The importance of developing android-based Indonesian language dictionary for the blind (KABITUNA)

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Abstract – Indonesia is among the ranks of countries with the lowest literacy in the world. Precisely at rank 69 of 76 countries. If calculated the average Indonesian people only read one book per year. One of the reasons for the low literacy of Indonesia is the lack of understanding of Indonesian society with Indonesian vocabulary. Although Indonesian is an educational language which is also the national language and language of Indonesian unity, it can not be denied if Indonesian people do not fully master the Indonesian language. That's what causes the dictionary as a medium for discovering the meaning of words. On the other hand, until now Indonesia is not evenly able to facilitate the dictionary as a means of searching the meaning of words. Many Indonesian dictionaries only specialize for normal people only. Whereas the number of persons with disabilities in Indonesia reached 2.45% of the total population of Indonesia. Then the blind person is 29.63% of the total number of persons with disabilities. It can be concluded that people with visual impairment are the highest in persons with disabilities in Indonesia. Therefore the development of Indonesian dictionary for the blind is considered important in this era. Android is a Linux-based operating system that can be used for smart phones and tablet computers. The selection of Android as the Indonesian dictionary base for the visually impaired on the Android platforms is provided platfro open for developers to create applications. In addition to Android also features Talk Back and speech to text that was created specifically for the visually impaired. The feature works as an Android screen reader so that the blind people can enjoy the screen display with sound output. In line with these things Android is considered easier operation and maintenance because it is more practical than conventional dictionary.

Keywords: *dictionary, Indonesian language, android, the blind*

1. Introduction

Bahasa Indonesia as the national language, has various functions, namely (1) official state language, (2) official introductory language in educational institutions, (3) official languages in national-level communication for the purposes of planning and implementation of development and governance; (4) the official language in the development of culture, the utilization of science, and the utilization of modern technology (Andayani. 2015). Bahasa Indonesia as a union language that has been vowed to the oath of youth October 28, 1928. Then politically Indonesian language is defined as the national language in 1945 Constitution. Since then Indonesian language stands in the highest place in this country.

The function of the Indonesian language, the Indonesian language is good and correct not fully understood by the people of Indonesia. According to Kamus Besar Bahasa Indonesia (online dictionary), the dictionary is a 'reference containing words and phrases usually arranged alphabetically along with a description of eating, usage, or translation'. The dictionary is a book containing words from a language, usually arranged alphabetically, with a description of its meaning, speech, spelling, etc (Chaer, 2007). Dictionary is a reference book containing a list of words or combinations of words with descriptions of various aspects of meaning and their use in the language, usually arranged alphabetically. From these quotations it can be concluded that the dictionary is a reference containing a list of vocabularies and meanings arranged alphabetically (Fatmawati, 2015; Fauziah, 2014; Martin, 2014).

Preparation of dictionaries using lexicographic science. Lexicography is a branch of lexicology. Lexicography is an activity consisting of research, collection, selection, analysis, and explanation of lexical units (words, word elements, and word combinations) owned by one or more languages in the dictionary. According to the National Socioeconomic Survey (SUSENAS) 2012 (in Disability Bulletin 2014: 6), the percentage of Indonesia's population with disability is 2.45% with details: 39.97% of persons with more than one type of limitations, 29.63% , 10.26% limitations in walking or climbing stairs, 7.87% limitations in listening, 6.70% limitations in concentration, 2.83% limitations in self-care, and 2.74% limitations in communicating. From the explanation, people with visual disability (blind) are ranked second most, while the highest rank is disability which has more than one type of limitations.

On the other hand, in the 21st century this information technology has grown very rapidly. Almost all people in this world use technology. No exception disabilities especially the blind people. KrJogja, one of the electronic newspapers of the Special Territory of Yogyakarta on November 17, 2016 reported that Tio, one of the students of the Faculty of Law, Gadjah Mada University is one of the blind people told about the life of a blind person who can not be away from smartphones with the activation of talkback as a text-reading help facility in the smartphone. For Tio the talkback facility is very useful for his lectures. This is the background of the development of KABITUNA or Indonesian Dictionary for the blind android-based with the help of screen readers or talkback which is one of the features available on Android-based smartphones.

2. Method

There are similar previous studies. In research entitled Developing Applications of High School Biology Dictionary Based Visual Studio with the Mainstay of Classification of Plants in SMA Jepara produced a high school Biology dictionary by meeting the criteria of eligibility criteria media based on media and material aspects. The developed dictionary can also improve student learning outcomes. Another research has been conducted in the form of thesis entitled Mobile Braille Touch (MBT): Development of Media Learning Braille Application Based Android for Blind Person in 2016 (Manea, 2012). The research resulted in the product of learning media writing braille letters based on Android that has been tested feasibility and can be published.

