



Faculty of Computer Science and Information Technology

ANDROID BASED MALAY PHONICS

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**Bachelor of Computer Science with Honours
(Network Computing)
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requirements for the degree of
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ABSTRACT

Android is now a popular technology and its rapid growth allow thousands of mobile application exist. This has shown by survey conducted by Northcraft (2014) resulting Android has taken over the market worldwide. This means there are huge number of users are devices using this platform. This could bring an opportunity for education field to be expanded into mobile learning especially for the young age. Children are influenced to multimedia material (Latifah, 2012) and this could be accomplish through application created for Android. According to the Kamus Dewan Bahasa Edisi Keempat, child stands for little boy or girl who is still small (usually younger than 7 or 8 years old). Children development rate are faster than stages or levels of older age in one's life. Therefore, it is essential to equip them with basis of knowledge in reading. Phonics is a technique used to teach children to read and master alphabetic. It is based on sound of the alphabets that when the sound combines, it would form a sound of word. Studies have shown that the brain is reading by breaking words that is seen into the sound, then the brain sounding that particular letters by pronounce or read the word (Othman, n.d.). Phonics has been used widely for English reading. The purpose of this study is to create a prototype as an Android application to expand phonics learning method in learning Malay reading for the children from 4 to 6 years old where the learning is not just happening at school but also at other place such as home. For the prototype testing, observation and interview had been conducted for children range between 4 to 6 years old with their guardian. This prototype still can be enhance in future work and covers any limitation that has been found during testing and implementation. The proposed work is hopefully can be used in real life implementation as one of a way to for the children learn to read in Malay language despite of location and time.

ABSTRAK

Kini Android merupakan teknologi yang popular dan perkembangannya yang pesat membolehkan beribu-ribu aplikasi mudah alih dibina. Kajian yang telah dijalankan oleh Northcraft (2014) menunjukkan Android telah mengambil alih pasaran di seluruh dunia. Maksudnya, terdapat sejumlah besar pengguna adalah peranti yang menggunakan platform ini. Perkara ini telah membuka ruang kepada bidang pendidikan untuk berkembang kepada pembelajaran mudah alih terutama bagi yang masih muda. Kanak-kanak mudah dipengaruhi untuk bahan multimedia (Latifah, 2012) dan perkara ini boleh dicapai melalui Android. Menurut Kamus Dewan Bahasa Edisi Keempat, kanak-kanak bermaksud lelaki atau perempuan yang masih kecil (biasanya berusia lebih muda daripada 7 atau 8 tahun). Kadar pembangunan kanak-kanak lebih cepat berbanding mereka yang lebih berusia. Oleh itu, adalah penting untuk melengkapkan mereka dengan pengetahuan asas dalam bacaan. Fonetik adalah teknik yang digunakan untuk mengajar kanak-kanak untuk membaca dan menguasai abjad. Ia berasaskan bunyi huruf dan apabila bunyi menggabungkan, ia akan membentuk bunyi perkataan. Kajian telah menunjukkan bahawa otak membaca dengan memecahkan perkataan yang dilihat kepada bunyi, maka otak membunyikan huruf yang tertentu dengan menyebut atau membaca perkataan (Othman, n.d). Fonetik telah dipraktikkan secara meluas untuk bacaan Bahasa Inggeris. Tujuan kajian ini adalah untuk mencipta prototaip sebagai aplikasi Android untuk mengembangkan kaedah fonetik dalam pembelajaran bacaan Bahasa Melayu untuk kanak-kanak daripada umur 4 hingga 6 tahun di mana pembelajaran tidak hanya berlaku di sekolah tetapi juga di tempat lain seperti rumah. Bagi menguji prototaip, pemerhatian dan temu bual telah diadakan untuk kanak-kanak adalah di antara 4 hingga 6 tahun bersama dengan penjaga mereka. Prototaip ini masih boleh diperbaiki di masa akan datang dan hal ini termasuklah kekurangan yang telah ditemui semasa ujian dan pelaksanaan. Cadangan kerja ini mudah-mudahan boleh dilaksanakan dalam kehidupan sebenar sebagai salah satu cara untuk untuk kanak-kanak belajar membaca dalam bahasa Melayu tanpa mengira lokasi dan masa.

CHAPTER 1 INTRODUCTION

1.1 Introduction

The widespread use of mobile technologies has led to an increasing interest in mobile learning (Thüs et al., 2012). According to Kang (2013), reporter of The Washington Post, Common Sense Media released report that seven out of ten children younger than eight have used a mobile. Explosion of mobile devices such as laptop and smartphones lead to research on using the mobility benefits for education.

