



Faculty of Cognitive Sciences and Human Development

**DEVELOPING MOBILE APPLICATION FOR
LEARNING MALAY LANGUAGE**

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LEARNING MALAY LANGUAGE**

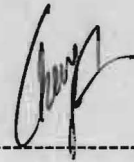
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The project entitled 'Developing mobile application for learning Malay language' was prepared by Nurrul Amalina binti Abdul Basir and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfillment of the requirements for a Bachelor of Science with Honours (Cognitive Science)

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Abstract

The advancement of mobile technology has enable language learning becomes more interactive and interesting. The development of a mobile application for learning Malay language can be used as a medium to promote Malay language to tourists from all over the world. The objectives of this project are to design and develop mobile application on learning Malay language for tourist and to evaluate the usability of the created mobile application. This project employed rapid application development to guide the development of this application. The platform used to develop the mobile application was Appnotch. The usability of the mobile application was evaluated using the formative evaluation. The method used to collect data was the think aloud protocol where participants were asked to verbalize their thought while completing a task using the mobile application. This was followed by a short interview session. Based on the participants' comments and suggestions, the mobile application was iteratively improved.

Abstrak

Kemajuan dalam bidang teknologi mudah alih telah membolehkan pembelajaran bahasa menjadi lebih interaktif dan menarik. Pembangunan aplikasi mudah alih untuk pembelajaran bahasa Melayu boleh digunakan sebagai medium untuk mempromosikan bahasa Melayu kepada pelancong dari seluruh dunia. Objektif projek ini adalah untuk mereka bentuk dan membangunkan aplikasi mudah alih kepada pembelajaran bahasa Melayu untuk pelancong dan untuk menilai kebolegunaan aplikasi mudah alih yang diwujudkan. Projek ini menggunakan "Rapid Application Development" untuk membimbing pembangunan aplikasi ini. Platform yang digunakan untuk membangunkan aplikasi mudah alih adalah Appnotch. Kebolegunaan aplikasi mudah alih telah dinilai menggunakan "formative evaluation". Kaedah yang digunakan untuk mengumpul data adalah "think aloud protocol" di mana peserta diminta menyuarakan pemikiran mereka sambil menyelesaikan tugas dengan menggunakan aplikasi mudah alih tersebut. Ini diikuti dengan sesi temuduga yang singkat. Berdasarkan komen dan cadangan peserta, aplikasi mudah alih telah secara berulang diperbaiki.

CHAPTER 1

INTRODUCTION

Background of Study

The use of mobile device is growing rapidly throughout the year. According to Kelly (2013) “by the end of 2013, there will be more mobile devices on Earth than people”. In the year 2012, number of mobile use grew 2.5 times to 36 million and it keeps on growing (Kelly, 2013). Most of the populations have mobile devices and they carry with them most of the time (Park & Kim, 2011). So it is no surprise that the use of mobile devices will keep on growing. Young generations nowadays are well exposed to mobile technology since their early life (Norman & Perveen, 2012).

The evolution of mobile devices has opened a new door for the development of mobile application. Mobile application are just application that run on a mobile, untethered device that are targeted at a specific task, make heavy use of the data network and have a simple delivery mechanism (Kim, 2012). Mobile application can be very useful in education, learning language and even for entertainment. Mobile application has provided tremendous benefit to human daily life activity. Besides that, the growth in handheld device such as tablet and IPads also can be seen, so there is an exponential growth in usage of mobile application (Salagar, Kulkarni, & Gondane, 2013). Mobile application is necessary for smartphone devices and some university has introduced a course on mobile application development or related to it (Hu & Guo , 2012).

One of the reasons for the growth of mobile application is the introduction of marketplaces where Apple’s operating system is through App Store and Android operating system is using Google Play as their platform (Kim, 2012). Through this marketplace user can

easily browse through the available application on Apple's operating system and Android.

Besides that, mobile application are the key tools to the mobile users therefore more and more applications are provided in the markets and it is very hot in mobile application development (Hu & Guo , 2012). In addition mobile application is very interactive with precise information and backed with scientific reasoning (Salagar, Kulkarni, & Gondane, 2013).

