JAPANEDU:
Jurnal Pendidikan dan Pengajaran Bahasa Jepang
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The Implication of Educandy Learning Media on Students' Learning Outcomes in Japanese Learning

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A B S T R A C T

This research objective was to determine the effect of using Educandy learning media on Japanese students' learning outcomes in a state vocational high school in Jakarta for academic year 2020/2021. This study applied experimental quantitative research method, with a purposive sample technique of 16 students. This research used one group Pre Test–Post Test design, and the data collected then analysed using descriptive and inferential statistics. In the preparation of the instrument, several tests consist of validity tests and reliability tests were conducted. The results showed that based on the *Shapiro-Wilk Normality Test*, the data was normally distributed due to the Sig value, and the data from Pre-test and Post-test showed that the students' learning outcomes were increased after using Educandy. Moreover, the *Levene Homogeneity Test* results showed that the data is more than the significance level or the data was homogeneous, while based on the normality test and homogeneity test, the results showed that the value in the *Pre-test* and *Post-test* learning outcomes were lower than the level of significance. Based on the analysis, it can be concluded that H_0 is rejected and H_1 is accepted, which means that there is a significant difference in Pre-test and Post-test student learning outcomes so the Educandy learning media influences student learning outcomes in Japanese subjects.

INTRODUCTION

The success of a teaching and learning activity can be said to be successful if students' learning outcomes have increased from before and after teaching and learning activities. Prior to the research, the research had conducted observations for two months in State Vocational High School Jakarta academic year 2020/2021.

The results of observations made by researchers are that students experience a decrease in learning outcomes, lack of active student roles, a quiet classroom atmosphere, and do not use learning media in teaching and learning activities. So it is

necessary to make changes to teaching and learning activities to improve student learning outcomes.

The selection of learning media needs to be done by the teacher to help students easily receive materials properly. Therefore, teachers need to choose interactive, creative, and appropriate learning media so that the results and quality of student learning can develop properly.

Media is a tool or means of communication that is used to convey messages or information from one person to another. Another word for media is a mediator, a mediator is learning that requires mediation, starting from the teacher to the equipment that is currently developing (Arsyad, 2017). Thus, it can be concluded that the media is an inseparable part of teaching activities to achieve educational goals in general and learning objectives in school in particular.

Learning is an activity to meet the needs of the self to improve the quality and intensity of learning in students. Based on the statement above, it can be concluded that learning media is a means or tools used to convey information, facilities to improve the quality and quantity of student learning with the help of a mediator which currently has developed consisting of tape recorders, CDs, graphics, television, and computer.

Educandy is a web-based application. The usefulness of this application is to be able to create an interactive learning game so that learning becomes more fun. This application is also equipped with a variety of cute and colorful characters to provide color in teaching and learning activities. In addition, the features that can be used in each category can be used according to the needs of teaching and learning activities.

The end of a teaching and learning activity is learning outcomes with the use of measuring students' abilities. Learning outcomes are a result of the processes of teaching and learning activities that are related to cognitive (knowledge), affective (attitude), and psychomotor (movement). Japanese learning outcomes have four language skills which include listening, speaking, reading, and writing skills. The factors that can affect learning outcomes are (1) internal or within who is learning, including physical and psychological. (2) external or outside the self, including family, school, and environment (Rachmawati, Rede, & Jamhari, 2017).

Research on the using PowerPoint media with a Problem-Based Metacognitive approach on physics learning outcomes of class in a high school in 2 Palu, Indonesia, stated that there were differences in student learning outcomes who were given treatment using Powerpoint so that students became more active than students who were taught using conventional (Bonitalia, Lamba, & Saehana, 2015). Research on the effect of using Kahoot on learning outcomes in the scope of Biology conducted at a high school in Muncar, Indonesia and states that there are significant differences in student learning outcomes in the experimental class and the control class (Darmawan, 2020). The use of Android application-based learning media on student learning outcomes has a significant effect on student learning outcomes and gets positive responses (Haristiani & Firmansyah, 2016; Putra, Wijayati, & Widhi, 2017). While the effect of learning medium based on Macromedia Flash 8 on motivation and cognitive learning outcomes of grade VII students of SMPN 18 Makassar. The study on the matter of acids, bases, and salts resulted that the learning media has a significant positive effect (Gustina, Abu, & Hamsyah, 2016).

Based on the research above, the researcher formulation of the problems raised includes (1) student learning outcomes before using Educandy learning media in Japanese subjects, (2) students learning outcomes after using the learning media Educandy in Japanese subjects, (3) the effect of Educandy learning media on student learning outcomes in Japanese subjects.

