

## DEVELOPING BARCORIOUS BASED ANDROID APPLICATION TOWARD EYLS' ENGLISH VOCABULARY MASTERY: FOCUS ON DESIGN

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### Abstract

It is a big challenge for educator especially for elementary level to stimulate young students to learn English joyful. Vocabulary mastery is the basic concern to be enhanced as spoken and also written. But, the phenomenon is most of students have lack of motivation to learn especially English subject. Many factors influence it which comes from students' side or teachers' side such as conventional teaching method and media. As teacher and also scientist, we are called to give contribution to education field to develop an appropriate teaching media for millennial era as now. It is Barcorious Android Application (BAA) which provides audio and visual content which facilitated students' curious and learning by doing method. There were six stages have been passed to develop this BAA such as need analysis stage, design stage, implementation stage, coding stage, testing stage and packaging stage.

**Keywords:** Barcorious Based Android Application, EYLS', Vocabulary Mastery

## PENGEMBANGAN *BARCORIOUS* BERDASARKAN APLIKASI ANDROID MELALUI PENGUASAAN KOSAKATA BERBAHASA INGGRIS *EYL*: FOKUS KEPADA DISAIN

### Abstrak

Sebuah tantangan besar bagi pendidik terutama untuk tingkat sekolah dasar untuk merangsang siswa untuk belajar bahasa Inggris dengan mudah dan menyenangkan. Penguasaan kosakata adalah perhatian dasar yang harus ditingkatkan baik secara lisan maupun tertulis. Namun, fenomena yang terjadi adalah banyak siswa yang kurang memiliki motivasi untuk belajar. Banyak faktor yang mempengaruhinya baik yang berasal dari sisi siswa ataupun guru seperti metode pengajaran konvensional dan media. Sebagai guru dan juga ilmuwan, kami terpanggil untuk memberikan kontribusi pada bidang pendidikan untuk mengembangkan media pengajaran yang sesuai dengan era milenium seperti sekarang. Kontribusi ini merupakan hasil pengembangan media ajar berbasis android yaitu Barcorious Android Application (BAA) yang menyediakan konten audio dan visual dengan memanfaatkan keingintahuan siswa dan *learning by doing method*. Ada enam tahapan yang harus dilalui untuk mengembangkan BAA ini seperti tahap analisis kebutuhan, tahap desain, tahap implementasi, tahap pengkodean, tahap pengujian dan tahap pengemasan.

**Kata kunci:** *Barcorious* Berdasarkan Aplikasi Android, Pelajar Muda, Penguasaan Kosakata

## 1. INTRODUCTION

In Indonesia, English is one of the foreign languages that are learned by students at school. English language learning starts from Elementary School (SD) and students in this stage called as English Young Learners (EYL). Santrock (2002) stated that the ages of 6 to 12 are late childhood age where the children have psychological characteristics, such as their desire to explore something new and curiosity. Therefore, basic education becomes the main concern. In attempting of giving a strong basic education, stimulating students' curiosity and providing optimum information for students, basic education needs to be prepared carefully.

Based on the researchers' observation, almost of English language teaching in Public Elementary School in Pekanbaru, have used conventional teaching method and media. Teacher only used book or students' worksheet (*Lembar Kerja Siswa*) as teaching media while book is considered as an unattractive media for students that makes ineffective learning.

The facts above contrast to the growth of technology these days. Children are interested in technology, such as Smartphone. Smartphone is an interesting media for children because it has picture, animation, games and many other things. In fact, the teachers can use technological tools in teaching English to their students, especially in vocabulary mastery. The other aspect that needs to be concerned in teaching EYL is a joyful learning.

The conventional method and teaching media do not meet with the principles of effective learning and do not empower students' potentials. Teaching and learning activity should be able to optimize students' potentials to master expected competence. Teaching and learning process should be based on the principles, as follows: 1) students-centered, 2) developing

students' creativity, 3) creating joyful and challenging situation, 4) developing valuable ability, 5) providing variety of learning experience, 6) learning-by-doing.

