

Developing English Vocabulary Flashcard by Adopting Flashcard Method

by

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Dissertation submitted in partial fulfillment of the
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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Business Information System Programme
Universiti Teknologi PETRONAS
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(Business Information System)

Approved by,

(Dr Shuib Bin Basri)

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

SITI NURBAIDURA ZOLKIFLI

ABSTRACT

The principle of this report is to provide information on what is flashcard application and how it can benefit upon educational purposes. With the introduction of the project, this report locates a little feeding about the popularity of mobile application in current market. Briefly, the importance of flash card application is to help students to understand and memorize from easy level to higher level of English vocabulary. We cannot argue on the importance of learning English in Malaysia as the second language in daily communication. While many schools and parents still facing the problem in encouraging the children to learn and speak English frequently, developer will keep finding the solution to this problem. In this report, will share the review of application developer and tester on how effective flash card application can be for students. Moreover, the addition of how far this statement had been agreed by expert and professional of kid's education will also be included. At the end, methodology for gathering information to fit the syllabus use by teachers from local primary school and stages in developing mobile applications also included. All of the findings will be shown and discussed at the final chapter of this project.

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CHAPTER 1

INTRODUCTION

1 INTRODUCTION

For past few years, high technology gadgets had been one of the most discussed topics among public. It is not only attracting people from Information Technology field but also catch interest from all age level. It is not surprising to see kids these years to have their own Personal Digital Assistant (PDA) or personal tablet computer like Galaxy Tab by Samsung.

Due to boost development in technology, electronic education or e-learning had impressed public with rapid growth in market. Public give much attention to the latest product of these game devices such as iPods and personal tablets which are convenient to carry around; portable and sold at a reasonable prices. Having small size and light in weight, these gadgets make it irresistible for kids, teenagers and adults. Although some of these gadgets called as smart phone, but one not necessarily must be smart people to be a smart user. Most of the applications and operating systems are user friendly where anyone can easily learn and understand the function of the gadget. This enable youngster from primary school to also put the gadgets into good use for their studies.

Therefore, for this project, developing a mobile application which suited for young children from five and younger (beginner level) to learn English subject and get to know more choices of English vocabulary. It is known that there are many similar features and styles available in market but some are no longer attractive to young children. These educational application need to compete with other games application which are also

interactive. By promoting a suitable vocabulary learning that reach teachers' and ministry's expectation in level of education, an educational application will be develop together to enhance the ability and confidence of young children in learning English!

1.1 Background of Study

For this project, a flashcards as the method of study for young children from age range of five years old and younger is chosen. The purpose of choosing this age range is because they are still at early stage of learning and usually at the age of where their curiosity is at peak. During this age also they are starting to learn to talk therefore to have an application that can teach them how to pronounce and talks really add the value of interaction between target user and the application itself. Why flashcards is because, according to Haver (2009), flashcards is very useful for learning purpose and easily attract the attention of young children within this age range. Haver who had been teaching in elementary school for almost 40 years support that flashcard is suitable for effective learning as it can help to improve visual memory, association, and comprehension.

Throughout this report, a lot of 'flashcards' terms will be used therefore it is important to roughly knows about what exactly flashcards is and going deeper into the benefits later on.

By definition, flashcards is a card that contains brief information for students to easily see and refer which later act as an aid to learning. Going deeper into the meaning of flash card, Wikipedia state that it is a set of cards bearing information, it can be words or numbers written on the card (can be on either or both side of the card), which likeable to be use in classroom drills or even in private study. Early years of flash card

introduction, it used to look like Figure 1 below. It was mostly cover black and white colors and quite boring without any pictures or suitable animation included.

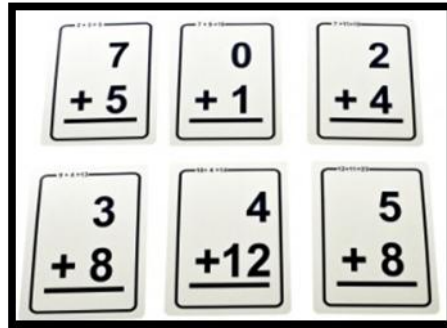


Figure 1: Flashcards for learning Mathematics

(Source: Your Dictionary, flash card image)

For this project purpose, developing flash card for mobile application will be the main method for children to learn English vocabulary. Compare to the flashcard that shown in Figure 1, the idea of flash card that will be developed throughout this project somehow looks different in a way that it is more structure and easier to control.

While mobile learning have been very popular since 2010 and it highly increase in demand on 2011, the completion among platform for mobile also catching interest from many people. Although it is common to always heard that many people will go for Apple iOS platform because of its popularity in taking lead in mobile operating system that was already years ahead of anything else and now moving even further ahead compare to others, but, Android is not that far behind.

Referring to figure 2 below, Android's users exceeding Apple iOS's user in February to April 2011 thus prove that Android platform also one of the famous platform that had been widely used around the world. The advantage of Android platform is that it is not

only compatible to certain brand of phone but it is compatible to phones that manufactured by Sony Ericson, Samsung and also HTC. Compare to Apple iOS which only compatible for Apple, Android give more choices to its user. To increase the area of target user of this application, Android is chosen.

