility in learning, expands learning experience in terms of time and space, facilitates the communications and interactions among teachers and students, and encourages collaborative learning and group learning.

According to Cheung et al., there are three factors for successful adoption of mobile learning, namely, technological feasibility of mobile learning, learners' needs of flexible learning, and pedagogical benefits [8]. Similarly, Poon and Koo considered the students' behaviour, technology or system, and interactive application as the three factors influencing the readiness of mobile learning [9]. Also, according to Economides, the students' learning needs and learning quality are important considerations for mobile learning [10].

In Hong Kong, the advent of telecommunication, broadband and wireless network infrastructure has provided the opportunities for mobile learning. According to the Census and Statistics, in November 2013, 81.9% households had personal computers at home [11]. For those households with personal computers at home, 97.6% had connections to the Internet. 59.3% had portable or notebook computers while 37.8% had tablet devices. As revealed in a survey conducted in the Open University of Hong Kong, mobile devices are popular among its students, no matter pursuing full-time studies or distance-learning studies [12][13]. Nearly all the students owned mobile devices, and about half of them owned more than one device. The high penetration rates, especially on students, imply the readiness of mobile learning in Hong Kong.

In the past two years, the Open University of Hong Kong has developed a number of mobile learning modules with an aim to enhance the Chinese and English language efficiency of students. Target for the first-year students of the University, these mobile learning modules essentially cover a wide range of language elements such as vocabulary, grammar rules, sentence structure, advanced level syntax and idioms, conversation techniques, and the basic language skills. Combined with some tailor-made practices and scenario-based contents, each module is designed to cater for students' individual language learning needs. All the modules are presented in e-book format, allowing students to learn in a mobile environment. They are context-based with multimedia and interactive materials. Students' learning progress is examined by a continuous assessment.

The mobile learning modules were deployed in 2013, and trial used by a batch of 159 students of the University. An evaluative survey comprising questionnaire and interview was conducted, immediately after the deployment of the mobile learning modules. Among the first batch of 159 students taking the modules, a total of 61 students agreed to participate in the survey. One purpose of the survey is to investigate the students' attitude and acceptance of mobile learning for language learning. The survey results clearly show the students' positive attitude towards mobile learning and its effectiveness in language learning. The results also show a significant acceptance among students towards mobile learning, especially on the usefulness, efficiency, interactivity and convenience. This paper reports the survey results and shares some findings on the students' attitude and acceptance of mobile learning for language learning.

The rest of this paper is structured as follows. Section 2 gives the background of the four mobile learning modules in the study. Section 3 describes the evaluative survey and reports the survey results with a discussion of the findings. Section 4 briefly concludes this paper.

## 2 Mobile Learning Modules for Language Learning

This section provides a background on the four mobile learning modules developed by the Open University of Hong Kong for enhancing language efficiency of students. The functional components of these language modules are described, with a highlight on the design features.

In 2011, the Open University of Hong Kong successfully secured a grant from the Government for developing four mobile learning modules for enhancing the language proficiency of students [14]. Primarily targeted for the first-year students of the University, these languages modules are in the areas of English for communication, the use of Chinese and English, and the command of Putonghua, as highlighted below.

- *English for Effective Communication.* This module aims to enhance the students' understanding of advanced level grammar rules and sentence structures, and provide practice to improve their listening and writing skills for effective communication in English.
- *Business Communication for Executives.* This module aims to develop the students' basic and advanced level Business English. Practical workplace topics are included to prepare students for their careers, such as handling electronic mails, preparing meeting notes, writing proposals and giving presentations.
- *Use of Chinese.* This module aims to sharpen the students' reading and writing skills in formal Chinese language. Some advanced level syntax and idioms are also covered in the module to improve sentence composition and reading comprehension.
- *Use of Putonghua.* This module aims to enhance students' understanding of advanced sentence structures and vocabulary in Putonghua. Scenario-based content is included for effective communication in travel, dining, job interview and shopping.

The mobile learning modules are presented in e-book format, readily readable in Apple devices such as iPhone and iPad. They can be downloaded through the Apple iTunesU [15]. The modules use context-based contents and adopt an interactive approach to learning languages. Multimedia materials are incorporated to enrich the students' learning experience. Intended for mobile learning, students can study at their own pace without time and space constraints. The modules encourage collaborative learning among students. A virtual environment (including an online discussion forum and an online platform for interactive communications among teachers and students) conducive to collaborative learning and group learning is provided to enhance the students' learning efficiency.

The design features of these modules are summarized as follows.

- Use of context-based contents, together with multimedia, animations and graphical elements;
- Provision of interactive and game-based learning activities, and recording exercise and interaction summary;
- Continuous assessments for monitoring learning progress;
- Provision of a discussion forum for students to discuss and share useful learning experience.

### 3 Evaluative Survey

The mobile learning modules were deployed in 2013, and trial used by 159 students of the University. The students were invited to participate a survey on completion of study. A total of 61 students agreed to participate by completing a questionnaire and attending an interview. In this section, the questions of the survey are reported and the findings are discussed.

#### 3.1 Survey Questions and Responses

There are 16 questions relevant to the study on students' attitude and acceptance of mobile learning. These questions and the responses are listed below.

