



The Use of Android Game to Improve Impaired Hearing Student Vocabulary Mastery

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Abstract

In general, problems that occur in the actual are the discovery of instruments that have not been tested for problem solving abilities. The aim of this research is to reveal the content validity and interrater reliability of the instrument for evaluating the problem solving abilities that have been prepared. The research method is used a quantitative description by 3 expert judgments, they are experts in research and evaluation, mathematics education experts, and mathematics teachers. The instrument was developed in the form of an expert observation sheet with 3 aspects of assessment, they are the aspect of content eligibility, construction aspects, and language aspects, which of each aspect has 4 categories, which are very relevant, relevant, quite relevant, and highly irrelevant. Data were analyzed using the Aiken's V formula to determine the level of instrument validity and to determine the level of consistency / constancy between assessors using Intra-class Correlation Coefficient (ICC) analysis with the help of SPSS version 23.0. the results of analysis of the content validity of all items valued above 0.3 which means that all aspects assessed by experts are valid. Interrater reliability test using ICC obtained a value of 0.516, which means that all aspects of the instrument for evaluating problem solving abilities that have been rated have a level of consistency. Thus, the instrument of problem-solving ability that has been tested for validity and reliability can be used by educators to determine the level of students' problem solving abilities appropriately.

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INTRODUCTION

In the context of education, learning media is one aspect that cannot be separated from learning (Engkizar et al. 2018; Zafirah et al. 2018; Syafril et al. 2018; Aini et al. 2019). In general, the media aims to make it easier for students to master the material that will be taught by the teacher in order to achieve learning objectives. According to Sudjpto (2011) media is a tool that serves to clarify and assist the learning process so that the goals of learning can be achieved. While Sudjana (2005) explained that the media provides messages in the form of information used in teaching subject matter. In addition, the media is also referred to an introductory or intermediary tool for someone in delivering subject matter (Muhson, 2010).

Using media in the teaching and learning process has many benefits, one of which is to arouse students' interest in learning so that there will be an interaction between teachers and students and the media used as an intermediary (Agusti et al. 2018). In addition, the media, among others, serve to clarify information, save space, time and energy, increase the enthusiasm of students, train the aid and motor skills of students (Susilana, 2008; Afifah & Chamidah, 2019; Agusti et al., 2018). This means that the use of media in learning by teachers is a necessity, especially with the current development of technology, teachers have many choices at the same time can work together to create innovative and fun learning, in this context, of course, the media is one of the teacher's instruments to achieve this Kasmir et al. (2019).

Related to the creativity and competence of a teacher in using learning media in the current technological era, as explained by Murniyetti et al. (2016), Yusnita et al (2018), Kasmir et al. (2019) teachers must strive to continue to improve themselves, especially in the aspects of pedagogic and professional competence, so that they are able to be creative in designing learning that has an impact on increasing the interest and enthusiasm of

students in learning. In other words, the competence that teachers have in designing learning will have an impact on the resulting learning outcomes.

Impaired hearing students are individuals who lose their ability to hear partially or completely due to impaired function of their hearing aid, which causes language development to be hampered (Jambor, & Elliott, 2005). With this condition, impaired hearing students have problems with the lack of auditive information which has an impact on the lack of vocabulary mastery (Marschark, et al. 2009). In fact, the use of learning media is very necessary because these students rely on their visual aid which are characteristics of impaired hearing students in receiving information (Desak, Putu & Sumarjaya, 2014). According to Anjarsari & Yulianti (2017) the limitations of *impaired hearing* students in receiving auditive information cause cognitive development to be hampered, the occurrence of language disabilities which allows the cause of reading difficulty at the beginning Saputri (2013), lack of vocabulary, Filina (2013), speech delay lack of vocabulary Yunus (2014), whereas the ability to speak language and speech in everyday life is needed.