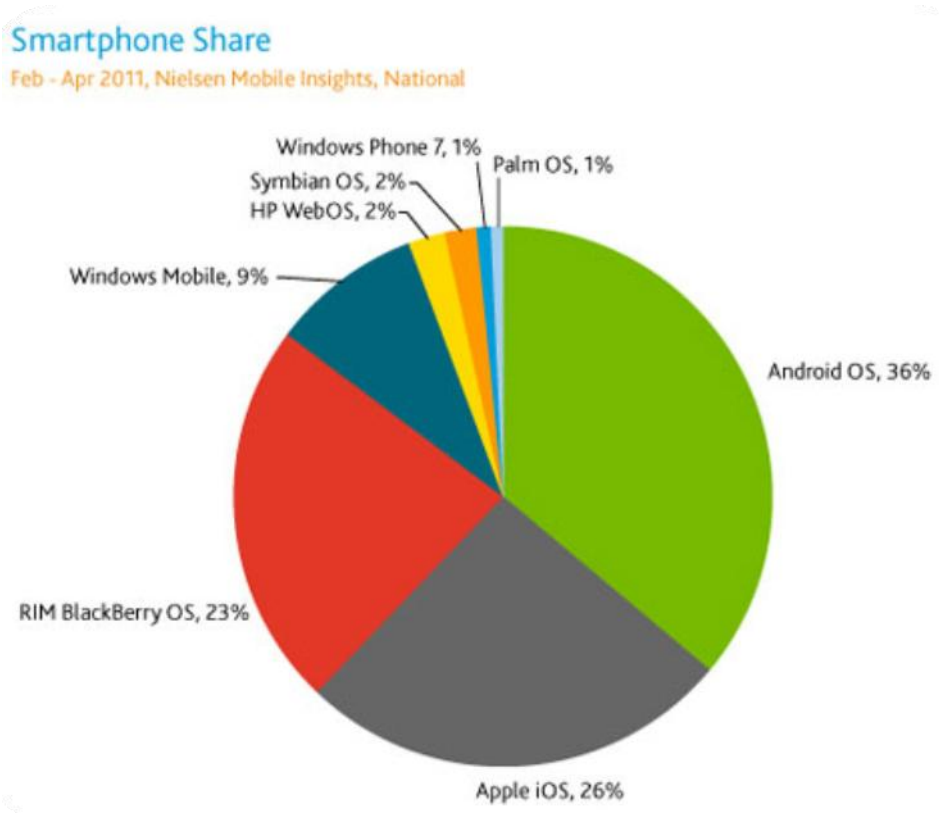


Figure 2: Smartphone Share, total users of different platform

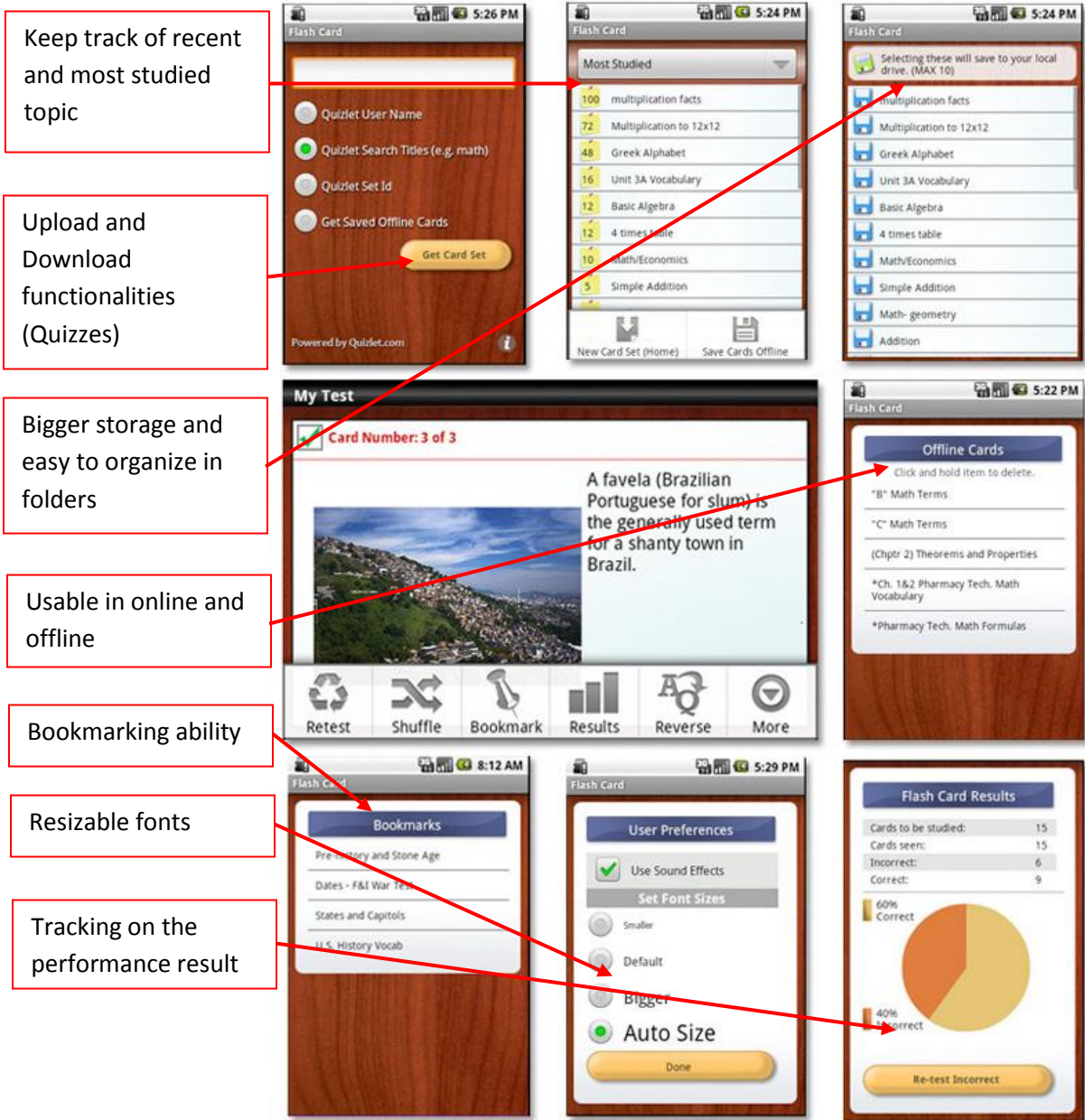


Figure 3: Flash Card for mobile application

(Source: myPockect technologies, Flashcard101 - Android)

Referring to Figure 3 above, although the vocabulary application was developed nicely with colored pictures and bookmarking ability, but it is not suitable for young children as the words used for the definition is high level English and lack of eye catching animation to attract kids. Therefore, the application that will be developed in

this project will have the addition of animated pictures which allow the user to enjoy while learning English.

Ever since technology has been growing rapidly, flashcard for mobile application has been developed to fit human needs. If earlier version of flashcards is hard to keep and sometimes can be quite a mess after the kids finish using them, with the new development of flashcard in mobile, this problem can be overcome. It supports much functionality like bigger storage and ability to download quizzes. Though it is still maintain the concept of writing a question on one side of the card and an answer in overleaf, current flash card in mobile application allow the flashcard to look more organize than before.

For extra information, the history of flashcard is that it has been used since the 19th century, by American educator called Favell Lee Mortimer. Formerly, flashcard was a single-sided hornbook and had been used for early literacy education. From this, we can conclude that flashcard had always widely used as a learning tool to assist memorization by way of spaced reiteration.

1.2 Problem Statement

Primary students now a day lose interest in paper based education. They easily get bored and cannot focus during studying. This is due to the exposure of high technology education system which is now getting much attention. Therefore, having more interactive form of education can attract the students to stay focus in studies. Interactive here means that children with such young age are easily attached to activity that relating to a program that can responds to their action therefore, by having this solution can enhance their concentration in study. Although this problem is focusing on children from primary school, it is just to show that without proper guidance and exposure before proceeding into school world, learning will be hard and not interesting in the eyes of young children before they enter kindergarten.

Zuraidah (2007) mentioned in her research paper that with current Era of globalization and advancement of ICT, it is really important to have English Language as a language of knowledge and also the language for global communication. Zuraidah is not alone in this perception because in year 2003, Sohi stated that all primary schools targeted to improve the performance and examination result for English subject. Sohi made his research in several primary schools and commented that English language environment in primary schools was lacking. English was only use within classroom for that particular English subject only. He also adds that usability of English language as part of daily communication between students was practically non-existent. English was not even widely practiced and used at home.

While English is very important for our daily activities such as surfing internet for getting information, parents and teachers seems to lack of this awareness. Stangarone (2011) come out with statistic on '*Most widely spoken languages throughout the world*' for business purposes. It is not a bolt from the blue for English to be rank as Top 3 in the chart. Another statistic that was found by him is '*Top 10 Languages spoken by Internet users throughout the world*' where English managed to sit on the first rank. From below graphs alone, we can understand the importance of English not only for adult who involve in business, but for this young generation who will one day rule future generation.

Most widely spoken languages throughout the world

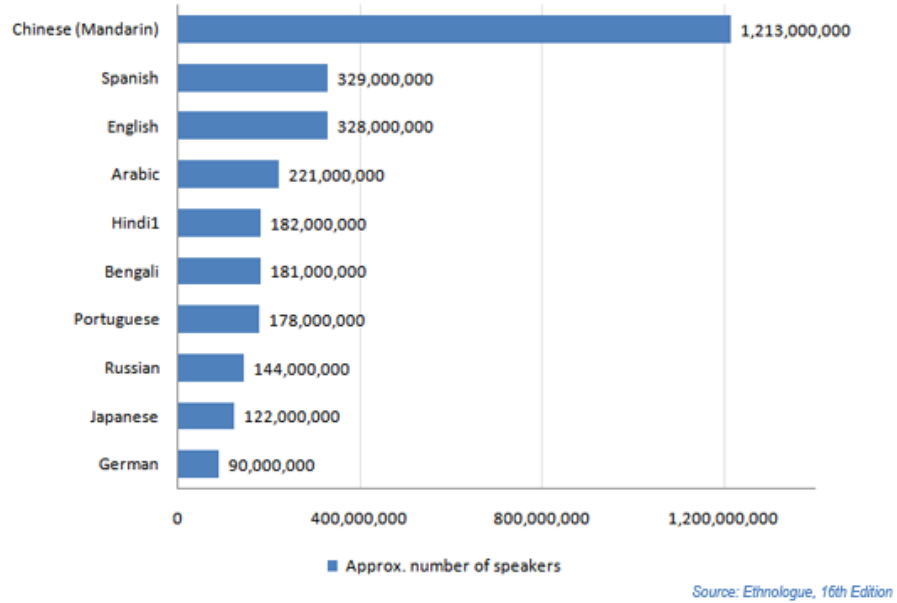


Figure 4: Graph of Most widely spoken language throughout the world
(Source: Ethnologue, 16th Edition)

