

App-MFoL mobile application development for learning mandarin as a foreign language



Lin Chia Ying^{1,*}, Fan Pik Wah²

¹Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris, Tanjung Malim, Malaysia

²Department of Chinese Studies, Faculty of Arts and Social Sciences Building, Universiti Malaya (UM), Kuala Lumpur, Malaysia

ARTICLE INFO

Article history:

Received 5 September 2016

Received in revised form

23 October 2016

Accepted 5 November 2016

Keywords:

Blended learning

Pedagogy

Mandarin

ABSTRACT

This research proposes to investigate and to identify the effects of mobile application in the learning of basic Mandarin as a foreign language in higher educational institutions in Malaysia. It explores the usage of mobile learning and the effectiveness of technology-enhanced approaches in the teaching and learning of Chinese as a foreign language in Malaysia with particular reference to basic communication competency in listening and speaking. This paper covers the initial findings of the developing and testing of Mobile Application In The Learning Of Mandarin as a Foreign Language (App-MFoL). App-MFoL is intended to assist Malay speakers in understanding the Mandarin language as well as improving cultural understanding between nations.

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1. Introduction

The rapid changes and increased complexity of today's world present new challenges and put new demands on the teaching and learning approaches. In the context of teaching and learning Chinese as a second language or foreign language, it is not exempted and cannot escape from this rapid pace of change in theories of learning. The concept of blended learning, flip classroom, project based learning, e-learning or mobile learning and many more are particularly suitable and often adopted in the teaching and learning Chinese as a second language or foreign language. Thus, with the choices of different types of teaching and learning approaches, students can acquire Chinese language skills in a more dynamic and meaningful way and not just tied to the rules of language as a means of learning a language.

Recognizing changes in teaching and learning methods are growing in parallel with the modernization, learning Chinese language or Mandarin on-line with mobile devices is introduced, known as Apps Communication Basic Mandarin Apps (App-MFoL). This is a Chinese language learning project implemented virtually. App-MFoL is

intended to help Malay students and Malay language speakers to learn or to improve Mandarin communication competency, namely speaking and listening skills. In addition, students are also given guidance in aspects of grammar indirectly. On-line modules and designs are used by existing curriculum used in Higher Institutions in Malaysia.

The current technological and methodological change had affected educational and training. With the increase of mobile devices globally, social media and learning that is facilitated by new mobile and social technologies has grown. As stated by UNESCO in 2010, mobile learning can contribute to the global commitment to provide quality education for children, youth and adults as expressed in the goal of education for all. Alongside this new form of educational approach, researches on its instructional design, impacts and challenges are very much needed. It is proposed in this study to design and implement the mobile learning language projects to improve learner language skills and communicative competence; to identify and compare the effects, benefits and challenges faced by the learners and teachers in the teaching and learning of Mandarin as a foreign language in higher educational institutions in Malaysia.

2. Literature reviews

In the 21st century, the use of computer technology in teaching and learning is important to help improve command and understanding of students in certain aspects. Mobile devices such as

* Corresponding Author.

Email Address: cylin@fbk.upsi.edu.my (L. C. Ying)

<https://doi.org/10.21833/ijaas.2016.11.009>

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laptops, personal digital assistants, and mobile phones have become a learning tool with great potential, either it is inside the classroom or outside the classroom. With the evolution of mobile technology, people who carry their own individual small computers or mobile devices have increased in numbers. This large amount of computing power and portability, combined with the wireless communication and context sensitivity tools, makes one-to-one computing a learning tool of great potential. In fact, large-scale one-to-one computing programs have been implemented in many countries globally (Bebell and O'Dwyer, 2010; Fleischer, 2012), from elementary- and middle-school students and to their teachers, having their own mobile devices. In addition, with the convenience of information gathering and sharing, mobile learning can also promote innovative teaching methods such as cooperative learning (Lan et al., 2007; Roschelle et al., 2010), exploratory learning outside the classroom (Liu et al., 2012), and game-based learning (Klopfer et al., 2012; Tan et al., 2013).

Hence, mobile devices play a vital pedagogical role in education, primarily as a reinforcement tool to stimulate motivation and strengthen engagement, and secondarily as a content-delivery tool. Mobile devices have various distinctive features such as individualized interfaces, real-time access to information, context sensitivity, instant communication, and feedback. These features may be able to enhance the effects of certain pedagogies, such as self-directed learning, inquiry learning, or formative assessment. Instructional strategies are important for effective learning with information technology (Lan, 2014, Lan et al., 2015), therefore the mobile learning software must be able to integrate mobile devices with instructional strategies and ingeniously match the unique features of mobile devices to the resolution of specific pedagogic challenges in order to maximize the impact of those features on learning outcomes. Some examples include using the instant-feedback functions to solve the difficulty of efficiently executing and managing formative assessment in a class with many students (Penuel et al., 2007) It is highlighted that providing instant feedback to facilitate the interaction between mobile devices and users (Oberger and Daniels, 2013) is an important element of effective self-directed learning with computers

Therefore, mobile technologies have great potential for facilitating more innovative educational methods.

