



Article

## The Development of Android Based Dictionary For Graphic Technique

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### SUBMISSION TRACK

Received: September 19, 2017

Final Revision: december 14, 2017

Available Online: December 29, 2017

### KEYWORD

*Dictionary, Graphic Technique, Android*

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### A B S T R A C T

Dictionary is one of the important media in learning English. Along with the rapid development of mobile technology at this time, the various applications for mobile is widely developed as a medium of learning, one of them is the application of Android-based dictionary. Dictionaries on mobile devices are more practical than conventional dictionaries, as users can receive information quickly anywhere without space and time constraints. Related to this, the research aims to create a dictionary application of English-Indonesian graphics techniques capable of running on android-based phones. This application is built to help and meet the needs of students majoring in graphic technique in searching for meaning and understand various English words related to science of graphics. The collection of words and phrases (word entries) related to the science of graphic technique is done through literature studies of books, internet and other relevant sources. In addition, the collection of words and phrases is also done by conducting in-depth interviews with lecturers or graphic technique experts. The programming languages used in making this language dictionary application use Java 2 Micro Edition (J2ME) and SQLite. The dictionary after being validated of 4.14 with good category) and tested received positive response from the students indicated with very positive questionnaire results.

## I. INTRODUCTION

Technology developments encourage rapidly evolving language that results in the language that is now used increasingly dynamic following civilization and human culture. The need for speed and accuracy in learning requires that educational elements such as lectures and students seek educational technology that helps to accelerate the

achievement of students' competence. Similarly, in the context of language learning the existence of a dictionary is necessary, as Chaer (2007) points out that the dictionary function is to preserve the purity of the language. So to accommodate the thoroughness of the use and disclosure of names and terms it requires a dictionary to straighten and enrich the treasury of language

in accordance with the context. But the existing dictionary is less specific with the context of majors and expertise, especially in the field of graphics technique, then with rapid technological advances, required an application that can accelerate the fulfillment of competent human resources graphics techniques. Therefore, this research designs and creates a bilingual graphics dictionary application with English-Indonesian translation, and can be used on Android-based mobile devices to make it easier for students to find meaning and understand English words and phrases related to the science of graphics.

## II. METHODS

This research used research and development (R & D) method. Researchers collected data from books, the internet and other sources relevant to the techniques of graphics as well as from experts who are competent in the field of graphic technique. Meanwhile, the model used in designing this application was UML (Unified Modeling Language). The object of this study is 'lexicon entry'. The entry is the input word or phrase in the dictionary given in the entry (Alwi: 2003). Technique of collecting data in this research was documentation. Documentation was done in two ways. First, by collecting English words and phrases related to the graphic techniques of the dictionary, some graphic technique books and other sources such as the internet and the encyclopedia. Second, collecting words and phrases of graphic techniques through lecturers of graphic techniques and practitioners in the field of graphic technique to confirm the accuracy and suitability of the meaning of the words.

The steps in research conducted were:

### 1. Preparation

At this stage the researchers analyzed the needs of the research, in the form of materials, data, as well as hardware and software used in the production of dictionary applications of graphic techniques English and Indonesian, as

well as additional literature related to research in the form of books, articles, journals related to programming Android.

### 2. Data Collection

At this stage, the researchers collected words and phrases graphic techniques in English and Indonesian. The researchers also collected references on theories of how to design an Android-based dictionary application. As the mobile application programming language used in this research was Java 2 Micro Edition (J2ME) and SQLite for database used to store data.

### 3. System Analysis

Analyzing the existing problems on how the application of English - Indonesian language graphic dictionary can be run easily and can be utilized by users on mobile using android minimum operating system 2.2 (Frozen Yoghurt).

### 4. System Design

The stage of preparation of processes, data, process flow and relationships between data, application interfaces and meet the needs in accordance with the analysis of user needs dictionary graphic technique of English - Indonesia translation and Indonesia - English translation. In the system design described overview of the general system Database implemented with design model of Unified Modeling Language and Table.