Top 10 languages spoken by internet users throughout the world

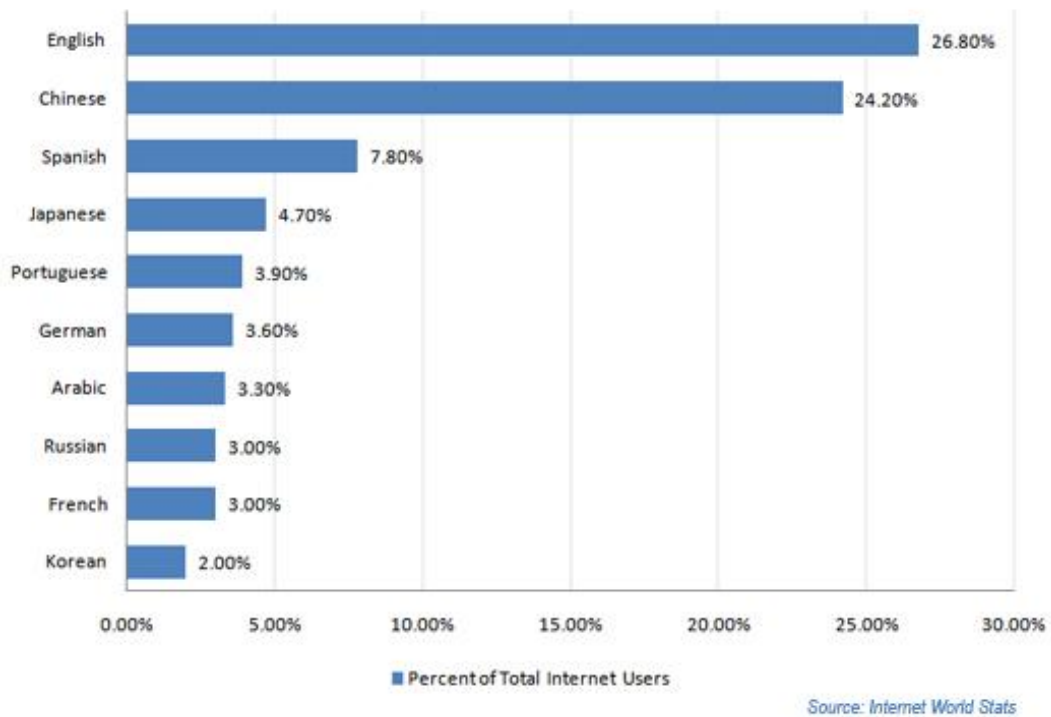


Figure 5: Graph of Top 10 Languages spoken by Internet users throughout the world

Back to the earlier problem, common method of studying like reading from books; it may be deficient in encouraging the students to stay focus in study because of weary presentation. Nielsen (2010) said in his article that children today are much more experienced and had such early exposure to computers. A major change between children today with the children in eleven years ago is their experience in using computers and Internet. They are widely exposed to global world through internet and spending most of their time in front of a computer, therefore text book does not sound attractive anymore. This is one of the many reasons why Flash card application in mobile would be more suitable for them. Moreover, this application is expected to have rich information like images, notes, links and voice. With that, students will have more active reading and learning activities. It improves the understanding for English subject and facilitating students in studies.

1.3 Objectives

The main objectives of this project are:

- To study on the importance of flash card application in creation of fun learning
- To propose a method of self-teaching exercise and tutorial within primary students
- To develop an interactive mobile application that can ease student in learning English

1.4 Scope of Study

Personally, this project is expected to be completed within six months, from February to July for approximately two to four hours a week. With frequent test and reading reviews in internet and some related articles in magazines, the application will be modified and

upgraded to fit the target user at the same time meet the objectives. With that much of researches and information, problems to complete developing this application can be reduce and slowly overcome within the time range. This project will require a meeting with teacher(s) from primary schools and the students itself.

To ensure that this project to be more convincing, responses from parents and teachers will be gathered after the application completed and ready to be used. This is because, by the end of the day, parents are the one that fully responsible for the kids preferences. Parents spend their time with their children longer compare to the teachers. Since the children themselves are still young, parents are the best sources of information for now together with teachers.

CHAPTER 2

LITERATURE REVIEW

2 LITERATURE REVIEW

While there are writing and articles that discussed a lot on the ease of using flash card for studying and learning, there is also argument on how teachers should stick to the elderly method; studying with pen and paper. Some also argue that, long hours and too much looking onto the tablet screen can harm eye sight. Despite harming the eyesight, a research proven the ability of flashcard to improve the memory of students. When they do test on students who study using flash card compare to papers, after one week, the students who depending on flash card can memorize more compare the other (Schmidmaier, 2011).

Alcorn (2011) believes that flashcard can be very useful to anyone who has learned a foreign language. She also added that if teachers were given an opportunity to use flash card as learning material for the students, it is beyond words how that would be useful indeed. According to her, there are numbers of available and suitable application which can be recommended to the teachers to help students in studying effectively. Alcorn advised to give consideration to things like:

- How much information can be located on each card?
- How easily students can work with the flash card to match the format that can suit them better?
- Most importantly, how easy is the application to use?

She mentioned in her article few flash card applications that can fit the teachers' requirement such as StudyDroid, GFlash+, and Kaka Flashcards.

Even though there are multiple of available flashcard application in market, but not all can be applicable for studying purposes. Some of the application might not be suitable for primary school students as it is too hard to use for their level. The flash cards that have good colors and fonts can help them to study in better atmosphere. It must not be an eyesore to the user. Another advantage of flash card comparing to normal books and papers is the ability to choose a different colors to fit the user taste. If we were to print a book with colors, then the cost will be higher. Another way to reduce cost in learning is using flash card. Fleming (2012) said that flashcard is suitable for individuals and also study group. Using flashcard, students can have fun time studying and playing effectively. With the formations of teams in class, teachers can encourage the students to have a competition with the cards to find the matching answers to the questions.

In her recent post, Mauro (2012) has convincing teachers, students and parents with 'Ten Reasons to Try Flash Cards'. Flash cards can be expensive as a tablet pc can be a cost of more than thousand dollars but it worth the value that it can return. Despite the price, flash card can be customize, personalize, portable, reinforce writing skills, fun learning and to use, and overall, it makes the user a good teacher.

Below is the information that gathered from few research papers from researchers regarding the topic of method of learning for young children.




	Support	Critic
Test	<ul style="list-style-type: none"> • 'Common practice' • strategy to improve quality of education <i>Sohi, 2007</i>	<ul style="list-style-type: none"> • Worries teacher – performance base of student's result • 'teaching to the test' <i>Norris, 1993;</i> <i>Nutall, 1995</i> 
Listening	<ul style="list-style-type: none"> • Set a tone can influence learning activities • Student learn by listening method turn out to be better at listening <i>Cook, 1991</i> <i>Ibid, 1991</i> 	<ul style="list-style-type: none"> • Not tested in examination <i>Sofi, 2007</i>
Reading	<ul style="list-style-type: none"> • Student learn by reading turn out to be better at reading <i>Ibid, 1991</i> 	<ul style="list-style-type: none"> • Learning by reading alone hard to maintain the focus. <i>Glenn, 2008</i>

Figure 6: Table of researchers' argument on method of study for kids

Although it had been agreed by researches on the efficiency and effectiveness of vocabulary flashcard as the method of study for young children, but there is always a room of improvement from present flashcard. With all the criteria mentioned in table above, there is possibility that this 'going to' develop application can really help to enhance young generation interest in study.

The idea of combining all above criteria into flashcard method of study is supported by different point of view from above researchers. As an 'add on' to the above criteria, addition of animations, sounds and colorful fonts just to gain focus from the kids. Animations and sounds effect from the flashcard can support the idea of making it more interactive. Therefore, these young children will likely not to feel bored while learning English. If they like to watch animations from television, then let us bring the characters into the vocabulary flashcard.

To make good flashcards, Isaac (2006) given a tip that each card should only have one question and one answer. Young children do not like to see too many words and information at one time. Pictures and animations are fine since it can create interest in the activity. Rios (2008) in her article believed that use flashcards to aid learning in young children, we need to be creative. Kids love anything glittering because it lovely and catches attention. This is why the thought of adding animations as a good effort to improve the quality of flashcards. Rios also mentioned in her article that to match the color of the flashcards with the object written on the flashcard. This is just so that whiles the children ‘playing’ the flashcards, parents can make it as a game. As an example, if the card shows object apple, then the color of the flashcards background or the fonts should be in red color (as what on the picture). Then, parents who sometime guide the children while studying can play ‘match game’ of the color on the card with other object present around the household. It is possible, with that, these young children can learn faster.

In one website from Via University College where the students from Faculty of Education and Social Studies did some research about *Animation as a Learning Tool*, they agree that children able to learn when they are in their comfortable environment; when they enjoy what they are doing. Therefore, using animation can be the solution and act as a tool to encourage and develop children’s learning. The students also list some skills that can be developed when children learns by using animation characters.