Both teacher and students need an innovation of teaching media. Innovation of teaching media uses to improve learning quality. One of the technological tools that can be used as an innovation of teaching media is computer. It supported by Surjono (1995:2) who stated that computer is one of technological tools that considered as teaching aids. However, all of computer features now can be accessed in a small size device that called as Smartphone.

In teaching media that is developed, the researchers use Android Smartphone technology and create an android-based application teaching media. This teaching media integrates android application and picture dictionary that creates students-centered activity to help students in vocabulary mastery. Teaching media development bases on perception of learning will occur well, effective and fun if it supported by interesting and attractive media for students. Hence, the development needs to comprehend concept, model, principle, design and teaching media evaluation.

### a. Vocabulary Mastery

Furthermore, vocabulary has important role in English communication both in written and spoken. Higher number of vocabulary can be mastered, it makes a better communication. It supported by Thornbury (2007:13) who stated that without grammar very little can be conveyed, without vocabulary, nothing could be conveyed. It meant that vocabulary have important part for all skill in English language.

One of the important aspects towards *prior knowledge* is vocabulary (Kinberg, 2007:23). It means that vocabulary plays

important and dominant role in communication. In addition, Rivers in Nunan (1997:117) argues that the acquisition of an adequate vocabulary is essential for successful second language use. Moreover, Tarigan in Mardika (2008) states that vocabulary mastery represent one communication ability level, higher number of vocabulary that are mastered it makes a better quality of words delivered by someone.

In addition, Piaget in Suyanto (2009:12) states that students of elementary school are a concrete thinker. They used to have a good learning when they are involved in an active learning. An active learning would make a more meaningful language acquisition if it related to real experiences in students' daily life. For instance, in teaching English vocabulary it would be good for teacher to choose a topic that close to them, such as things in the classroom. It is going to make them be active and interested to learn English vocabulary.

Budiningsih (2005:39) states that in preventing students' limitation of thinking. Teachers need to give a concrete representation to students so students able to analyze the issues. Students at the age of 7 to 12 years old still have a problem in abstract thinking. To provide that, this Barcorious application will be integrated with Picture Dictionary which is designed real pictures and their own codings to be scanned by Barcorious Application.

### **b. Teaching Media**

Teaching media is still developing as technology is still advancing. It comes in various types and formats, with their own characteristics and abilities. According to Bretz in Sukiman (2012:45), there are eight types of teaching media, they are audio motionvisual, audio still visual, audio semi-motion, motionvisual, still visual, semi-motion, audio, and print. Moreover,

Schramm in Sadiman et al. (2003:27) divides teaching media based on difficulty level and cost into two groups, they are big media and little media.

Briggs in Sukiman (2012:46-47) classifies teaching media into thirteen types based on appropriateness of stimulation of teaching media towards students, they are real object, model, sound, audio recording, printed media, programmed learning, chalkboard, transparency media, film frame, 16mm film, TV and graphics.

Then, technology is still advancing and teaching media also is still developing by using technology itself. Arsyad (2005) classifies teaching media into four groups, as follows: 1) media of printed technology, 2) media of audiovisual technology, 3) media of computer-based technology, 4) media of printed and computer-based technology.

### **c. The Procedures of Teaching Media Development**

There are 3 steps that should be done in developing teaching media, they are media planning, media production and media evaluation. (Sukiman, 2012:53-78). In this research, the researchers do 3 steps in developing teaching media, as follows:

#### **1. Need Analysis and Characteristics of Student**

In creating a media, there is an expectation about that media can be used by student and an expectation of that media corresponds their needs. So, an analysis of student's need is needed to create a teaching media. It also can be customized to follow the curriculum. In creating teaching media, there is a need to identify the students that will become media user. The media should correspond their basic skills and their characteristics. Generally, a research is done through a test. If test is not possible to do because of financial

problem, time or other problems but at least the media development able to make assumption about knowledge and required skills that should be owned by students.