Thus, online learning or mobile learning, which involves a combination of technology, information, communications and multimedia with education elements indirectly make teaching and learning more meaningful. It is thus replacing the traditional teaching and learning process that depends on the teacher, the blackboard and textbooks which was found to be less appropriate in the world of modern education. Furthermore, students cannot develop their learning performance due to one-way delivery

methods used (Ramlah and Mahani, 2002). Accordingly, with the integration of technology, teachers can diversify their teaching and learning methods. This is so because a student can follow teaching based on their own capabilities without having to follow a set schedule and class. Even more importantly, mobile learning has provided the ability for traditional learning to break out of the classroom setting and allows learning to take place without the boundaries of place and time. Thus, mobile learning promotes and encourage seamless learning that students can learn whenever they want to learn in a variety of scenarios and that they can switch from one scenario or one context to another easily and quickly (Wong and Looi, 2011).

In addition, mobile which uses mobile devices learning provides a student-centered learning environment. This stimulates the students to play a more active role in the learning process in order to improve their ability to information relevant to their learning. In addition, it promotes lifelong learning. According to Oblinger et al. (2001), the use of e-learning or mobile learning is not limited by the four walls of the classroom alone, but it can add value to learning when arranged in appropriate learning, which involves exploration, experience engagement, empowerment, effectiveness, expanded and ease of use (Rafiza, 2013).

3. Learning of mandarin as a foreign language (App-MFoL): Its development framework

The Development Framework of App-MFoL software is designed using ADDIE Instructional Model (Shelton and Saltsman, 2008) which is modified according to the needs of the study. This framework is followed to ensure software can be carried out smoothly as planned. ADDIE model consists of five phases, namely the analysis, design, followed by the development, implementation and evaluation as shown in Fig. 1.

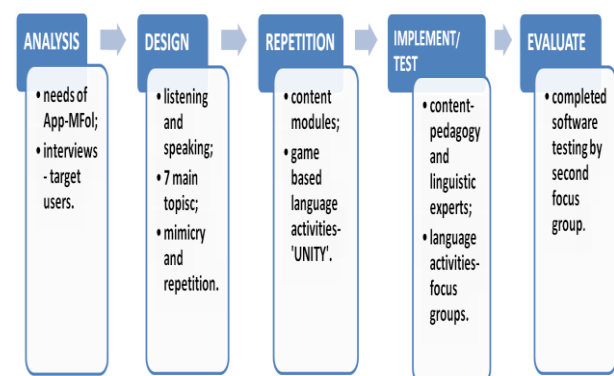


Fig. 1: Development framework of App-MFoL

3.1. Phase 1: Analysis

Identify the developmental needs of the Mobile Application in the Learning of Mandarin as a Foreign Language (App-MFoL). Interviews with lecturers and Malay students were carried out, besides identifying

the target user group of Mobile Application in the Learning of Mandarin as a Foreign Language (App-MFoL).

3.2. Phase 2: Design

In this phase, content and software are highlighted. Based on the literature reviewed, there are some important points that have been followed while drafting the contents and software:

- i. Taking into account the theory of language learning strategies. In this case, the learning theory of Behaviourist (Watson, 1913) was used as a base since the software is built on the basis of stages of language learning. As a result, elements of mimicry and repetition are emphasized in providing knowledge of the language to the target group. Since this software is at the level of basic skills in Mandarin, the main proposed skills is listening and speaking communication skills; repetitions and mimicry functions for listening and speaking enhancement are embedded;
- ii. Considering the features of most touch screen mobile devices provided: Colourful contextual graphics, sound recordings of learning contents are included; Besides, various game based language activities and assessment which aims to stimulate learning motivation and strengthen students engagement are designed; features like 'drag and drop', 'clicks', 'type' together with time indicator, instant feedback features are highlighted and embedded in the learning software;
- iii. With the target users in view, identifying the content to be delivered in the teaching and learning of Chinese as a foreign language in the software is focused. This process is carried out through document analysis comparing the contents of the books and modules to learn Mandarin as a second language. Based on the analysis of books on learning foreign languages and literature reviews, this study will focus on the contents as: a) Hello; b) Where do you live?; c) We are family; d) How old are you?; e) What day is today?; f) Shopping and g) Pay.;
- iv. The varieties and different difficulty level of language activities are considered to meet the learning objectives.

Story board for software content then were designed- It consists of Level One (1-12) and Level Two (1-9). Refer to Fig. 2-7.