- Story telling
- Visual communication
- Cognition, emotional, ethic and aesthetic aspects
- Observation and sensory aspects
- Concentration
- Problem-solving and innovative aspects

Adding more visuals and audio in this Vocabulary Flashcards is because, according to Kimball, Ph.D., (2011), each of us has a tendency for either learning by looking, listening or touching. He also adds that there are specific ways to accommodate each learning styles. When he said learning by touching, I know that by choosing this project; to develop mobile application for Android (Samsung Galaxy Tab is touch screen based) can really solve the problem of learning method. When kids learn using visual aids (pictures and animation), they can 'see' ideas in their mind's eye. This later can help them to remember all the details from places they have visited or even pictures they have seen before. This group is called as visual learner. Young children also can come from group that learns best when listening. This group called as auditory learners. They can 'hear' information with repeating instruction and commit it to memory and learn well when discussing the ideas. Auditory learners always choose to learn with background music to stay focus. Last but not least, the kinesthetic learner. They love to work with hand and 'see' by touching. With current technology of touch screen, it enable this group to continuing learn through physical interaction.

While Kimball supports the idea of adding visual aids and sounds to young children learning environment, an article on colors that can help children to learn faster was written in open source website. Young children are attracted to warm, bright colors like blue, red and green. Maybe we did not realize the power of blue color can bring not only to young children but also any group of age. Blue increases productivity while red help to stimulate brain activity. Red is also known to increase one's heart rate. Therefore, kids can become more active when learning or reading. This activeness can be controlled provided with the presence of green environment. Green can supply relaxing environment. Moreover, it is associated with nature, creativity, and fertile thinking. These elements can really help to enhance young children brain activities.

With all of this supporting views, no doubt that this project can really contribute to society.

CHAPTER 3

METHODOLOGY

3 METHODOLOGY

3.1 Developing Application

In developing mobile application for Android technology, considerations of the usability from two sides need to be taken. There are client side and server side. These two sides will have different limitation to functionalities of the application. As an example, the client cannot make his/her own quizzes since that will make the quizzes less meaningful. Only the server side can control the marking and creating the suitable quizzes for particular level of study.

Different sides will need different tools too. The tools needed are like below.

- **Client Side**

Client will need any gadget that can support Android base application to make the application applicable and usable. Since this application is targeting young children, Samsung Galaxy Tab will be the best choice as it has bigger screen and larger memory space. It will allow the children to download as many quizzes and cards at the same time they can view the pictures and animations much clearer. It is also light in weight which allows the children to bring it everywhere.



Figure 7: Samsung Galaxy Tab

Storage capacity	Flash memory 2 GB (CDMA), 16 GB or 32 GB models and microSD slot
Memory	512 MB
Display	1024 × 600 px (aspect ratio 16:10), 7.0 in (18 cm) diagonal, appr. 21 in ² (140 cm ²) at 170 PPI
Graphics	PowerVR SGX 540
Input	Multi-touch screen
Weight	380 g (13 oz)

Figure 8: Samsung Galaxy Tab Features
(Sources: Wikipedia, the free encyclopedia)

- **Server Side**
 - App Inventor for Android

App Inventor for Android is originally provided by Google to allow anyone to develop own application and upload the application in Google play which enable anyone to download and review the application. It is a good stepping stone to all beginners or novices who know nothing about developing an application for android before. In the website, there were many tutorial and FAQ that can help newbie to start developing application. This is a very good opportunity to anyone because sometimes the person itself did not know if he or she has that ability to develop a good application which later can help public to lead their daily activities easier.

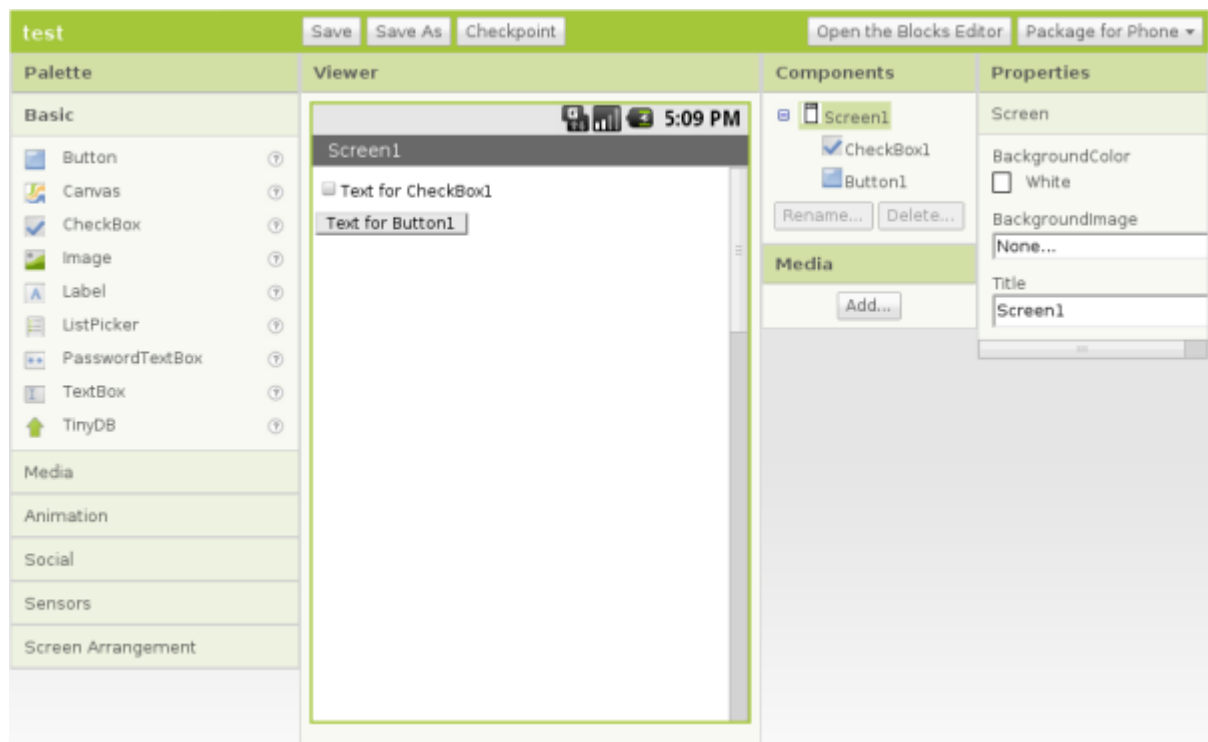


Figure 9: App Inventor for Android starting project.

App Inventor for Android uses block editor to allow developer in creating functions and makes the application working. The block editors uses Open Block Java library for creating visual blocks programming languages. This programming language is not anything different from what had been taught in the courses but it is easier in sense of instead of writing codes, user just need to drag and drop the block to fit the logic and functions of the program.

The compiler that translates the visual blocks language for implementation on Android uses Kawa language framework and Kawa's dialect of the Scheme programming language. It was known that the Sheme programming language was developed by Per Bothner and distributed as part of the GNU operating system by the Free Software Foundation.

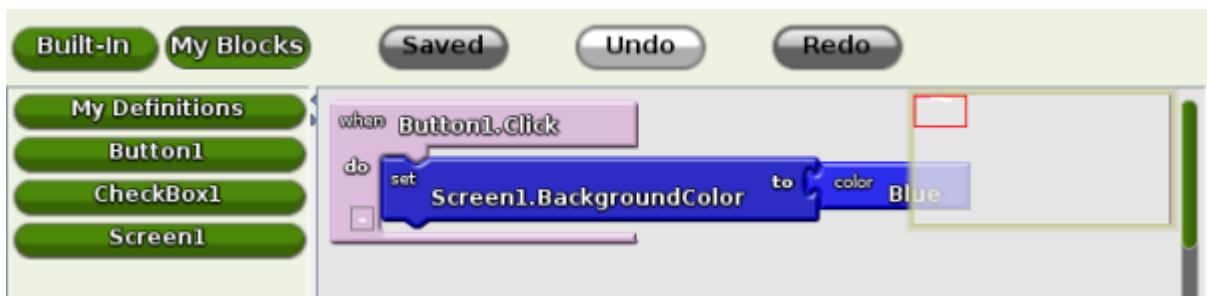


Figure 10: Application Inventor Block Editor.

Diagram below explain the architecture on how the process of developing an application via App Inventor for Android. From Google App Inventor Servers, user can access to App Inventor Designer windows to design on the interfaces only. All the functionality and running of application will be done through App Inventor Block Editor. In this editor, user will need to have knowledge in programming language to be able to put all the logics into places. To test, user can download the Android Emulator and demonstrate the application right from the PC or computer, or even connect it to Android Phone.