## 2. Competence Formulation and Indicator of Learning Outcomes

In formulating indicator, there are some provision that is needed to be observed in developing a media (Dirjen Manajemen Dikdasmen Depdiknas, 2008:9), as follows:

- a. Each KD are developed at least into three indicators.
- b. All of indicators meet with required competence in SK and KD. Indicator must reach minimum competence level of KD and it is possible to develop more than minimum competence that follows student's potential and needs.
- c. The developed indicator describes competence hierarchy.
- d. The formulation of indicator at least covers two aspect, they are competence level and subject matter.
- e. Indicator should accomodate characteristic of subject matter.
- f. The formulation of indicator is able to develop into a few indicators assessment that cover aspects of cognitive, afective and psychometric.

## 3. Learning Materials Development

Learning materials are knowledge, skill and attitude that is needed to be mastered by students to meet the assigned competence standard (Puskur Depdiknas, 2008:3). Then, there are some principles that become the basic in deciding subject matter, they are relevance, consistence and adequency.

Relevance means the subject matter is relevant with achievement of competence standard and standard competence, if the expected ability to be mastered by student is a fact not a concept or principle or even other material types. Consistence means if standard competences that should be mastered by student are four so the teaching materials also four. Then, adequency means the teaching material should adequate and help student to master standard competence.

## d. The Aspects and Criterias of Teaching Media Assessment

According to Wahono (2006) states that there are three aspects of assessment, they are aspects of software engineering, aspects of learning design and aspects of visual communication.

1. Aspects of software engineering, consist of:
  - a. The efectivity and efficiency in developing and using teaching media
  - b. Reliable
  - c. Mantainable
  - d. Usability
  - e. The accuracy of software development type selection
  - f. Compability
  - g. Integrated and executable teaching media program package
  - h. A complete documentationn of teaching media program, such as instalation guide, trouble shooting and program design
  - i. Reusable
2. Aspects of learning design, consist of:
  - a. The clarity of learning objectives
  - b. Learning objectives relevance to SK, KD and Curriculum
  - c. The scope and the depth of learning objectives

- d. The accuracy of learning strategy
  - e. Interactivity
  - f. Giving learning motivation
  - g. Contextuality and actuality
  - h. The completeness and quality of teaching aids
3. Aspects of visual communication, consist of:
    - a. Communicative
    - b. Creative
    - c. Simple and attractive
    - d. Audio ( narration, sound effect and music)
    - e. Visual (layout design, typography and color)
    - f. Animated media (animation and movie)
    - g. Interactive layout (navigation icon)

In learning process, the teachers should use teaching medias to optimally reach the learning objectives. Sumantri in Dewi (2012) states some principles in teaching media selection, as follows: 1) Teaching media bases on learning objectives and teaching material, 2) Teaching media follows students' development level, 3) Teaching media suits to teachers' competence both in creation and utilization, 4) Teaching media corresponds with situation and time.

According to Arsyad (2005), there are some criteria of teaching media selection, as follows:

1. Teaching media meets with the outcomes that are expected to be reached. The selected teaching media bases on instructional objectives that generally follows aspects of cognitive, affective and psychometric.
2. The contents of teaching media correspond with subject matter, learning needs and student's ability to create an effective learning process.

3. A teaching media should be simple, flexible and endurance. These criteria lead the teachers to choose available medias that easy to get or easy to create for the teacher.
4. The teacher mastered the selected teaching media. It is one of the important criteria, where teachers are expected to have ability to use the teaching media in learning process. The values and benefits of media are decided by the teachers.
5. Target grouping. A good and effective media for small group or individual is not necessarily effective for big group.
6. Technical quality. Visual development should meets particular technical requirements. For instance, in a slide file, main information should be not hazed by background element (Arsyad, 2005:75-76)

#### e. **Concept of Barcorious Android Application**

Teaching media needed to make a better teaching and learning process. The use of technology needed in teaching media for making better teaching and learning process. It is called as educational technology. Educational technology is any technology used by teachers in supporting teaching and learning process (Lever-Duffy et al, 2003:5)

Barcorious Android Application (BAA) is android-based application. This application using the technology of *barcode scanner* that usually used on supermarket's cashier to scan the product details such as name, price, etc. But, in BAA the researchers were recreated this application using technology of *barcode scanner* to support English vocabulary teaching and learning.