*Q1. How often did you study the modules?*

Frequency	% of respondents
Every day	5%
Once to twice a week	79%
Three to four times a week	16%
Five to six times a week	0%
More than six times a week	0%

*Q2. Where did you usually study the modules?*

Location	% of respondents
Classroom	2%
Library	3%
Other School settings (e.g. canteen)	8%
On the move	13%
Home and other settings (e.g. dinning place)	74%

*Q3. Which part(s) of the modules do you like the most (select all that apply)?*

Parts or components	% of respondents
Audio component	36%
Case scenario	44%
Online discussion forum	0%
Practice activity	44%
Vocabulary section	41%
Interactive summary	25%
Other features (recording, dictionary, etc.)	31%

*Q4. I think it is convenient to learn a language by using mobile device(s).*

Responses	% of respondents
Strongly agree	25%
Agree	62%
Neutral	11%
Disagree	2%
Strongly disagree	0%

*Q5. I think it is effective to learn a language by using mobile device(s).*

Responses	% of respondents
Strongly agree	13%
Agree	52%
Neutral	31%
Disagree	3%
Strongly disagree	0%

*Q6. I think the mobile learning module is interactive.*

Responses	% of respondents
Strongly agree	15%
Agree	46%
Neutral	31%
Disagree	8%
Strongly disagree	0%

*Q7. I think the interactive exercises are effective to help learn the concepts.*

Responses	% of respondents
Strongly agree	13%
Agree	70%
Neutral	15%
Disagree	2%
Strongly disagree	0%

*Q8. I think the scenario-based learning is effective to help learn the concepts.*

Responses	% of respondents
Strongly agree	13%
Agree	66%
Neutral	20%
Disagree	2%
Strongly disagree	0%

*Q9. I think the design features (e.g. note-taking, bookmark, audio recording) of the mobile learning module are useful to assist learning.*

Responses	% of respondents
Strongly agree	8%
Agree	64%
Neutral	25%
Disagree	3%
Strongly disagree	0%

*Q10. I think mobile learning can enhance my overall academic performance.*

Responses	% of respondents
Strongly agree	2%
Agree	43%
Neutral	49%
Disagree	7%
Strongly disagree	0%

*Q11. I think using the mobile learning module(s) for study enhances my language proficiency.*

Responses	% of respondents
Strongly agree	0%
Agree	70%
Neutral	26%
Disagree	3%
Strongly disagree	0%

*Q12. I think the mobile learning module arouses my interest and motivates my self-study.*

Responses	% of respondents
Strongly agree	11%
Agree	56%
Neutral	23%
Disagree	10%
Strongly disagree	0%

*Q13. I think my level of engagement using the mobile learning module for language learning was high.*

Responses	% of respondents
Strongly agree	3%
Agree	48%
Neutral	41%
Disagree	8%
Strongly disagree	0%

*Q14. I think my level of satisfaction using the mobile learning module for language learning is high.*

Responses	% of respondents
Strongly agree	7%
Agree	59%
Neutral	33%
Disagree	2%
Strongly disagree	0%

*Q15. I enjoy self-paced learning by using the mobile learning module.*

Responses	% of respondents
Strongly agree	18%
Agree	64%
Neutral	16%
Disagree	2%
Strongly disagree	0%

*Q16. I think this learning experience with the mobile learning modules adds value to my overall school performance.*

Responses	% of respondents
Strongly agree	3%
Agree	51%
Neutral	43%
Disagree	3%
Strongly disagree	0%

### 3.2 Findings from the Survey Results

- (a) Most of the respondents study the modules once or twice a week, as shown in Q1. According to Q2, they usually study at home and other fixed settings, such as a dining place. Only 13% of the respondents usually study on the move, and 5% of the respondents usually study in a place for serious study such as a classroom and library. These show that mobile learning is preferred in a fixed setting but not a place for serious study.
- (b) According to Q3, respondents mostly like audio components and interactive activities as well as case scenario and practice activities. However, they are not interested in the online discussion forum. This reflects that collaborative learning and group learning are not adopted.
- (c) Most of the respondents considered that mobile learning made learning more convenient and effective, as shown in Q4 and Q5. According to Q6 and Q7, they generally agreed that mobile learning is interactive and that interactive activities are effective for learning. They considered scenario-based learning and other features (such as note-taking, bookmark and dictionary) useful for understanding the concepts, as shown in Q8 and Q9.
- (d) When asked whether the mobile learning modules could enhance academic performance in Q10, about half of the respondents (49%) responded neutral while another 45% strongly agreed or agreed. However, more respondents (70%) agreed that the mobile learning modules could enhance their language proficiency, as shown in Q11. This implies a discrepancy in the students' views on the learning effectiveness between academic performance and language proficiency enhancement.
- (e) According to Q12, more than half of the respondents strongly agreed or agreed that the mobile learning modules could arouse their interests and motivate self-study. When asking on the learning engagement in Q13, about half of the respondents (51%) strongly agreed or agreed that the level of engagement in mobile learning was high while another 41% considered neutral. These show that mobile learning can arouse learning interest and motivate self-study and help engage learning.
- (f) Based on Q14 and Q15, the respondents generally agreed that the level of satisfaction was high in learning language through the mobile learning modules. They also consider the mobile learning modules added positive values to their overall learning experience, as indicated in Q16. These demonstrate that mobile learning can raise learning satisfaction and enrich or expand learning experience.