The most popular mobile operating system nowadays is Android (Northcraft, 2014). Android is an operating system for mobile. There are thousands of applications created based on Android platform.

In Malaysia, learning techniques has been driven to practice multimedia and computer technology (Norshuhada, 2012). At school, teaching tools using technology has been widely implemented. While at home, besides learning-based program in television, application software via personal computer (PC) or any mobile devices whether online or offline, can be used as learning material to teach children.

For reading skills, there are number of teaching methods being used such as alphabet, whole word and phonics. Based on PBSparents website (n.d.), researched by National Reading Panel which composed of experts in the field of literacy has determined to indicate that phonics is an essential ingredient in beginning reading instruction. Phonics is a learning reading method based on the sounds of letters, groups of letters and syllables (Nordquist, n.d.). It also can be called as spelling-

phonics or sound-to-print phonics (Rogers, 2007). The method is being taught to students through an instruction technique called synthetic phonics (Chew, 2005). It starts by teaching the beginning readers a sound (phoneme) and then being shown all the ways that sound can be spelled (Rogers, 2007). This method has been widely used to learn reading in English. As in Malaysia, main language is Malay language. Could this method also be apply as reading skills for Malay language?

Based on interview with principal of *Tadika Seri Bintang*, Papar, Sabah, Madam Dayangku Fairuz Simon Abdullah, problem that has been identified is method that still implemented for teaching Malay is through alphabet method which introduces what is the alphabet before teaching on how to pronounce it. They are not using any technology, where they are only use printed materials to show the alphabet. Different than teaching English, they are using phonics method and education software application installed in computer as one of learning material.

Therefore, an Android application for children age of 4 to 6 years old for learning Malay language by implementing phonics method is proposed.

1.2 Objectives

Extend the existing learning application to Android application for children from age of 4 to 6 years old to learn Malay reading by implementing phonics method.

To meet the objective, things that need to be done are:

1. To study phonics method to be implement for the application.
2. To identify user interface design that is suitable for target user.
3. To develop Android learning application in Malay language.

1.3 Brief Methodology of Project

Methodology that helps to achieve project's objectives is System Development Life Cycle (SDLC) with Iterative Model (Kendall et al., 2002) as a tool in designing and developing the application. This is because there are changes along design and development of the application. This is to ensure user's satisfaction and achieving the objectives. Figure 1.0 shows the Iterative Model workflow.

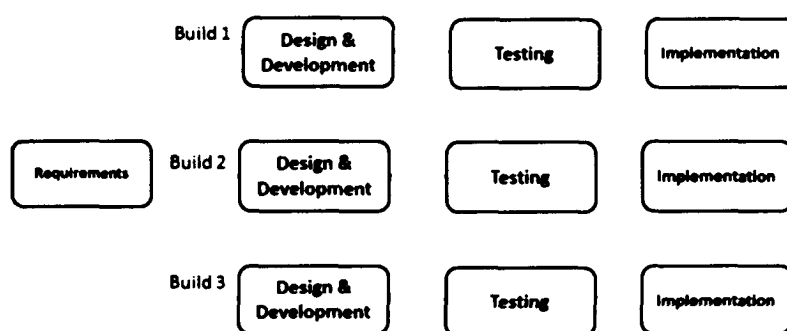


Figure 1.0 Iterative Model
(Tutorialspoint, n.d.)

According to Kendall and Kendall (2002), Iterative Model is an object-oriented approach to systems development that include a method of development as well as software tools. Software tools to be used in this project are Eclipse and SDK, Adobe Flash, Photoshop and Illustrator CS6. Programming language that will be used is Java programming language. Based on Figure 1.0, there are three major phases in Iterative Model which are Requirements Planning, Design Workshop and Implementation. This section will be discussed more on Chapter 3 of this project report.

1.3.1 Requirement

The first phase is to identify objectives of the project. Objectives and scopes are obtained from research on existing applications. Then, observation and data collection are done

through paper journals via internet. Based on findings, limitation of the existing applications are being considered whether it could be resolved by the project. After that, project requirements are listed for next phase.

1.3.2 Design and Development

In this phase, iteration process are happening until reach desired requirements before further into last phase.