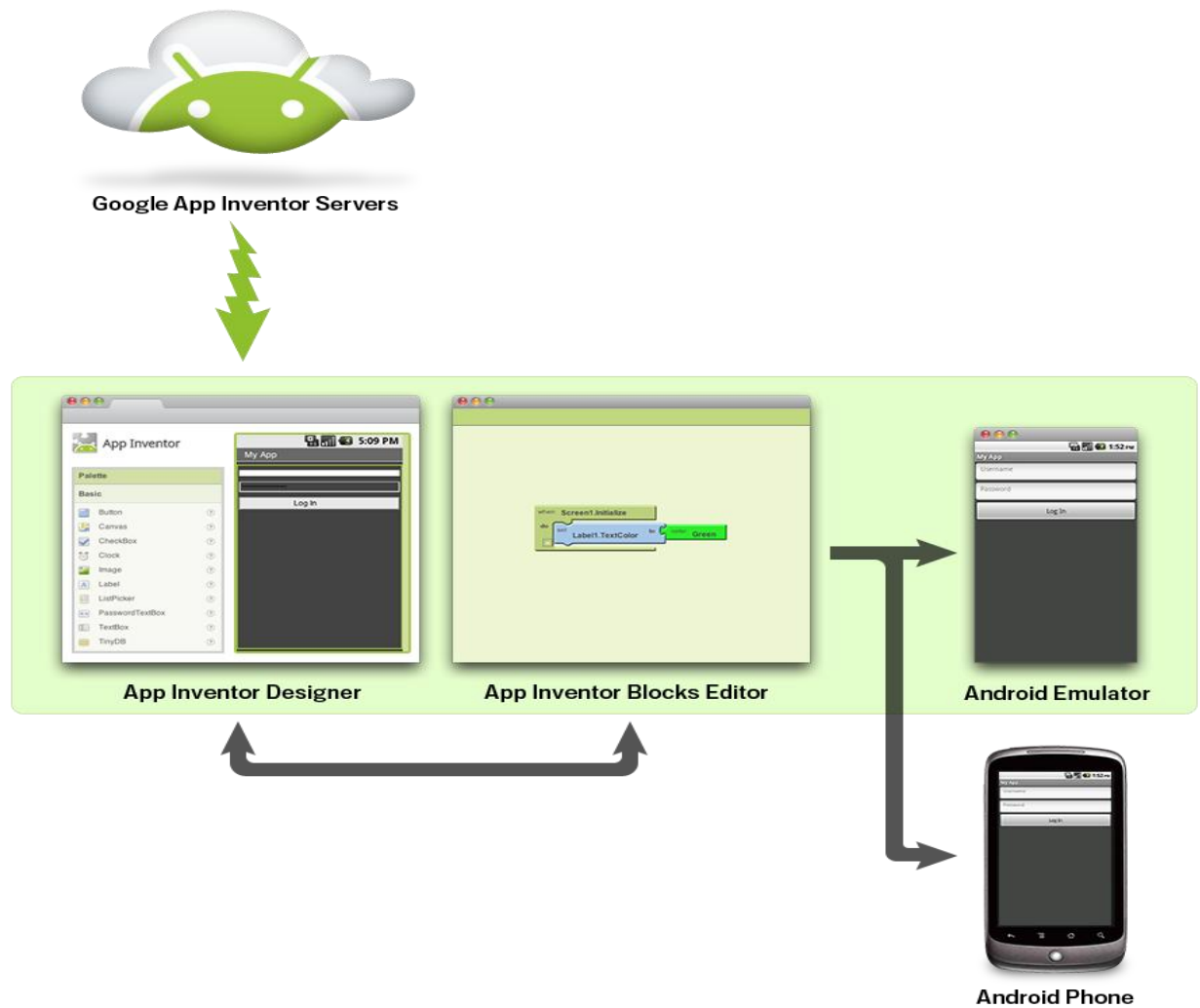


Figure 11: Architecture of Developing Application Tools

3.2 Project Activities

Below is the methodology that will be followed for developing the application in this semester. This methodology is named as Developing Mobile Application Methodology which adopting Agile Methodology. It is always useful to start with needs of assessment before proceed to the next stage of storyboarding. This is to ensure less editing and modification to be done later if information about the ‘to develop’ application gathered

earlier. With this methodology, more time can be saved and it is not costly. Therefore, it is expected that developing the application within the time given can be fulfilled.



Figure 12: Application Development Phase

(Resource: www.mobinex.biz)

Until now, storyboarding method chosen is interface sketching because it is more simple and easy to understand the flow. Since this application only targets a young children which is assumed at the very beginning level of learning English, features available are quizzes and random learning.

In box HOME below, user can directly know from the icon which icon may lead to which windows. In Home page, user can touch on icon **Read** to start ‘reading’ or learning the vocabulary in sequence or random. When touch the icon read, user will be

directed to first picture, as an example, picture of Apple and when user touch the animated picture of Apple, the window will change to word that describe the picture like APPLE. When user touches on the words APPLE, user will be directed back to the picture of Apple. Notice that on the screen of word APPLE, there are icon or button of speaker which enable user to listen to human voice that teach on how to pronounce Apple and also how to spell Apple.

Since the target user for this application is from very young children therefore it is necessary to make a friendly image towards the target user. It will be a different story if the target user is from elder generation. The purpose of putting big and clear fonts for the word and definition is to help user to absorb the spelling easily and faster.

Furthermore, this application allow user to learn vocabulary in **random** which mean user did not specifically search for a word he or she wants to know but just randomly learn a new word by touching on random icon. The same window will be directed like BALL and APPLE before.

Next is **all** icon enable user to view all the words available in the application database. Most important thing to take note here is that this application will not cover all the words like in normal dictionary because some words are hard and difficult to learn at early stage. Therefore, the words that will be present in the application are only that fit the syllabus for beginner from age range of five and younger.

Another key attraction of this application is that the **quiz** promotes the user to learn from mistakes. This idea is supported by Nate Cornell and colleagues whom in recent work, they studied on the advantages of learning through error. It is true that human nature tend to remember for the longest period of time for the mistakes that they made.

There is also a quote from Niels Bohr which agrees with the thought of learning from mistake.

“An expert is a person who has made all the mistakes that can be made in a very narrow field.”
Niels Bohr

How the quiz work is, after user touch on the quiz icon, user will be directed to quiz window. There, user will be instructed by a voice to touch on the correct picture of word spoken by the voice. If user touches on the correct answer, the voice will acknowledge user by saying “Awesome!” or “Good!” while if the answer is wrong, the voice will notify with word “Try Again” or “That is not the answer”. Just to add more value to the quiz, after user answer the question, the application will provide answer to all pictures on the screen on that time. Therefore, user can do exercise and revision at the same time.

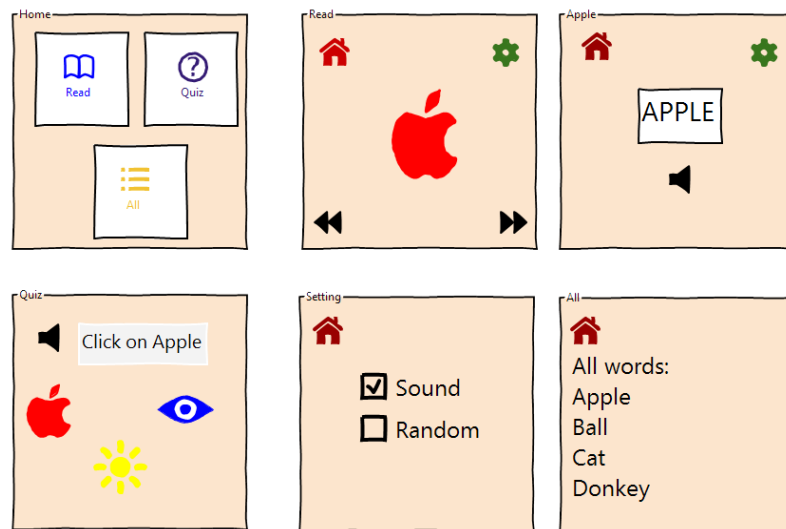


Figure 13: Design of Storyboarding for Vocabulary Flashcard

After completing the research for Final Year Project and done with designing the storyboarding, a framework in developing the application was designed as below.