This study has similarities and differences with previous research. When compared with Purnomo's research, this research has in common that is equally developed product in the form of dictionary. However, the dictionary developed by Purnomo is a Biology dictionary, while the dictionary developed in this study is an Indonesian dictionary. In addition, Purnomo developed a dictionary developed with a visual studio based, while the dictionary developed in this study developed with android based. When compared with research Kurniawan, this research has in common that is equally developed products for the android-based blind. However, Research Kurniawan in the form of learning media development, while this research is the development of Indonesian language dictionary.

3. Results and Discussion

KABITUNA is a dictionary application of indonesian language that is dedicated to users who experience limitations in viewing. Of course, this dictionary is a bit different from the existing dictionary. This difference is intended to further facilitate the user, namely blind, in accessing the dictionary. For now, this product already has 2000 entries, or a base word, and every average entry has four derivative words, so the total number of words in this product reaches 10,000 words.

This vocabulary is selected from high school books, both electronic and printed, and the Republika newspaper. The books are biology, mathematics, Indonesian, geography, physics, chemistry, civic education, information technology, economics, and history. Lema is chosen from the terms that are considered difficult or the dilemma is perceived as a term in the field, which then searched its meaning through the Big Indonesian Dictionary. Then the data is processed into a database. Meanwhile, KABITUNA offers easy access. the convenience provided by this product such as, the user does not need to type the word to be searched, the user does not need to read the search results, and the dictionary format has been adapted to the ability of the user so that more easily understood.

The main feature offered by KABITUNA is the existence of a voice search model. This is so that users do not have to type what they are looking for. This feature is supported by a google product called speech to text. This speech to text application is capable of converting voice into a post. No doubt, the accuracy of this application is considered very feasible. The second feature that KABITUNA offers is that users do not need to read the search results. The search results will be presented in the form of

votes. This feature is also supported by a google product called talk back. Google talkback is a screen reader application launched by google and is available in every android device.

The last feature that is not less important is the customization of the dictionary format. This feature is closely related to the second feature. This is because the second feature leaves the problem that the researcher then sought to create his third feature. These adjustments include, the addition of the word 'is' after the word, the word 'sample' before the sample sentence, return of the abbreviation to its original form, and intonation adjustment. The addition of 'is' and' example 'is solely because the language instinct of the researcher is better able to understand the search results using the extra' is' and the examples' than the ones not. The addition of 'is' is placed on each word, either a base word or a derivative. While the 'example' is placed before the sample sentence. The addition of this 'example' is not as much as the 'is' addition.

One of the issues left by google talkback screen reader apps is that it can not read an abbreviation. Let's say 'n' for the noun abbreviation is read / n / or 'yg' for 'read' / yeg /. Of course this becomes an obstacle to understanding the content, on the other hand, instinctively the language, if a word is spoken, the complete form will be more acceptable than the abbreviated form.

The second problem left by google tlakback is that he is too rigid in reading a text. That is, there is no discrimination in reading or misconduct. Researchers then try to solve this problem by manipulating intonation through punctuation. The punctuation marks used to manipulate them are semicolon (;), point (.) And comma (,). KABITUNA has a menu such as, dictionary, tutorial, about, and contacts. The dictionary menu is the main menu in this product and serves to search for words. While the tutorial menu contains how to use the product completely. Presentation of this tutorial in the form of sound, so that directly can be enjoyed by the user. The menu about is the menu that contains what is kabituna in the general overview. Finally, the contact menu contains the people involved in product creation.

4. **Conclusion**

Considering the number of entries and their derivative words, the ease with which they are offered, the features also facilitate in accessing applications, as well as menus designed in accordance with the ability of users, it is not excessive if the product is said to be feasible as a dictionary product. Based on the above ideas can be obtained summary as follows. First, the development of KABITUNA is done from the planning stage which contains the analysis of user needs and capabilities as well as analysis of the advantages and disadvantages of talkback feature on android. Second, the design of KABITUNA is designed based on the stages of making use case diagrams, architectural design, and materials collection. Third, validation is done by three validators. The material expert's validator assesses the feasibility of the product, the media expert's validator assesses the feasibility of the product, while the practitioner's validator assesses the feasibility of the product. Based on the results of the three validators will be known KABITUNA worth to be implemented.

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