### 5. Implementation

At this stage, the creation of the application program that runs on gadgets and mobile based on the design and implements string matching algorithm. The views of the apps created and the installation process were tailored to the analysis and design made earlier. The running steps in this application is, when inputs are entered in the form of words in the Indonesian language, then processed with a mechanism that has been defined

and produce the output of words in English and vice versa.

6. *Testing and Evaluation*

At this stage, researchers tested the application program that has been created and then handled and fixed errors that exist in the application program to run properly. At this stage the researchers performed various testing to test the program model. The test was to check for existing logic errors as well as layouts. This stage aimed to produce the correct software logically and in accordance with the design goals at the beginning. The dictionary was also tested on the students and evaluated the deficiencies with the responses through the questionnaire.

**III. RESULT**

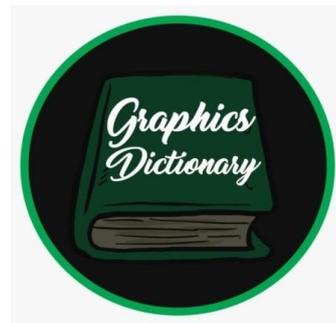
**Implementation of Dictionary Application**

The process that occurs in the use of the graphic English - Indonesian dictionary application is as follows:

1. In the process of initial screen, there are two option buttons to enter and exit.
2. When the user selects the login button, the user will be presented with a translation screen page, while the quit button is used to directly exit and end the application.
3. Once you have entered the translation page, there are two categories of options to translate from Indonesian into English or from English into Indonesian.
4. Followed by inputting words into word search form that has been available for translation
5. For the translation process, then the user can click the translate button that is useful for word search.
6. The result of a word search that has been input will be displayed on the result form.

**Application Development**

This English - Indonesian dictionary application can be installed on android - based smartphone previously compiled via Eclipse Galileo's IDE (Integrated Development Environment) through codes which then become a file in the .apk (Android PacKage) form. For further development in the distribution of applications, developers are required to package the applications that have been made. In doing packaging, developers can also include certificates on applications that have been made as evidence that the application is a self-developed application. This certificate also serves as a key provided by Google as a way of identifying for application developers. The following is the display of the application dictionary.



**Figure 1. The Icon of Dictionary Application**



**Figure 3.2 Front Page**

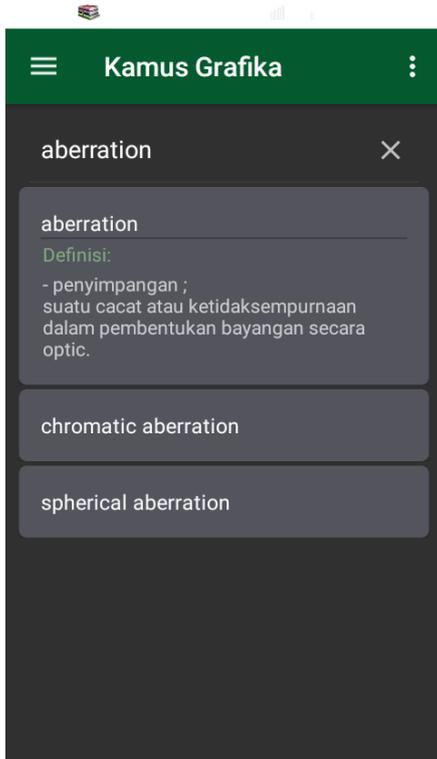


Figure 3. Translating Page



Figure 4. Page of Picture Searching

### The Result of Validation and Testing of English – Indonesian Graphics Dictionary Application

#### a. Validation

To prove the expediency of bilingual graphics dictionary, then first step was to

validate the dictionary application by asking the suggestion and opinion of media and technology along with graphic technique experts and practitioners. The result of validation on the dictionary application quality was calculated with the scale range 1-5, as the following criteria:

- $X > 4.2$  = Very good
- $3.4 < X \leq 4.2$  = Good
- $2.6 < X \leq 3.4$  = Moderate
- $1.8 < X \leq 2.6$  = Bad
- $X \leq 1.8$  = very bad

Table 1 The Result of Bilingual Graphic Dictionary Validation

No	Aspect	Validation Score		
		Validation 1	Validation 2	Validation 3
1	Design of dictionary apps	4.3	4.1	4.2
2	Content feasibility	4.1	4.1	4.0
3	Content display	4.1	4.0	4.3
<b>Average</b>		<b>4.17</b>	<b>4.07</b>	<b>4.17</b>
<b>Total average</b>		<b>4.14</b>		

Based on the data above, it can be concluded that bilingual graphic dictionary application in total has met the good quality category. However, there was some shortage in the application that needs to revise in order to make it proper utilized. The shortage resided in image to illustrate the word or phrase as reference.

#### b. The Testing

The testing resulted qualitative data in critique and suggestion form from three validations and students as testing respondents. The data were used to improve the production quality of bilingual graphics dictionary based-android application. The qualitative data in the form of questionnaire is shown in Table 2.

**Table 2 Comments and suggestion of validator on bilingual graphic dictionary**

Valid ation	Comments and Suggestion	Correction
1	- Add help and about menu - Simplify the lexicon	- Help and about were added - The lexicon roots were simplified
2	Display image as word illustration and reference	Image database was created as word illustration and reference
3	- The word input form needs to simplify - Adjust the font size - Remove the underlined target words	- The word input form was simplified - The font size was adjusted - the underlined target words were removed

Questionnaire of dictionary application was intended for students as subject user of bilingual graphics dictionary application. Student criticism and suggestion on the questionnaire after using bilingual graphics dictionary application as a whole can be seen in Table 3.

**Table 3. Comments and suggestion of students on bilingual graphic dictionary**

Dictionary application aspects	Comments and Suggestion	Correction
Image	The image is needed as word illustration and reference	The database of image related to the word or phrase was added
Font	Font size needs to magnify	Adjust font size with readability distance.

**Discussion**

Language and technology are two mutualism symbiotic entities that support each other. In the context of foreign language learning such as English, significant technological involvement can help to ease the learning process. For example, the availability of a dictionary makes it easier for students to search for words, as well as dictionaries are

also specially composed with the meaning of a word in a particular field called terminology dictionary, e.g. a specialized dictionary of graphic techniques.

Utilization of bilingual dictionary application (English-Indonesia) based on android graphics empirically proven to accommodate the needs of students as replacement of book that is easy to carry and can be used anytime and anywhere. The use of dictionaries on mobile devices is very practical compared to conventional dictionaries in the form of large and thick books in general or the use of dictionaries on the computer (PC) because through a mobile dictionary. All words can be input and found to match quickly even with a complicated process but the need for reference material for English in graphics that has not been developed can be answered with the creation of bilingual graphics technique dictionary. Therefore, it is one solution to accelerate the fulfillment of competitive human resources graphics techniques.

**IV. CONCLUSIONS**

The aplication of Bilingual dictionary (English-Indonesia) for graphic technique android based is able to display words or phrases and images with consistent, reliable, relevant, coherent and up-to-date in accordance with the study of graphic technique. The app also runs well on all smartphones devices in a compatible, synchronous and smooth manner. This application through validation test with validation test value of 3.81 from 9 validators consisting 3 English experts, 3 media learning experts, and 3 computer science experts. The qualification of the dictionary product is good because the product revision stage is based on criticism and suggestion from the validator so that it can improve the quality of the application product of the graphics dictionary as an alternative reference and independent learning source.

This application empirically is proven to accommodate the needs of students on electronic dictionary that is easy to carry and can be used anytime and anywhere.

This is evidenced by the student's positive response to the presence of this dictionary with a gain index of 4.28 or categorized very well.

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