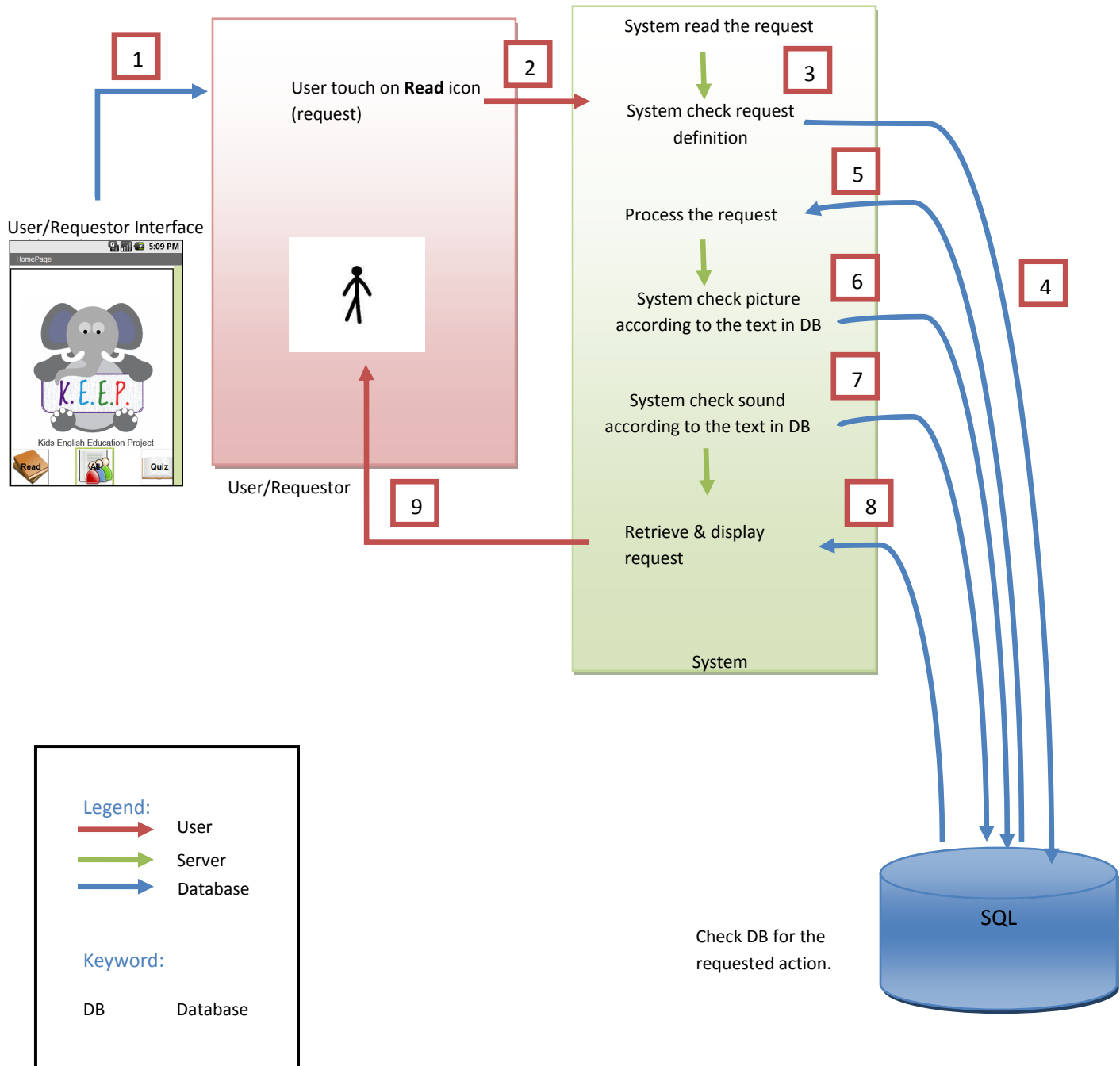


Figure 14: Framework for Vocabulary Flashcard

Next stage in developing application after finished with the framework is the design of user interface and also the testing of the prototype. For this stages will be further discuss in the next chapter of Result and Discussion.

CHAPTER 4

RESULT AND DISCUSSION

4 RESULT AND DISCUSSION

4.1 Data Gathering and Analysis

How do we get the idea in designing the interface for this application is that we look into a lot of present application that related directly or indirectly to my project. This is because from there we can search for the flaws of available application and try to cover that with more advantages. From what we get, we can see that no application had cover on the animated pictures yet. Therefore we try to put that into a MUST HAVE feature in the application.

Although we did manage to directly do surveys to get the feedback about my mobile application with parents and teachers, we also read comments and review from parents and developers about flashcard vocabulary and how they response to the features provided. So far, a lot of parents are happy with the application and developer found it hard to add animation in flashcard as it takes time. Most of the comment we get from Google Play since there is where amateur developer try to widen skills and knowledge in developing interactive application for Android.

It is a good site as everyone can share view and suggestion on how to improve to provide better application in future.

How to know if my application can attract people to download it and try it is easily helped by Google Play as it make life easier for everyone to download the application directly to the smart gadget or to PC. Under flashcard tags, a developer can easily get from 500 to 3,000 users download. Here I know that most of smart gadget user do refer

to Google Play to get application and flashcard is quite popular tag that people search for and download. Therefore, I have no worry about my future user as flashcard is something well known among people.

Results of the survey that had been done before the development of the application shown as below:

From the result below, we can prove that it is true most of families in Malaysia did not practice speaking in English as daily conversation language at home. This is not helping the young children to adapt to the environment of speaking English at early stage. In most opinion, learning at early age can help a person to adapt to it faster compare to learning at older age. This is because; one is hardly leaved his or her comfort zone. That is why it is always best to start at early age.

The second question prove that young children now days have no problem to adapt to latest technology since it has been agreed by parents that their children has enough exposure to mobile application. This issue is also had supported by Shuler (2009), he note that more than half of the world's population now owns a cell phone and children under 12 constitute one of the fastest growing segments of mobile technology users in the U.S.

The third question leave quite an impression on flashcard as a method in learning that get full support from parents in Malaysia. Therefore, there should be no problem for this project to be executed and get attention from parents and young children in encouraging them to learn English by adapting flashcard method.