The name of this application is derived from the 2 words "*barcode*" and

“curious”. *Barcode* is the main technology which the researcher uses in this application and *curios* is one of the characteristics of English young students that are naturally curious and active. The reason why this word is chosen, this application is expected to take benefit of English young learners’ characteristic of curious to improve their vocabulary through this application by finding a new Vocabulary in their environment.

## 2. METHOD

This research was designed as qualitative. This article described the process of developing Barcorious Android application. They were need analysis, design, implementation, coding, testing and packaging.

## 3. FINDING AND DISCUSSION

Based on the research procedures, this teaching media had been conducted in six stages. They were need analysis, design, implementation, coding, testing and packaging. In order to give clear explanation about the process of Barcorious Android Applications, the researcher elaborated the process through these six stages.

### 1. Need analysis stage

An analysis stage was needed before doing a teaching media of Barcorious Application. It consisted of two analyses, as follows:

#### A. Problem analysis

In this stage, the issues that has possibility could appeared in a class were investigated. Then, the researcher identified for any solution that can solve the issues. There were some issues found after doing an observation at the school:

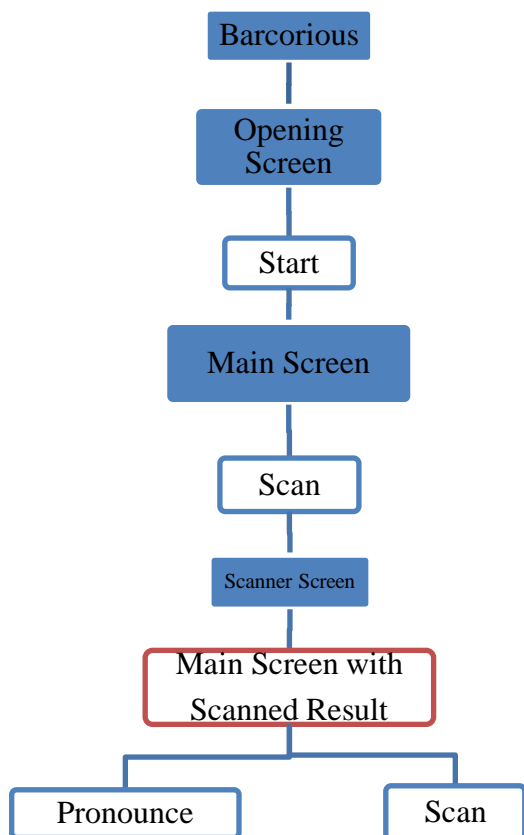
- a) Students were taught through conventional lecturing method. The teacher preferred to use book and LKS in their teaching. It is needed to develop an innovative learning that creates a better English learning.
- b) Students were less interested in learning activity. It is needed to develop a new teaching media that stimulates their interest and attention towards English learning.
- c) The developing of teaching media was expected to become a teaching media that would increase learning outcomes and student’s achievement especially in mastering English vocabulary.

### B. Media content analysis

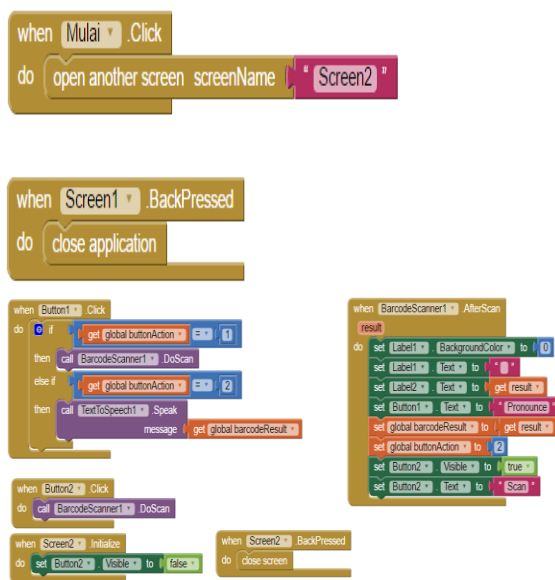
A teaching media development needed an analysis of learning objectives that should be achieved along with teaching media’s content analysis of that teaching media. The content must be based on a valid syllabus to make sure students as the media user reach their basic competence.