THEORETICAL FRAMEWORK

Learning Media

Learning Media according to Gerlach and Ely (1971) states that the media if understood in a line is human, material, or events that build conditions that enable students to acquire knowledge, skills, or attitudes. According to Sudjana and Rivai (2013), the use of a learning medium in the teaching and learning process can enhance the learning outcomes process (Florayu, Isnaini, & Testiana, 2018). One of the positive things about using learning media is the active participation of students in learning (Ramadhani & Kimia, 2019). According to Ashyar (2012), there are several benefits of using learning media, namely:
1. Students can experience various teaching and learning activities;
2. Able to provide a sense of interest through the teaching materials delivered so that students can focus and follow the material presented;
3. Using learning media can stimulate students to think critically, imaginatively, creatively, and innovatively (Wahyuliani, Supriadi, & Anwar, 2016).

Educandy

Educandy is a web-based application which main page showed in Figure 1. This application can create an interactive learning game that makes learning activities more fun. This is based on Educandy's slogan "Making Learning Sweeter". Educandy can be accessed by entering a code or pressing a link and the game can be used anywhere and anytime. The application can be accessed from the following link: https://www.educandy.com
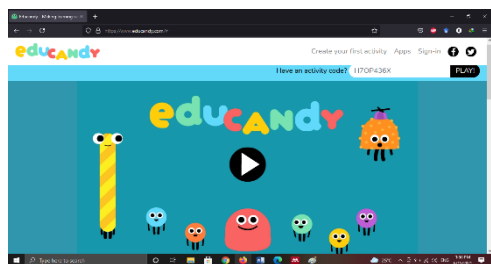

Figure 1: Website Main Page.

Problem Based Learning

According to Hudojo (1988) in Yandhari, Alamsyah, and Halimatusadiah (2019), the Problem Based Learning method is a process taken by the person to solve the problems they face until the problem is no longer a problem for them. The Problem-Solving method is not just a teaching method but a method of thinking, because in its application it is necessary to use other methods starting with looking for data to conclude (Sudirman, Salam, & Said, 2017).

Learning Outcomes

According to Sutedi (2019), learning outcomes are student behavior after participating in the teaching and learning process. Learning outcomes are changes in students regarding cognitive, affective, and psychomotor aspects (Noor, 2020).

RESEARCH METHOD

The purpose of this research is to determine the effect of the use of Educandy learning media on student learning outcomes in State Vocational High School in Jakarta for the academic year 2020/2021.

Research Design and Instruments

This research uses experimental quantitative methods using 1 variable x, namely learning media that can influence 1 variable y, namely the learning outcomes of students in Japanese subjects. The research design used by the researcher is Pre Experimental Design in the form of One Group Pre-test – Post Test Design with Pre-test and Post-test instruments. Researchers used Purposive Sampling in taking samples of as many as 16 Japanese students for the academic year 2020/2021. The research design pattern used is:

$$O_1 \; X \; O_2 \qquad (1)$$

O_1 : Pre-test scores (before giving the media learning)
X : Teaching and learning activities
O_1 : Post-test scores (after given the media learning)

In this research, the researcher used two tests, in line with (Karnawati, 2020) that test data with quantitative inferential and descriptive which aims to determine the effect and relation between two or more variables.

Data Analysis

To analyze the results in this research, the researchers used two statistics, which are 1) Descriptive statistics, which is a statistics used to analyze data by describing or describing the data that has been collected as it is without intending to make generalizations (Sugiyono, 2017). Descriptive statistics are used to determine the mean value, median value, minimum value, maximum value, range, and standard deviation, and 2) in the analysis of inferential statistical data, the researcher uses the *SPSS* Statistics Version 26 application. The analysis of inferential statistical data, including a) Validity Test to test the accuracy of an instrument that is valid or invalid. The use of the validity test applies to the Pre-test and Post-test; b) Reliability Test, researchers used the Cronbach's Alpha reliability test to measure the determination of whether the instrument is reliable or unreliable; c) Normality Test, which is a conditional test used to determine whether the distribution of data is normal or abnormal so that researchers can find out the next step by using Parametric Statistics or Non-Parametric Statistics. The normality test used by the researcher is the Shapiro-Wilk; d) Homogeneity Test, which is a test used to measure data with homogeneously or non-homogeneously distributed. In the Homogeneity test, the researcher used Levene's test; and e) T-Test, which was used in the study as a hypothesis test to know the effect of learning media on learning outcomes in Japanese subjects.