Further research results Qoyyimah & Adi (2017) found *impaired hearing* students have problems in learning vocabulary. Likewise in research conducted by Winarsih (2018) who found impaired hearing learners had problems in learning to read the beginning. Both of these studies use android games an effort to solve problems found in special schools (SLB).

To solve this problem, aid in the form of learning media are needed that can help clarify the material so that it is better understood (Asmaranti & Andayani, 2018). According to previous research done by Utami and Anwar (2018), Handarini & Hasan (2019), Sudarto & Rofiah (2019) it is stated that the learning media is proven to be able to improve the academic achievement of students. Media selection must be adjusted to the characteristics and needs of students, including the selection of

media for students with special needs, especially students with hearing impairments or hearing impairments. In addition, learning media greatly affects the results of students, especially in aspects of Indonesian subjects (Anggraini & Wahyuno, 2015; Febrician & Damri, 2019).

Referring to the problems faced by impaired hearing students in learning as described above, a solution from the teacher is needed so that these limitations can be overcome in the learning process. According to the author, the use of media for impaired hearing students is very meaningful in learning, especially in learning to control the body parts. In the context of this research, the media that the writer uses is an android-based gamin which there is material for the vocabulary of body parts according to the special school curriculum.

To ensure the problems faced by impaired hearing students, the author has made preliminary observations at one of the Special Schools (SLB) in Padang City. The results of the observation found that an impaired hearing student had difficulty in learning Indonesian, especially in the subject of vocabulary mastery about body parts. To overcome this problem, learning media is needed to increase the learning interest of impaired hearing students which can facilitate the performance of teachers in teaching vocabulary for body parts that is tailored to the characteristics of each student.

One of the efforts that teachers can make in overcoming the learning problems of impaired hearing students is to use android gameto help students with hearing impairment needs. The reason the author uses android game as an alternative solution to the problems found is that in playing a game which requires deep thinking and strategies to solve problems via android / computer, which includes audio, animation and images as well as combining attractive colors so as to increase the attention of students to learn using media. In the android game, students are actively involved when using it and take part in making decisions about

the course of a game. Not only used as a learning medium.

Research on the use of instructional media for impaired hearing students has been widely studied by previous researchers such as Utami and Anwar (2018), Handarini & Hasan (2019), Sudarto & Rofiah (2019), Anggraini & Wahyuno (2015), Febrician & Damri (2019), the previous research only focused on how impaired hearing tudents learned the initial reading material. However, in this study, the authors focused more on teaching material about the vocabulary of the body parts, this is the fundamental difference between this study and previous research. This means that this material is important because it aims to increase the knowledge of impaired hearing students.

METHODS

This research was conducted in Wacana Asih Special School (SLB) in Padang City, Indonesia. To obtain research data, the author used quantitative research method with Single Subject Research (SRR) approach. According to Ana (2016) Single Subject Research (SSR) is an experimental study with single data analysis using one, two or more subjects. The research data was taken from one of the impaired hearing students through seventeen direct lessons using android game learning media. All data that the authors obtained were analyzed descriptively using visual graph analysis tools. Visual graphical analysis data (visual analysis of graphic data) is processed by entering data into graphs, then the data is analyzed based on the data that has been obtained in the initial ability, direct learning and final ability, this method of analysis is one of the techniques for analyze single subject research.

RESULTS AND DISCUSSION

As the author explained earlier that this study aims to improve the vocabulary skills of

impaired hearing students towards body parts. In this study the authors used Android game as a learning medium. Based on the results of data analysis, the overall learning media used in this study have succeeded in improving the vocabulary mastery of impaired hearing students in learning Indonesian on the vocabulary aspects of the body parts. In the following, the authors will explain three aspects of the research results which include, first, state of the students' scores before learning by using android, second, the results of the analysis of students' scores after the author of the learning intervention uses android game media, The third result is the analysis of students' scores without using android game. In general, the description of the three data that the author means can be seen in Figure 1 below.