### 2. Design stage

In the design stage, a design sketching of layout design is needed to show how Barcorious had been developed. The sketch is in the form of flowchart and storyboard. The flowchart describes general construct of application and main parts of application content. The flowchart can be seen, as follows:



**Figure 1. The Flowchart of Barcorious Android Application**

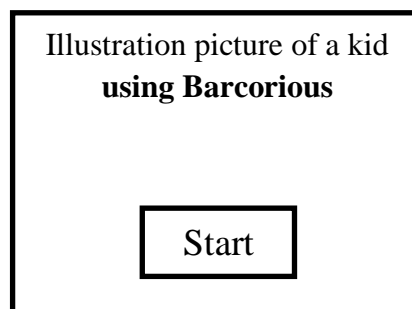


**Figure 2. The Main Screen (Puzzle Form)**

More detailed parts and components were presented through storyboard, as follows:

1) Opening Screen

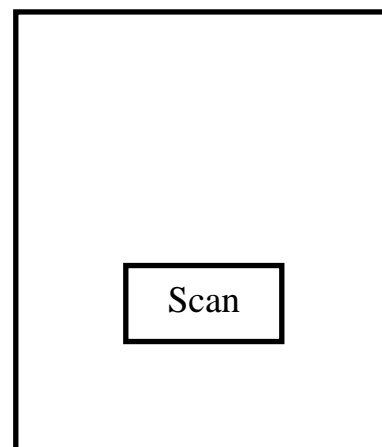
In this screen, the layout consisted of an illustration picture of a kid using Barcorious. At the bottom of screen, there was Start button that take user to *Main Screen*.



**Figure 3. Design of Opening Screen**

2) Main Screen

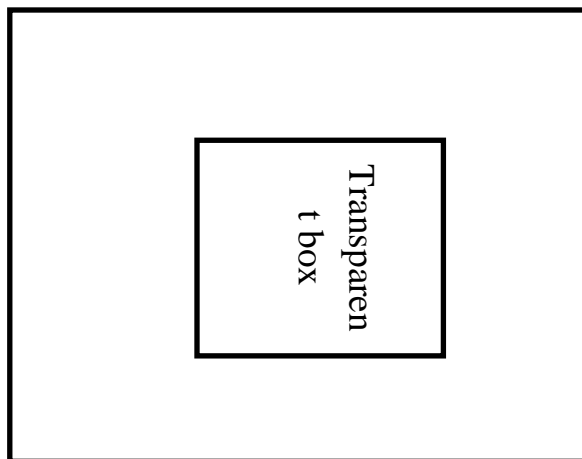
This screen appears when Start button pressed. Main screen contains the core of Barcorious because *scanning activity* and *scanned result* are handled in this screen. This screen contains one button called Scan button that will take user to *Scanner Screen*.



**Figure 4. Design of Main Screen**

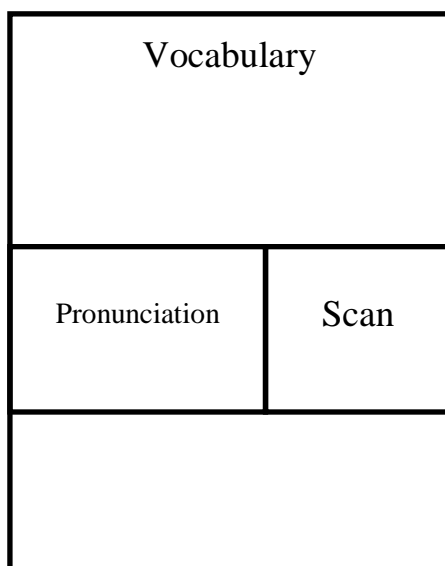
### 3) Scanner Screen

Scanner screen was the screen where scanning process of barcode from *Barcode Book* happens. This screen showed a camera view with transparent box in the middle of the screen. The user need to point barcode inside transparent box to scan vocabulary in the barcode.



**Figure 5. Design of Scanner Screen**

### 4) Main Screen with Result Scanned



**Figure 6. Design of Main Screen with Scanned Result**

The screen in Figure 6 was the same screen with *Main Screen* but this screen contained Vocabulary that were scanned from *Barcorious Book* at the top of screen and an additional button called “Pronounce” button at the bottom of screen alongside Scan button that has function to show the user pronunciation of vocabulary.