The growth of mobile application has open a new way of learning language. Nowadays there is a lot of application that allows user to learn language using mobile application. A smartphone application that is delivered in English language is very popular in non – English speaking countries such as Japan, China, Korea and etc. (Park & Kim, 2011). Learning language application becomes a viable learning channel that would fit the living style of today (Liu, 2009). Language learning requires an interaction between two people and mobile application has made it possible to its user (Norman & Perveen, 2012). Learning language using mobile application is a newly emerging learning style and gives learners the chance to learn anywhere and anytime (Park & Kim, 2011). Furthermore, learning language through mobile application increase the student's attention and motivation towards learning (Norman & Perveen, 2012). Learning a new language is a continuous process that requires interaction and mobile application can fulfill it. Besides that, language learning application provides video and audio to practice learner's ability of hearing and speaking (Liu, 2009).

There are few existing language learning applications on learning Malay language. The first application is L- lingo learn Malay (VocLab, 2014). This application focuses on teaching Malay language using audio of native speaker and images. L-lingo Malay teaches Malay words, grammar and matches it with a picture to enable the learners to grasp the words. The second application is Learn Malay Free (Learn For Free, 2013). This application allows the user to learn

Malay language words and expressions. The last application is Learn Malay Free WordPower (Innovative Language Learning, 2014). This application teaches Malay words and phrases using audio of native speaker and pictures.

Problem Statement

There are few existing applications that allow learners to learn Malay language. For example L-lingo learn Malay, Learn Malay Free, Malay English translator, Free Malay by Nemo and many more. These applications focus on teaching Malay language words, grammar, phrases and expression. The content of these applications are not suitable to be used by tourists due to a few reasons. The first reason is that the existing application does not teach Malay language in a contextual approach. Contextual approach is where the learning emphasizes the application of the concept (Tong, n.d). The current application teaches Malay language words by words and it show how the words can be used in a conversation. This method is not suitable to be used by tourists who want learn Malay language.

Besides that, the contents of existing application focus more on expressions and grammar. The suitable focuses for tourist include transportation, greeting numbers and direction which are very useful for tourists. All these focuses are not provided by the current applications, so it is not suitable to be used by tourist.

A criterion of a good application for tourists is that it teaches the language in a contextual approach where it teaches tourist how to apply the words in a context form or in a conversation. Second criterion is the scope that focuses on the things that are needed by tourists for example, how to ask for a direction, greeting and numbers that are needed in order for tourists to have a good vacation. Some example of high rating language learning applications that are good for

tourists are Learn Japanese Phrasebook (Codegent, 2014) and Learn Vietnamese with Video (VNB, 2014).

Purpose

The purpose of this study is to create a mobile application on learning Malay Language for tourists.

Objective

The objectives of this study are to

- Design and develop a mobile application on learning Malay Language.
- Evaluate the usability of the created mobile application.

Definition of terms

Conceptual. Mobile application is a type of software application that is designed to run on mobile device such as tablet computer and smartphone (Techopedia, 2010).

Significance of the study

There two practical implication of this study. First it will produce a mobile application for learning Malay language for the use of tourist from overseas. Such application is currently unavailable. In addition, the application will be based on contextual learning approach. Lastly, the Malay language will be taught in English language so it can be used by tourists from all over the world.

Scope of the study

The mobile application focuses on learning Malay Language only. The content would be on conversation, shopping, direction and transportation. The application is Android based so it is published at Google Playstore.

CHAPTER TWO

LITERATURE REVIEW

Mobile Application for Language Learning

There are many available mobile applications that allow users to learn new languages. Few of them are built especially for tourists. The common characteristic of these application are the use of audio recording by native speaker to ensure authentic pronunciation and the categories in each application are also similar such as transportation, greeting and shopping. But each application has its own unique component.

The first mobile application is Learn Japanese Phrasebook (Codegent, 2014). The target user of this application is tourist and business people visiting Japan. It teaches words and phrases using audio of native voice. The reason why this application used native voice is that it wants to ensure authentic in pronunciation. This is a very good criterion in a language learning mobile application. Some of the categories provided by this application are accommodation, shopping, tourist attractions and many more.