1.3.3 Testing

When the development is completed, it will be evaluated first by application tester before target user. Through this, the whole design is refined and enhancement can be made through next iteration. Then, the project can move on to next phase, the Implementation phase.

1.3.4 Implementation

During this phase, the application is implemented by the target user. At the same time, the project is being refined. Every time each iterations are complete, the developed project will be move on to this phase. Feedbacks from target user are gathered and refined in the second phase.

1.4 Project Scopes

The project scopes are limited to the stated below:

1. Application can be installed and compatible with Android 4.0 platform and above.
2. User of the application can be used from children from the age of 4 to 6 years old.
3. User of the application also can be used generally by teenagers and adult.
4. Phonics modules included in the application.
5. Links in the application are functioning and the sound are clear.
6. Each phonics modules can be accessed.
7. User interfaces are displayed when user access the application.
8. The content consists of three modules which first module is learn sound of each vowels (v) and consonants (c), second module is c + v, cv + c and cv + cv combination and last module is a game.
9. Language that is used in the application is Malay language.
10. Instructions on how to use the application are included.

1.5 Significance of Project

Children are able to learn Malay reading by implementing phonics method with the application.

The application could be helpful tool for them as they can know the differences between sounds of each alphabet and able to pronounce combination of alphabets in Malay language.

1.6 Project Schedule

Refer to Appendix A.

1.7 Expected Outcome

The outcomes from this project are:

1. This application able to be installed in mobile devices with Android 4.0 and above without occurrence.
2. The modules in the application can be opened.
3. All links is functioning.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

Reading is a cornerstone for success not just in schools but throughout life (Inderjit, 2014). It is not just for examination but also it can be made as a hobby or activity during pleasure time. Therefore, it is essential to start learn reading from young age. There are types of method for basic reading skill that suitable for children. However, this methods should keep pace with current trend.

According to Meeker (2008), she said “Mobile to overtake fixed Internet access by 2014” (Bosomworth, 2014). Finding shows that market for mobile devices especially smartphones and tablet has risen drastically as shown in Figure 2.0.

From May 2011, the total user of smartphones are 35% and increased to 56% in two years. The chart stated average age for first cell phone is 13 years old. So, it would not be a surprise if children already possess mobile devices. Figure 2.1 shown there are increasing of user for mobile devices by 2013.

In this chapter, importance of Malay language and child language development are discussed first. Then, reading methods are introduced. This has lead further into mobile learning as it emerges as one of solutions for education (UNESCO, n.d.). What is mobile learning and its challenges? Could the chosen method possibly be applied as Malay reading skill combined with mobile learning?

Next, the tools and programming language involved to develop mobile application are listed. What are existing applications similar to the project? Could its features can be implement in the application? All these questions are covered in this chapter.

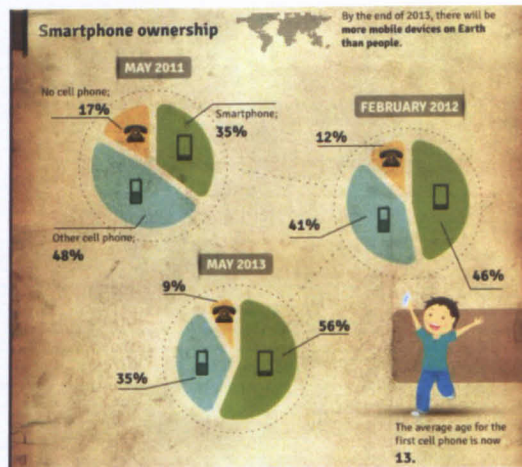


Figure 2.0 Chart of Smartphone Ownership (Herpburn, 2013)

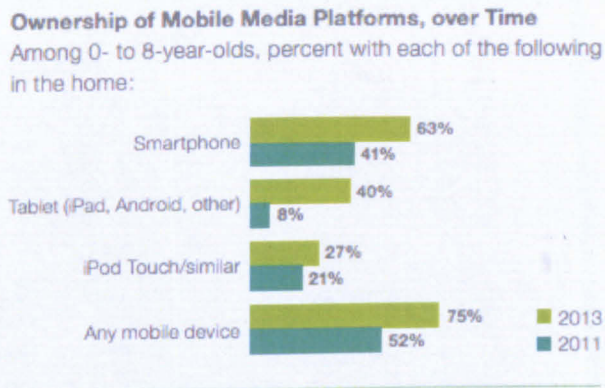


Figure 2.1 Ownership of Mobile Media Platforms over Time (Source: Soper, 2013)

2.2 Malay as National Language

According to *Kamus Dewan Bahasa Edisi Keempat (2007)*, language is a sound symbol system that serves as a communication device in group of people (between an individual to other individual, individual to a group of people and much more). Back in history, Malay had been played an

important role where it became a lingua franca around Malay Island under Sriwijaya kingdom. It was used in daily life, trading and businesses, laws and much more.