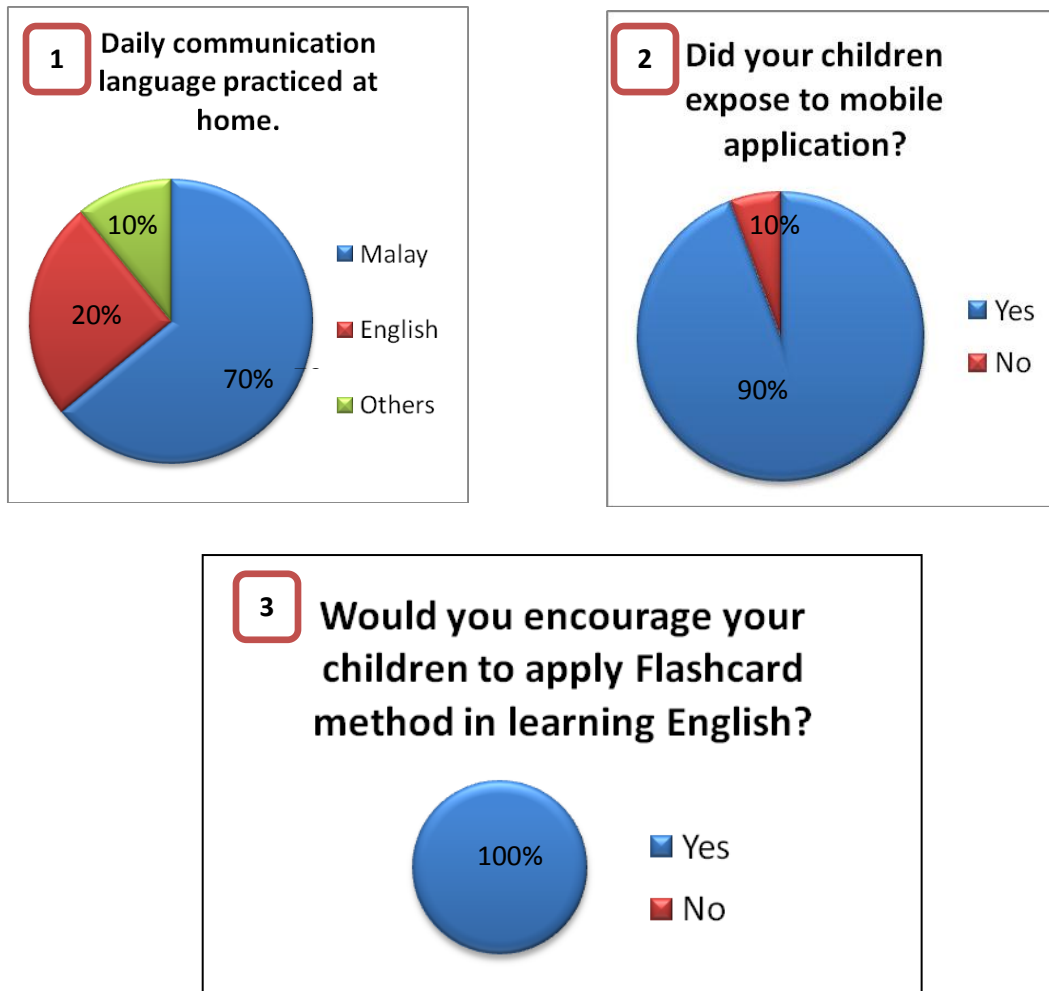


Figure 15: Survey Results

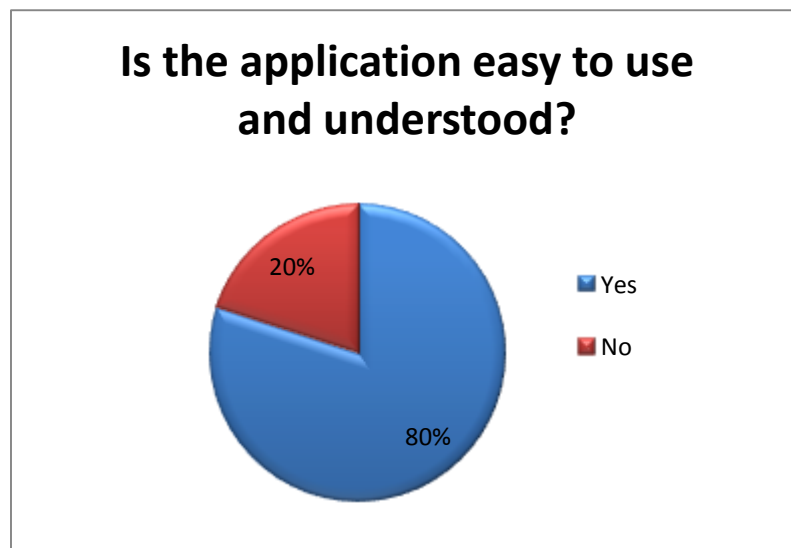
From the data that have gathered before the development of this application, we can say that this application will get much love and interest from parents. Referring to the pie chart, majority of the respondents (total respondents are ten parents) agree that at home they frequently use Malay as daily communication language compare to English. This is why young children lack of exposure to practice English in their everyday life since they did not get the experience from home.

However, respondent response that their children did have high exposure in using mobile application hence makes it possible for these young children to be able to apply and practices the developed application from this project.

The survey receives a union answer when asked about encouraging the children to apply flash card as their method of learning English. Therefore, this application can be an application that is not only loved by children but also parents because it had been stated before that to learn foreign language, flash card can be the best instrument to choose from. The good response from respondent makes this project to be successful and receive attention from public.

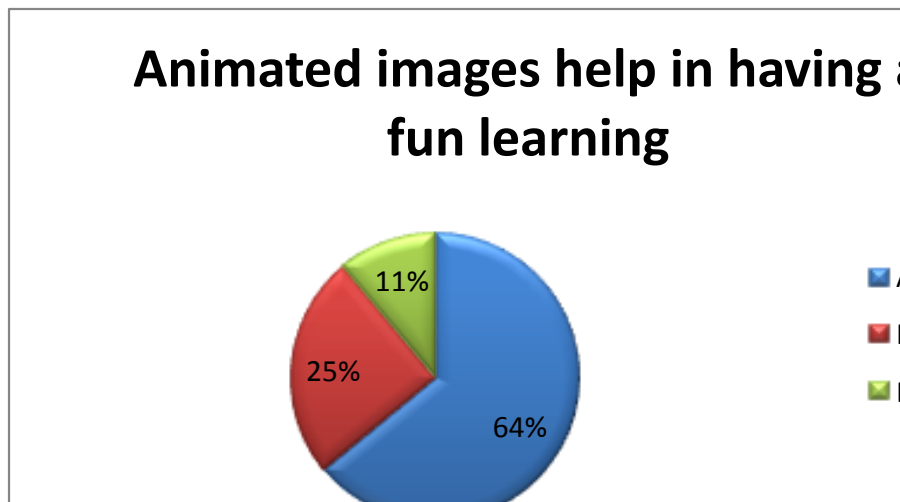
Therefore, we tested the product among five young children age five years old and the result is shown below.

According to the chart, majority agree that the application is user friendly and easy to be use even for first timer to the application. This is because, the icons for buttons available is straight forward makes the user able to expect what will appear when user touch the button. A good application is an application that provide ease to the user without feeling confuse on what to do and what to expect.



The key attraction of this application is the animated images. Since flash card application with animated images is not available in market yet, it receives much interest from the respondents. Although there exist a respondent that did not feel the necessity of having animated images but it still give much satisfaction to majority of users. Animated images can show the difference of this application compare to others and at the same

time increase the level of fun learning among users. Therefore, we can say that the objective of this application is achieved here.



What we can say from the result above is that the new application proven able to gain interest from young children from five years old and below. This is because, the used of big icons and images that indicate the meaning clearly able to fulfill user friendly criteria. This application is very straightforward makes it suitable for beginner in learning English. The animated images also able to get attention from target user as it get unison vote to maintaining that feature.

4.2 Experimentation/Modeling

After finish with developing the first prototype, we face a problem on how to include animation on the flashcard since we never learn about creating animation before. After a discussion with project supervisor, putting a .gif file which allow animated picture should be enough for prototyping purpose. Actually, it is possible to create animation which is more entertaining but to ensure that we can finish this project within given period, .gif file should able to cover the early objective.

When developing this application, what matter the most is that we must be able to fulfill my objectives to ease users in learning English. Since the target users are from young children group, we are conjecture on bits and pieces of words to draw on to make this application easy to use and understand by them. Notice on below picture under Prototype section, on the home screen we position Search Word to tell the user “this is where to touch to search word”. However, logically thinking, this application teach about how to spell APPLE and BALL and anything from that level, using word like SEARCH could be hard to understand by user. Therefore, by adding icon that explains

the meaning of SEARCH like



should able to tell the user on how to proceed. This will be added in the application for future plan.

4.3 Prototype



Figure 16: Screenshot of Prototype

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5 CONCLUSION AND RECOMMENDATION

To conclude on this project, in hope that this application will be able to cover the entire problem that had been discussed in Chapter 1, more young children will be able to converse and speaks in English not only during English class but also during daily conversation with family members and friends. Align to the ministry of education target of having more students to score excellently in English, this application can help young children to remember and apply English words that included in the application to help in future reference.

The purpose of this chosen project is to initiate the act of achieving vision of most English teachers in nearly all elementary schools to witness the growing number of students who excellent in English language (Zuraidah, 2007). By means of the issues that we discussed in earlier chapters about what lead the children to lose interest in learning and improving English vocabulary and why it is very crucial to master in English for daily life activity, a proposed solution to this problem is by developing mobile application (Vocabulary Flashcard method) to facilitate fun learning environment.

Back to the objective of this project which are:

- To develop an interactive mobile application that can ease student in learning English
- To propose a method of self-teaching exercise and tutorial within primary students
- To study on the importance of flash card application in creation of fun learning,

This project is expected to be beneficial to individual as it involve with techniques in gathering information and methods in developing mobile application. This is very valuable for student from Information System to join Information Technology Company after graduated from Universiti Teknologi Petronas.

REFERENCES

- Open Source. From Concept to Classroom, *Workshop: Tapping into Multiple Intelligence*. Retrieved August 4, 2012, from: <http://www.thirteen.org/edonline/concept2class/mi/index.html>
- Open Source. From Wikipedia, the free encyclopedia. *App Inventor for Android*. Retrieved July 29, 2012, from: http://en.wikipedia.org/wiki/App_Inventor_for_Android
- Lehrer, J. (2009). Learning From Mistake. *The Frontal Cortex*. Retrieved June 30, 2012, from: <http://scienceblogs.com/cortex/2009/10/22/learning-from-mistakes/>
- Blaimire, R. and Sali, L. (2007). Study of the impact of technology in Primary School. *Final Report*. Retrieved February 25, 2012, from: HYPERLINK "<http://insight.eun.org/ww/en/pub/insight/minisites/steps.htm>" <http://insight.eun.org/ww/en/pub/insight/minisites/steps.htm>
- Schmidmaier, R., Ebersbach, R., Schiller, M., Hege, I., Holzer, M. (2011, October 12). Using electronic flashcards to promote learning in medical students: retesting versus restudying. *Medical Education*. Retrieved February 24, 2012, from Wiley Online Library : HYPERLINK "<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2011.04043.x/abstract>" <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2011.04043.x/abstract>
- Alcorn, A. (2011, April 21). HYPERLINK "<http://www.makeuseof.com/tag/3-perfect-flashcard-apps-android-phones-teachers/>" "3 Apps For Perfect Flash Cards For Android That Teachers Can Use" 3 Apps For Perfect Flash Cards For Android That Teachers Can Use . Retrieved February 25, 2012, from MakeUseOf: HYPERLINK "<http://www.makeuseof.com/tag/3-perfect-flashcard-apps-android-phones-teachers/>" <http://www.makeuseof.com/tag/3-perfect-flashcard-apps-android-phones-teachers/>