### 3. Implementation stage

In implementation stage, all design in storyboard were built into layout of Barcorious application. In implementing the design of Barcorious, the researcher use AppInventor. It was a web-based application that provide a beginner of coding to develop an application by simplifying programming language script into puzzle form. It really helped the researcher to implement Barcorious design because it is a WYSIWYG (What You See is What You Get) tool and the researcher did not need to master programming language. The implementation of Barcorious android application can be seen, as follows:

#### a. Opening Screen



**Figure 7. Implementation of Opening Screen**



b. Main Screen



Figure 8. Implementation of Main Screen

d. Main Screen with Scanned Result

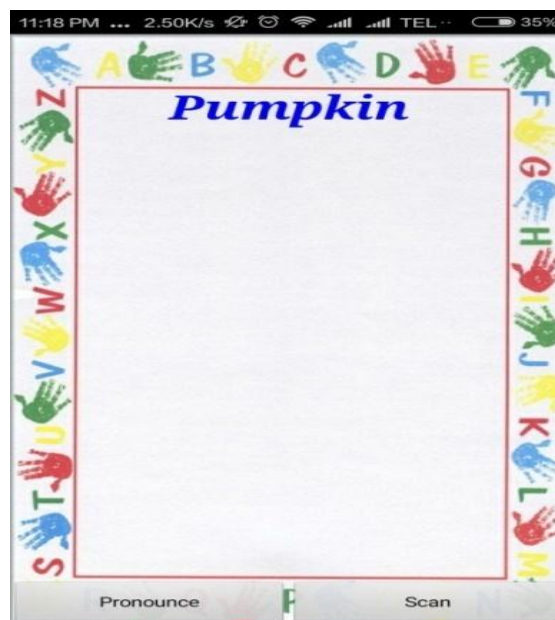


Figure 10. Implementation of Main Screen with Scanned Result

c. Scanner Screen



Figure 9. Implementation of Scanner Screen

#### 4. Coding stage

Coding stage was a stage where a language programming used to build an android application. Since Barcorious was, android-based application JAVA and XML programming languages commonly used to build an android application. The researchers realized that they had limited skill in coding because of that reason the researcher used App Inventor to build Barcorious because this tool simplifying language programming script into puzzle form. To make a clearer explanation about coding stage of Barcorious, the puzzle form of Barcorious script can be seen in figure 1.

#### 5. Testing stage

This stage was checking stage where all function in Barcorious like button, scanner rechecked by the researchers. In this stage, the researchers make sure all

buttons works well. When Start button pressed, it went to main screen of Barcorious and if Scan button pressed, it took user to scanner screen. Then, after scanner activity completed, it showed additional button called Pronounce button that had a function to show the pronunciation of vocabulary. This stage had been evaluated by one expert of media and one expert of material to make sure application design and features, programming and learning material were ready to use as teaching media.

#### 6. Packaging Stage

In packaging stage, all Barcorious script files were gathered into packaging file .apk extension. It was a standard of packaging file of android application to be installed in every android smartphone.

#### 4. CONCLUSION

In designing Barcorious Android Application there were six stages should be passed. First stage is need analysis. It is done to make sure the necessity of media developed. Second stage is design stage. The design of BAA is presented through story board as opening screen, main screen, scanning screen, and main screen with result scanned. And then, third stage is Implementation stage. In implementing the design of Barcorious, the researchers use AppInventor. It was a web-based application that provide a beginner of coding to develop an application by simplifying programming language script into puzzle form. Next, fourth stage is coding stage. The researchers realized that they had limited skill in coding because of that reason the researcher used App Inventor to build Barcorious because this tool simplifying language programming script into puzzle form as figure 1. The fifth stage is testing stage. This stage was

checking stage where all function in Barcorious like button, scanner rechecked by the researchers. And the last is packaging stage. Indeed, all Barcorious script files were gathered into packaging file .apk extension. It was a standard of packaging file of android application to be installed in every android smartphone

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