The second application is Learn Vietnamese with Video (VNB, 2014). This application focuses on visitors in Vietnam. This application provides an audio recording by native speakers and the most important component of this application is that it provides useful tips for travellers. The scopes of this application are general conversation, numbers, direction and places and many more contents that are very useful for tourists.

The third application is SpeakEasy Spanish Phrasebook (Pocketglow, 2013). This application content is on Spanish words and expressions. The application is perfect for those travelling to Spain. The topic covers in this application are meeting people, eating out,

transportation, sightseeing, shopping and many more. The advantage of this application is that it is written specifically for English-speakers and it has easy-to-read phonetic translation. This application also provides audio clips recorded by native speaker to help learner pronunciation.

Some of the related works of mobile application in learning field is an smartphone application called CALD where it functions as a Arabic learner's dictionary (Halpern, 2012). The purpose of this application is to promote Arabic dictionaries that suffer from drawbacks due to inadequate learners.

Mobile Learning

Mobile devices such as smartphone and tablet are widely used in the society. Mobile device is getting popular as a new learning tool that provides a new form of learning known as mobile learning (Zainol, 2012). Mobile device such as smartphone and tablet are now being widely used in university and campuses, and as the shape of computing is evolving more into a mobile environment (Mahmoud & Popowicz, 2010). Mobile learning is the next generation of computer aided as well as multimedia – based learning, is based on mobile device (Park & Kim , 2011).

This evolution has opened up a new medium of education using mobile technologies. Mobile learning has become more common in all parts of the world (Laborda, Royo, & Lopez, 2011).

Mobile learning is any activity that allows a person to be more productive when interacting with, or creating information, mediated through a compact digital portable device such as smartphone or tablet (What is M-Learning, n.d). Mobile learning is a branch of e-

learning and it is growing continually due the increase of demand from the learners (Erradi, Nahia, Almerakhi, & Al-kailani, 2012).

The evolution of mobile learning (m-learning) in the 21st century has produced a remarkable impact on the macro education performance and research on m-learning were conducted to identify the best approach to implement learning through mobile device (Zainol, 2012). In order to enhance the efficacy and eminence of mobile learning, total development toward integrating mobile devices as well as other mobile technologies is evolving (Zainol, 2012).

Mobile Learning in Language Learning. The use of mobile devices has a major impact on how learning takes place in many disciplines and contexts, including language learning (Erradi, Nahia, Almerakhi, & Al-kailani, 2012). The development of mobile learning and wireless technology has opened up an array of possibilities for the field of language learning (Uther & Ipser, 2012). Mobile learning has been applied in language learning in order to improve the quality of learning. The uniqueness of mobile learning is that it enhances language learning through mobile device such as mobile phones produces dynamics that are not available through traditional classroom (Ghazvini, Earnshow, & Esmaceli, 2009).

Language learning is acquired during social interaction from one person to another who speaks the language (Bujang & Mohd Riaz, 2012). Mobile learning enhances interaction between students. So the learning process becomes more meaningful.

The use of mobile learning for language learning has been implemented around the world. There are a few related projects in Europe, Asia, North America and South America (Hourser, Thorton, & Kluge, 2002). These projects were set in universities and schools where

students experience foreign language vocabulary lessons via PDA and cell phones (Hourser, Thorton, & Kluge, 2002). In order to learn a language, students study the vocabulary lists and grammar rules. Learning foreign language involves a mixture of information that need to be memorized such as vocabulary list and it also needs lot of practice in order to become a fluent speaker and listener (Liu, 2009).

Some of the related work is research by Erradi, Nahia, Almerakhi and Al-kailani (2012), where this research used mobile learning tools to teach Arabic spelling and vocabulary. The reason for the development for this project is because of the lack of mobile learning tools for Arabic language. The purpose of this project is to design and develop mobile learning platform name ArabicTutor for an interactive learning of Arabic spelling and vocabulary (Erradi, Nahia, Almerakhi, & Al-kailani, 2012). This project addresses the need to leverage mobile learning to ease the process of learning Arabic language (Erradi, Nahia, Almerakhi, & Al-kailani, 2012). The mobile learning tools provide dictionary service, text to speech service and part of speech service. The content of the project are list of words, the different meanings of words with example of sentences and multimedia illustrations.