Mauro, T. (2011). Ten Reasons to Try Flash Cards. Retrieved February 25, 2012, from About.com Guide: [HYPERLINK](#)

"<http://specialchildren.about.com/od/learningstrategies/tp/flashcards.htm>"
<http://specialchildren.about.com/od/learningstrategies/tp/flashcards.htm>

Open Source, (2009). Flashcard apps for the Droid. Retrieved February 20, 2012, from DroidForums.net: [HYPERLINK](#) "<http://www.droidforums.net/forum/droid-applications/5536-review-flashcard-apps-droid.html>"

<http://www.droidforums.net/forum/droid-applications/5536-review-flashcard-apps-droid.html>

Deepanjan, (2010). How to use flash cards to your advantage. Retrieved March 12, 2012, from Studyihub: [HYPERLINK](#) "<http://www.studyihub.com/how-to-use-flash-cards-to-your-advantage/>"

<http://www.studyihub.com/how-to-use-flash-cards-to-your-advantage/>

Isaac, B. (2006). The No-Fail Flashcard Study Technique: Fast Learning - Minimal Time. Retrieved March 12, 2012, from Persistence Unlimited: [HYPERLINK](#)

"<http://www.persistenceunlimited.com/2006/07/the-no-fail-flashcard-study-technique-fast-learning-minimal-time/>"

<http://www.persistenceunlimited.com/2006/07/the-no-fail-flashcard-study-technique-fast-learning-minimal-time/>

<http://www.persistenceunlimited.com/2006/07/the-no-fail-flashcard-study-technique-fast-learning-minimal-time/>

Open Source, (2007). Are Flashcards an Effective Learning Tool? Retrieved March 17, 2012, from voxy.com: [HYPERLINK](#) "<http://voxy.com/blog/index.php/wide-infographics/are-flashcards-an-effective-learning-tool-infographic/?post=4117>"

<http://voxy.com/blog/index.php/wide-infographics/are-flashcards-an-effective-learning-tool-infographic/?post=4117>

<http://voxy.com/blog/index.php/wide-infographics/are-flashcards-an-effective-learning-tool-infographic/?post=4117>

Rios, S.D. (2008). How to use flashcards to aid learning in young children Retrieved March 20, 2012, from HeliumTM: [HYPERLINK](#) "<http://www.helium.com/items/793476-how-to>

<http://www.helium.com/items/793476-how-to>

use-flashcards-to-aid-learning-in-young-children"

<http://www.helium.com/items/793476-how-to-use-flashcards-to-aid-learning-in-young-children>

Stangarone, J. (2011). Warning: These false assumptions can hurt your business. Retrieved April 9, 2012, from mrc's Cup of Joe Blog: HYPERLINK "<http://www.mrc-productivity.com/blog/2011/10/warning-these-false-assumptions-can-hurt-your-business/>" <http://www.mrc-productivity.com/blog/2011/10/warning-these-false-assumptions-can-hurt-your-business/>

Open Source. Faculty of Education and Social Studies: Animation as a Learning Tool. Retrieved April 9, 2012, from Viva University College: HYPERLINK "<http://www.viauc.com/schools-faculties/faculty-of-education-and-social-studies/exchange-programmes/Pages/animation-as-a-learning-tool.aspx>" <http://www.viauc.com/schools-faculties/faculty-of-education-and-social-studies/exchange-programmes/Pages/animation-as-a-learning-tool.aspx>

Jindrich, S. (1998). How do Children Develop? Retrieved April 10, 2012, from HYPERLINK "<http://www.gdrc.org/kmgmt/learning/child-learn.html>" <http://www.gdrc.org/kmgmt/learning/child-learn.html>

Kimball, R. (2011). How do Kids Learn? Retrieved April 10, 2012, from 4therapy.com: HYPERLINK "<http://www.4therapy.com/life-topics/parenting/how-do-kids-learn-2342>" <http://www.4therapy.com/life-topics/parenting/how-do-kids-learn-2342>

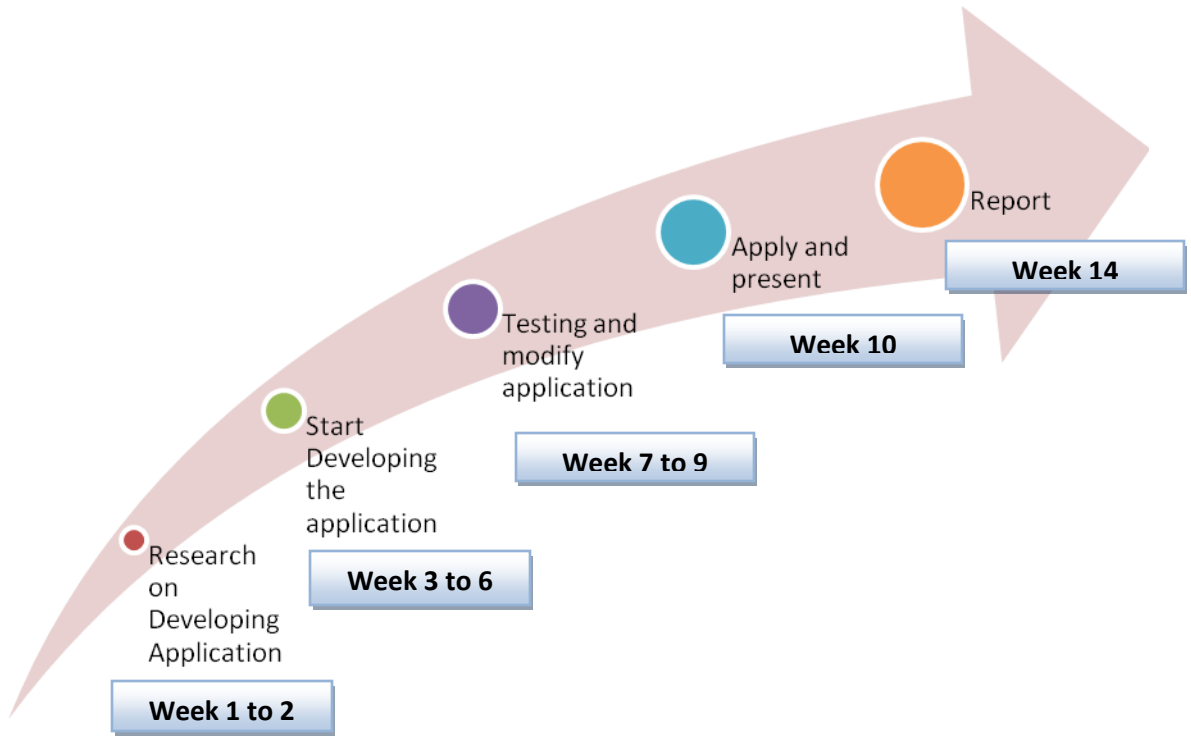
Open Source, (2012). Homeschool View - What colors Help Children Learn? Retrieved April 10, 2012, from Alpha Omega Publications: HYPERLINK "<http://www.aophomeschooling.com/blog/homeschool-view/what-colors-help-children-learn/>" <http://www.aophomeschooling.com/blog/homeschool-view/what-colors-help-children-learn/>

APPENDICES

- Appendix 1: Gantt Chart
- Appendix 2: Milestones for Final Year Project II
- Appendix 3: Technical Paper

No	Procedure	Final Year Project #1				Final Year Project #2				
		Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept
1	Title Selection/Draft Proposal	■								
2	Proposal Submission		■							
3	Preliminary Research Work		■	■						
4	Preliminary Report (Extended Proposal)		■							
5	Project Work Proceeds		■	■						
6	VIVA			■						
7	Continuation Research Work			■	■					
8	Interim Report				■					
9	Development Phase (Planning)				■					
10	Analyzing				■	■				
11	Designing				■	■	■			
12	Testing					■	■	■		
13	Implementation						■	■	■	
14	System Delivery								■	■

Appendix 1: Gantt Chart



Appendix 2: Milestones for Final Year Project II

Appendix 3: Technical Paper