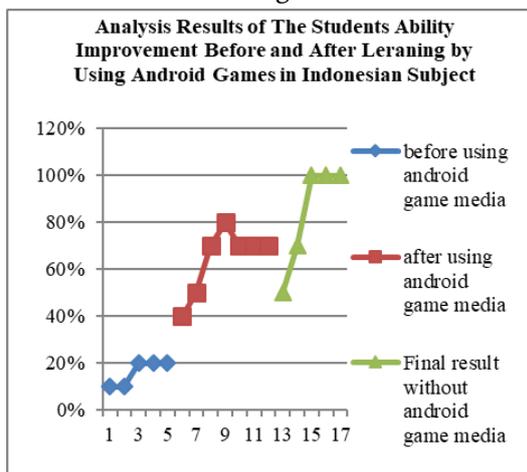


Figure 1. Analysis Results of Students Ability Improvement of Students Before and after learning by Using Android Game in Indonesian Subject

First the state of the students scores before learning by using android game media, in this condition there were five meetings, the researcher only saw the students' initial abilities without giving intervention or direct learning to the research subject so that a maximum score of 20% was obtained. Second, the results of the analysis of students' scores after the author did learning intervention by using android game media. In this condition, there were seven meetings using android game media so that the maximum achievement score was 70%. This

research is supported by previous research such as research conducted by Winarsih (2018) The research found that by using educational video game media based on Android, the reading ability of impaired hearing children can be improved. The three final results of the analysis of students' scores without using android game media. In this condition, there are five meetings held so that the final result is the maximum achievement score of 100%.

Based on the results of the analysis above, it was found that the students' abilities on the vocabulary material of body parts increased significantly in scores. Conditions analysis in this study is to analyze changes in the data of a condition in each activity. The components of the visual analysis in conditions consist of the length of the condition, the estimation of the directional trend, the trend of stability, the trend of the data trail, the level of change in stability and range, and the level of change.

The results of the calculation of activities before using android game media showed a positive score increase with a stability level of 0% meaning it was not stable. The change level has a range of 10-20 with a difference of +10. Second, the results of the calculation after the intervention using the Android game showed a significant increase in the score with a stability level of 57.14% meaning it was unstable. The stability level ranges from 40-70 with a difference of +30. Third, the results of the calculation of the students' final ability after not using Android game media showed a significant increase in the score with a stability level of 0% which means it was unstable. The level of change has a range of 50-100 with a difference of 50. In general, the description of the components in question can be seen in table 1 below.

Table 1. Analysis results in conditions before treatment, after using Android Game media and after the media was stopped

N	Compo	Condi	After	After
o	nent	ons	Using	the
		Before	Andro	media

	Treatment	id	was
	Media	Game	stopped
1	Long Condition	5	7
2	Estimation of Directional Trend	(+) 	(+) 
3	Trend of Stability	0% Unstable	57.14% Unstable
4	Trends in the Footprint	(+) 	(+) 
5	Stability Level and Range	Variable 10-20	Variable 40-70
6	Level of Change	20 - 10 = 10	70 - 40 = 30

Analysis between conditions in this study by comparing one condition with another. The components of the visual analysis between conditions consisted of the number of variables that were changed, changes in trend direction and their effects, changes in stability trends, changes in levels and the percentage of overlap. First, the results of the analysis between conditions before treatment to conditions after intervention using android game media, found that changes in stability showed unstable to unstable with an overlap percentage of 0%. Second, the results of the analysis after using android game media to the condition of students' abilities after the media were stopped, it was found that changes in stability showed unstable to unstable with an overlap percentage of 0%. In general, the description of the components in question can be seen in table 2 below.