Then, Malay are announced as national language for Malaysia. In federal constitution, *Perkara 152* has emphasized Malay is national language of Malaysia. Malay has become part of Malaysia education's system. Malay is stressed out as subject that is essential to be passed in all examination. Malaysia also eager to drive their people to uphold the national language starting from young age. Therefore government has outlined in *Kurikulum Prasekolah Kebangsaan (2011)* for preschool that to used Malay well and extend language skills for communications.

2.3 Child Language Development

Review regarding child language development has been made through internet and an article has been found written by Hemanathan (2011) which is helpful for the project. The articles described phase of children language development starting at really young age until age of 12 years old. Their development also affected by environment, intellectual, age and maturity of speaking tool. His article are based on references by Marilyn Friend, Saayah Abu and D.C. Norton.

From his article, the suitable age to learn basic reading started from the age of 3-4 years old up to 6 years old since they are able to capture and repeat the sound. In Malaysia, children age from 4 to 6 years old are in preschool. They are also able to hold thousands of vocabularies, thus increasing their intellectual. By the time they reached 6 years old, they could cope with reading skills and ready to enter primary school.

2.4 Early Reading Methods

According to Oxford Dictionaries, method is a particular procedure for accomplishing or approaching something, especially a systematic or established one (“Method”, n.d.). For basic of early reading, there are several methods that are applied. After doing research of journals and internet, there are three common methods that are identified being applied in Malaysia’s education institution.

2.4.1 Alphabet Method

Mohd Isa (2009) describes this method as a traditional way to learn basic reading in Malay. This method also called spelling method. The method is focusing on memorization of alphabets, then formalization of syllables and also spelling activities. Generally, the order of implementation for this method is structural-based. Figure 2.2 describes the flow of its structure.

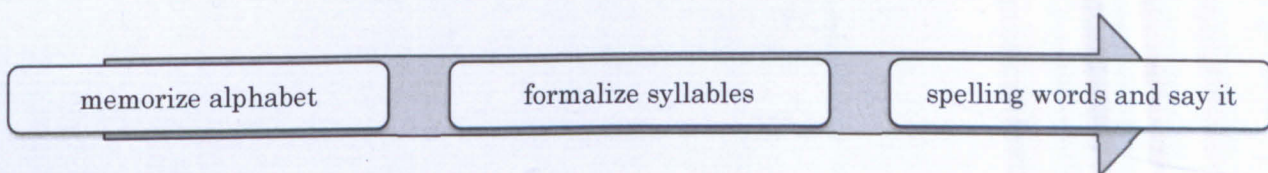


Figure 2.2 Flow of Alphabet Model

a) Memorization of alphabet

The children will be introduced each letters contain in alphabets. They are required to memorize the entire alphabet’s name. Figure 2.3 is example of flash cards used as learning tools containing 26 letters of alphabet in capital letters and lowercase letters.

b) Syllables

Syllables are formalized in sequence. Children learn to pronounce it until smooth.

Figure 2.4 is the example of syllables cards that is used for learning tools.

c) Words

Syllables combined into words. After that, children learn to spell each words. The way is they need to do other two previous processes before saying the full word. This means they need to name each letter, and then pronounce it in syllables before lastly state whole word. Figure 2.5 is an example of how the syllables are form in cv + cv (consonant is v, while vocal is v).

Mohd Isa (2009) has listed advantages and disadvantages of this method. The advantages of this method are Malay spelling system fitted to this method (except diphthong “ai” and dual-letter like “ng”). Malay syllables structure are fixed and easily to identified. This helps the children to remember and pronounce syllables. If they master the syllables, they can spell words easier. This allow them to create new words with using various combination of syllables even they do not know the words. This method also do not need a lot of learning tools. All they need are a lot of patience and determination.

The main drawback is longer time needed to see the results after the learning process which around 6 months. The pronunciation may often not smooth due to confusion between alphabets name and alphabets sound. This is also occurs when the children are used to spelling process (name the letters, then say the syllables before read the full word). From this, another problem arises. They are having trouble when misspelled the words and also they