Advantages of Mobile Learning. Nowadays mobile device plays a vital role learning field. Many educators believed that these new mobile communication technologies will have a great impact on the way of learning due to the rapid advancement (Chen, Hsieh, & Kinshuk, 2006). There many advantages of mobile learning for example portability, interactivity and individuality.

Portability. The characteristic of mobile devices is it portability where it is easy to carry, handheld size and many more. The portability factor of the device gives a positive impact to student motivation, engagement and interest in learning (Rico, Agudo, & Curado, 2008). Mobile

learning utilizes the portability of mobile device where student can learn whenever and wherever (Park & Kim , 2011). These criteria are important in order for student to improve their learning process and student can utilize their spare time. For example, even during holiday, students can still view lecture notes and exercise using their mobile devices (Zainol, 2012). In addition, the portability of mobile device allows flexible access to learning content in a flexible way from anywhere and anytime (Erradi, Nahia, Almerakhi, & Al-kailani, 2012).

The portability feature of mobile learning also allows collaborative learning outside of class (Zainol, 2012) and distance learning environment (Motiwalla, 2005). The portability of mobile learning has created a new method of learning other than traditional classroom lesson.

Learning is a continuous process where it needs repeated practice to enhance learning and mobile learning environment allows its user to learn anytime and anywhere (Liu, 2009). Thus mobile learning is suitable for learning (Liu, 2009).

Interactivity. One of the advantages of mobile device especially mobile phone is its natural affordance for phone to speak into and listen from for example audio interaction (Uther & Ipsier, 2012). The interaction between learners and device is one of the factors that enhance learning. Mobile learning has make learning more fun, kept user engage with non – stop actions and allowed then to learn beyond the traditional classroom, increasing flexibility and offering new way for interaction (Rico, Agudo, & Curado, 2008). Furthermore, interactive learning environment is provided by communication function of mobile device (Kansen, Sasaki, Watanabe, & Cheng, 2009).

In addition, mobile device is specially designed for speech therefore it has a better affordance for audio speech learning that can create interactive learning environment for students

(Uther & Ipsier, 2012). In one of the related research, the result state that none of the students commented that audio or listening capability is the most desirable in a mobile learning (Uther & Ipsier, 2012).

Individuality. Another advantage of mobile learning is it leaner–centered and more personalised. It has been argued that mobile technologies allow learning in a more personalised, learner –centered, situated, collaborative, ubiquitous and lifelong compare to traditional learning (Uther & Ipsier, 2012).

Mobile learning enhances self – directed learning as it allows students to choose the content of learning appropriate to their differing interests, needs and skills levels (Erradi, Nahia, Almerakhi, & Al-kailani, 2012). This is different as compare to traditional learning where student needs to follow a certain syllabus regardless of their interests or skills level. The learning process becomes more meaningful and understandable when students are familiar with the topic (Bujang & Mohd Riaz, 2012).

Relationship between a person and their mobile device is usually one–to–one. One–to–one relationship means it is more personal, always on and always there (Motiwalla, 2005). So mobile learning creates a more personalized learning for the students.

CHAPTER THREE

METHODS

Rapid Application Development

The system development model used for this research is Rapid Application Development. Rapid Application Development is a development lifecycle designed to give a higher – quality results much faster development than those achieved with traditional lifecycle (Nik Daud, Abu Bakar, & Mohd Rusli, 2010). Besides that, Rapid Application Development is suitable to be used in this research because it is an approach to build computer system which combines Computer – Assisted Software Engineering (CASE) tools and techniques, user–driven prototyping and stringent project delivery time limits into a potent, tested, reliable formula for top – notch quality and productivity (Nik Daud, Abu Bakar, & Mohd Rusli, 2010).

Rapid Application Development is divided into four phases; requirements planning, user design, development and implementation. Figure 1 show the methodology applied in this research.