Table 2. Analysis Results Between Conditions Before Treatment to Conditions After Intervention Using Android Game Media and Conditions After Using Media Android Game to the Condition of Students' Ability after the Media is Stopped

Condition	A2 / B / A1
Number of variables changed	1
Changes in trend direction and their effects	(+)  (+)  (+) 
Change in trend stability	Unstable to variables
Change level	
Level of change in conditions B / A1	40% - 20% = 20%
The level of change in conditions B / A2	100% - 50% = 50%
Overlapping percentage	
At baseline conditions (A1) with intervention conditions (B)	0%
At baseline conditions (A2) with intervention conditions (B)	0%

Media in the teaching and learning process has many benefits, one of which is to generate interest in students' learning so that interactions occur between teachers and students and the media used as an intermediary and creates the same views or perceptions so that mistakes and misunderstandings occur. Understand the subject matter (Susilana, 2008). The use of learning media is very necessary, especially in learning the vocabulary mastery of body parts for *impaired hearing* students. In line with the opinion above Marlina (2015) mentioned because impaired hearing students rely on their visual aid which are characteristics of impaired hearing students in receiving information. Therefore the role of media for impaired hearing students is very meaningful in learning.

Learning using android game media aims to help students with special needs in learning Indonesian (Al-Irsyadi & Nugroho, 2015). In this study, the media used is an android game that has been downloaded on Google Playstore, this game contains a game about body parts consisting of matching images with words, arranging letters into words, and looking for paired images. Related to android game media Muslimah, et al (2017) at the time of learning students are actively involved when using it and participate in making decisions about the course of a game. Not only used as a learning medium, game provide fun to students (Mirza, 2015).

In this research, the vocabulary of the body parts became the material that would be given to impaired hearing students. Related to body parts vocabulary, Hirnandin (2018), argued that the importance of introducing body parts to impaired hearing students is to direct them to know themselves and the environment through communication. While Restendy (2019) argued that in principle introducing body parts to impaired hearing students is the same as introducing body parts to normal children in general, only the process is somewhat different.

Word is a means of connecting ideas which are then conveyed through communication. Related to the above, Keraf (2006) states that in a word there is a meaning that aims to express an idea. In other words, individuals with a broad vocabulary can easily and smoothly communicate with other people.

In terms of the students diversity, students with special needs, special education services are needed that are tailored to the characteristics of each student so that they get learning that will be useful in the future. One of the students with special needs includes students with special needs with hearing impairments or deafness. According to Damri (2019) impaired hearing is an individual who loses the ability to hear partially or completely due to malfunctioning of his hearing aid. Another impact is causing language development to be hampered which results in

the lack of auditive information which results in the lack of vocabulary mastery of these students (Filina, 2013).

The results of this study clearly show that using android game media can improve the ability to master vocabulary for impaired hearing students. The results of this study are supported by research Ultimate (2020), found that using Android-based barrierer game media in improving communication skills showed an influence on the ability to understand vocabulary in impaired hearing students. Referring to the results of research supported by several previous studies, it is seen that the increase in vocabulary mastery skills, especially in learning the vocabulary mastery of the body parts, is carried out using android game learning media (Winarsih, 2018).

Another study found that through android game media, vocabulary mastery about body parts of impaired hearing students in special schools (SLB). (Rahman & Yuhefizar, 2017) Another way that can be done in improving the vocabulary mastery about body parts is by using the cai media (Setyawan, 2015), image animation media (Gustiananda, 2017), a picture crossword puzzle game (Purwoko & Masitoh, 2018) and there are many other research results that show an increase in the ability of students to master vocabulary, this is adjusted again to the conditions of students, including the learning of students with special needs.

CONCLUSION

Android game media is an android-based media that is designed auditory and visually attractive, colorful and fun so that it can help impaired hearing students in learning vocabulary mastery of the body parts. Judging from the results of data processing, the results of the android game media can improve the vocabulary mastery of body parts in deaf students, this can be seen in the highest score achieved by students is 100 and can answer problem formulations and achieve research objectives. So that this media is expected to be

used as an alternative to assist special educators in learning Indonesian on the vocabulary material about body parts.

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