## 4 Conclusion

Mobile learning has become a reality that makes learning available anywhere and anytime. As claimed in many researchers and practitioners, mobile learning has the advantages in enriching learning experience and enhancing learning satisfaction. In 2013, the Open University of Hong Kong conducted an evaluative study on the effec-



tiveness of mobile learning for enhancing the language proficiency of students. This paper reported some results of this study, which is on the students' attitude and acceptance of mobile learning in language learning.

It is found that the students generally show a positive attitude towards mobile learning and its effectiveness in language learning. Most of them considered mobile learning made learning convenient and effective, and agreed that mobile learning could arouse learning interest and motivate self-study and help engage learning. Mobile learning could also raise the students' learning satisfaction and enrich or expand their learning experience.

While the findings are mostly positive, it is also revealed that the students prefer mobile learning to take place at home or a fixed setting but other than a place for serious study. They do not usually study on the move, such as walking on street, or riding on transportation. Besides, some features designed for collaborative learning or group learning, such as the online discussion forum, are not popular as compared to other online interactive features, such as multimedia elements, interactive summary, case scenario and practice activities.

The findings further affirm that mobile learning can be an effective means to delivering language proficiency courses, not only for its flexibility to learn anywhere and at any time but also for enriching the learning experience and arousing learning interests by making good use of interactive and multimedia components. However, it is not clear whether mobile learning can encourage collaborative learning or group learning. These findings would provide a reference for researchers and practitioners in designing and deploying mobile learning modules.

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## References

1. Ellis, K.: Moving into M-Learning. *Training Journal* 40(10), 56 (2003)
2. Winters, N.: What is Mobile Learning? In: Sharples, M. (ed.) *Big Issues in Mobile Learning*, Report of a Workshop by the Kaleidoscope Network of Excellence Mobile Learning Initiative, University of Nottingham, pp. 7–11 (2007)
3. Lam, J., Yau, J., Cheung, S.K.S.: A Review of Mobile Learning in the Mobile Age. In: Tsang, P., Cheung, S.K.S., Lee, V.S.K., Huang, R. (eds.) *ICHL 2010*. LNCS, vol. 6248, pp. 306–315. Springer, Heidelberg (2010)
4. Muyinda, P.B., Lubega, J.T., Lynch, K.: Unleashing Mobile Phones for Research Supervision Support at Makerere University, Uganda: The Lessons Learned. *International Journal of Innovation and Learning* 7(1), 14–34 (2010)
5. Peng, H., et al.: Ubiquitous Knowledge Construction: Mobile Learning Re-defined and a Conceptual Framework. *Innovations in Education and Teaching* 46(2), 171–183 (2009)

6. Sharples, M., Taylor, J., Vavoula, G.: A Theory of Learning for the Mobile Age. In: Andrews, R., Haythornthwaite, C. (eds.) *The Sage Handbook of e-Learning Research*, pp. 221–247. Springer (2007)
7. Traxler, J.: Defining, Discussing and Evaluating Mobile Learning: The Moving Finger Writes and Have Writ... *The International Review of Research in Open and Distance Learning* 8(2), 17–28 (2007)
8. Cheung, S.K.S., Yuen, K.S., Tsang, E.: A Study on the Readiness of Mobile Learning in Open Education. In: *Proceedings of the IEEE International Symposium on IT in Medicine and Education*, pp. 133–136. IEEE Press (2011)
9. Poon, W.C., Koo, A.C.: Mobile Learning: The Economics Perspective. *International Journal of Innovation and Learning* 7(4), 412–429 (2010)
10. Economides, A.A.: Requirements of Mobile Learning Applications. *International Journal of Innovation and Learning* 5(5), 457–49 (2008)
11. Census and Statistics: Thematic Household Survey on Personal Computer and Internet Penetration, Report No. 53, Census and Statistics Department, The Government of Hong Kong SAR (November 2013)
12. Cheung, S.K.S.: A Study on the Use of Mobile Devices for Distance Learning. In: Cheung, S.K.S., Fong, J., Kwok, L.-F., Li, K., Kwan, R. (eds.) *ICHL 2012*. LNCS, vol. 7411, pp. 89–98. Springer, Heidelberg (2012)
13. Cheung, S.K.S.: A Survey on the Use of Mobile Devices for Learning Purposes. *International Journal of Innovation and Learning* 16(2), 192–202 (2014)
14. Yuen, K.S., Cheung, S.K.S.: Development of Four Mobile Learning Modules to Enhance the Language Proficiency of Students, Funded Project, Quality Enhancement Grant Scheme, Education Bureau of the Government of Hong Kong SAR (2011), <http://www.ipass.gov.hk/eng/55A2011.pdf>
15. iTunes U: Website of Apple's iPad in Education – the iTuneU Courses (2014), <http://www.apple.com/education/ipad/itunes-u/>