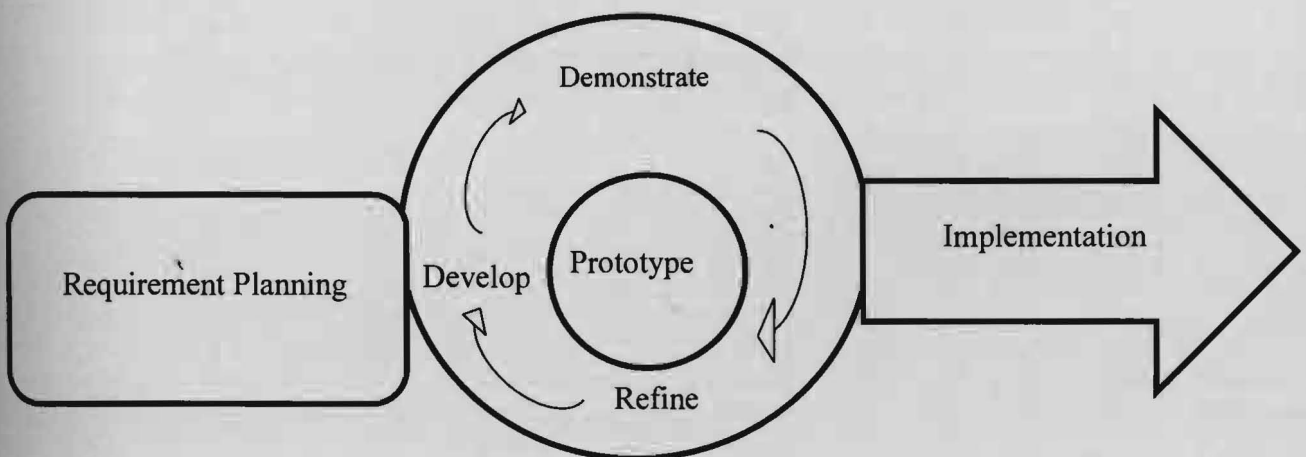


Figure 1. Rapid Application Development Model

Requirement Planning. In this phase, the requirement of the system is identified. First step would be identifying the problem or the weaknesses of the current mobile application to learn Malay language. In order to create a better mobile application the problem with the existing application need to be solved. So the first requirement would be the solution to solve the problem of the current application is collected. Second step is to investigate the best way to deliver the content of the application; in this case the most suitable way is by using video and audio text. Third step would be to identify the scope of the content. The most suitable content for tourist to learn Malay language is by learning the basic word and conversation, greeting and numbers. All this content is suitable to be used by tourist during their vacation. The fourth step is deciding the appropriate language that will used to deliver the content of the application. In this application the most suitable language would be English because the targeted user is tourist and by using English language this application can be used by tourists from all over the world. Last step is to determine the tools that is used to create the mobile application and the publish market. In this paper AppNotch is used to create the application and the target is android user.

User Design. In this phase all the requirement from phase one is collected to create the prototype and the interface of the mobile application. This phase is a series of iterative steps. In this phase it is important to interact with the user while designing the prototype. The content of the mobile application is being developed during this phase for example the type and the script of conversation that would be included in the audio. The content need to be evaluated by the targeted user, for this research the targeted user would be the tourist. The interface and the information layout is identified and evaluated by user. The feedback from the user is used to refine the prototype and the interface. This phase would be an iterative process until the best prototype and interface is identified. The prototype created using paper based. Paper prototyping

is technique consists of hand drawings of user interfaces in order to enable them to be rapidly designed (Mifsud, 2012). Paper prototype is the most suitable method because it allows the interface to be refined based on user feedback before implementation begins.

Prototype Description. Figure 1 is the menu interface of the application. The content of the application is divided into four categories which are conversation, shopping, transportation and direction. Figure 2 shows the interface after the user selects the categories conversation. The content is further divided into different categories which are greetings, introduction, basic expression, topic on conversation and question. Figure 3 shows the content for introduction and further detail of the sentence is shown in Figure 4 where the audio recording of native speaker is provided.