3.3. Phase 3: Development

The App-MFoL was developed based on the steps in Basic Software Development Life Cycle Model Falls (Waterfall Model). The waterfall model is the simplest model in the software development life cycle model. Phases in this model are arranged in a linear arrangement. A free source for game development platform, 'Unity' is used to programme and develop the App-MFoL software.



Fig. 2: Home page



Fig. 3: Main page



Fig. 4: Level One (1-12 activities)

3.4. Phase 4: Implementation and testing

Implementation and testing are based on its relevance of the content and level of difficulty of the developed software. The content of the App-MFoL was checked by two experts, namely:

- i. Pedagogy Language Expert - Dr. Lin Chia Ying, Tan Lee Na;
- ii. Linguistics experts - Lai Foo Fatt, Yao Zhi Theng.

Then testing the level of difficulty of software will be done by focus group samples.



Fig. 5: Level two (1-9 activities)

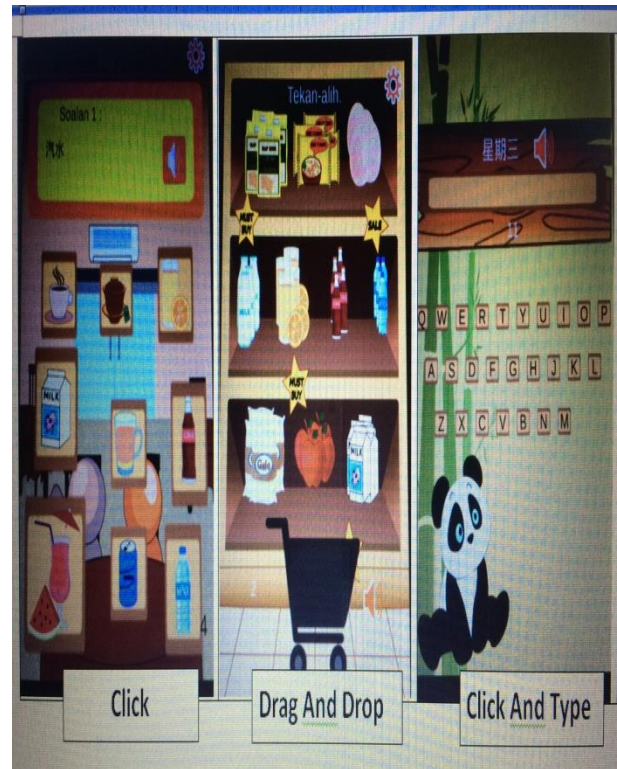


Fig. 7: Language activities with different features



Fig. 6: Example of the activity with sounds, time indicator and instant feedback embedded

3.5. Phase 5: Evaluation

Evaluation and improvement of the (App-MFoL) software will be done by second focus groups and their feedback will be taken into consideration. Finally, it is expected that the software developed is fully ready for use by the target group in terms of its content and usability.

Sample Survey: The sample in this research refers to the respondents involved in software usability testing. The sample consisted of 22 Malay students.

4. The findings

Based on the interviewed students, they feel that the graphics in the App-MFoL software is very suitable for daily life (86.4%). In addition, 95.4% of graduates felt the topics chosen are sufficient for basic communication skills. And 72.7% of graduates agree that the Sound recording is clear, the speed and tone of voice are appropriate, as the sound recording is clear and effective. For the context aspect, 90.9% of graduates felt that the graphics used were in accordance with the cultural context of Malaysia and 86.4% of graduates also feel they were very interesting and suitable in the context of the situation. Furthermore, total of 95.4% of graduates felt the App-MFoL software is fun and enjoyable in the process of learning while only one graduate disagreed with the use of this app. Besides, 81.8% noted that the App-MFoL software can improve their knowledge in the studying of a foreign language especially Mandarin. Majority of the samples (81.8%) noted that the application can help them improve listening and speaking skills in basic Mandarin.

Based on the findings, it has been proven that the App-MFoL software is suitable as technology-enhanced approaches in the teaching and learning of Chinese as a foreign language in Malaysia with particular reference to basic communication competency in listening and speaking.

5. Conclusion

Scholars have gradually admitted that to achieve the maximum effect of information technology in the educational field requires recognition of the

connection among the components of technology (hardware and software), educational context and learning and teaching processes, and users (teachers and students) in order to overcome many of the limitations present in the field. The App-MFol is an attempt to develop an educational mobile learning application using ADDIE development framework, trying to bring together mobile hardware and software, lesson content, teaching methods, and educational goals, with the intention to improve cultural understanding between nations. Based on the initial findings of the developing and testing of App-MFol, it is noted that more in-depth research is needed to ensure the positive impact to the learners can be optimized.

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