RESULTS AND DISCUSSION

Educandy Learning Media

Educandy is a web-based application. This application can create a game. The material used was from *Kira Kira Nihongo*'s book class X material for chapter 12 with the theme of uniforms from various countries.
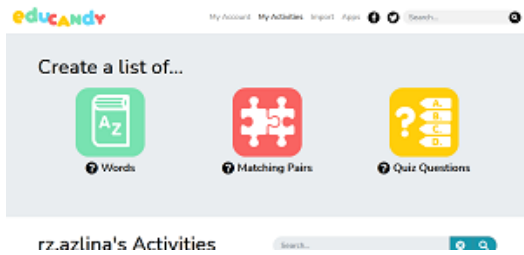

Figure 2: Games Category.

Educandy application there are three categories of games (see Figure 2). In the first category, Words or games that are focused on words (see Figure 3). The second category, Matching Pairs, is focused on pairing according to the pair. Third, Quiz Questions or generally called Multiple Choice.

Figure 3: Words Category.

The Words category as Figure 3 is further divided into three types of games, namely Words Search (Figure 4), Spell It! (see Figure 5), and Anagrams (see Figure 6). Each type of game has its function.

Figure 4: Word Search.

In the Word Search type, students can search for vocabulary based on the clues in the lower right box. The use of Word Search helps students to find out the vocabulary used in chapter 12 material.
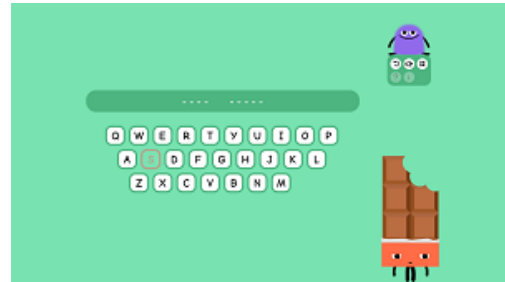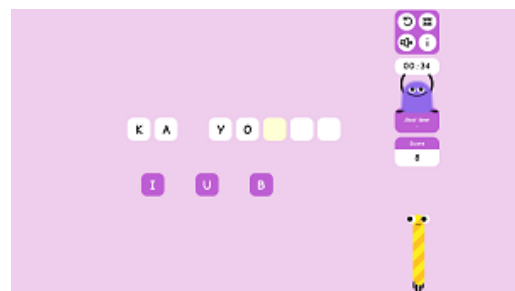

Figure 5: Spell It!.

Figure 6: Anagrams.

In the Spell It! type, as shown in figure 5, students can guess the vocabulary according to the clue in the form of lines that have been given. Students can enter letters to become a vocabulary. Meanwhile, in the Anagrams type, students arrange letters that have been scrambled to become a vocabulary by looking at the Japanese writing rules.
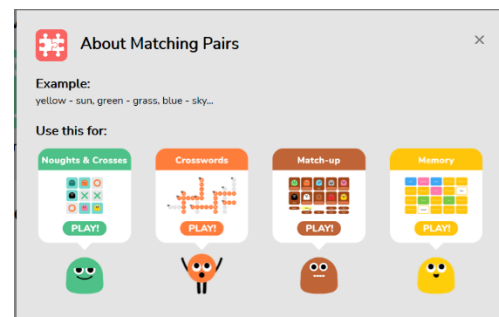

Figure 7: Matching Pairs Category.

As seen in Figure 7, in the Matching Pairs category, there are four types of games, namely Noughts & Crosses, Crosswords, Match-up, and Memory. In this category, researchers only use two types, namely Crosswords and Match Up.
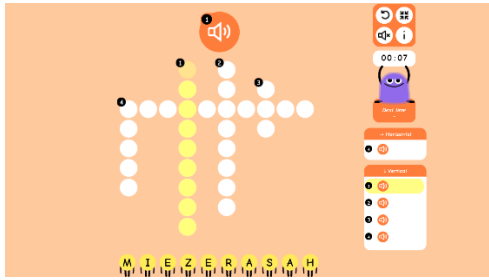
Figure 8: Crosswords.

In this type of Crosswords as in Figure 8, students can select the desired white box, then a small icon will appear. When students pressed can listen to audio in the form of vocabulary. Then students can enter vocabulary according to Japanese writing rules.

Figure 9: Match-up.

In the Match-up type as in Figure 9, there are two kinds of clues, namely images and audio. First, students can select the audio they hear by pressing the audio icon. Next, a voice will be heard containing the conversation of two people then students can move the box below and adjust to the audio that has been heard. Second, students can adjust the picture with the sentences that have been provided.

Figure 10: Quiz Question Category.

In the Quiz Question category as in Figure 10, there is only one type, namely Multiple Choice. This type is the same as multiple choice in general, however, the advantages provided are audio and image features that can be used by users.
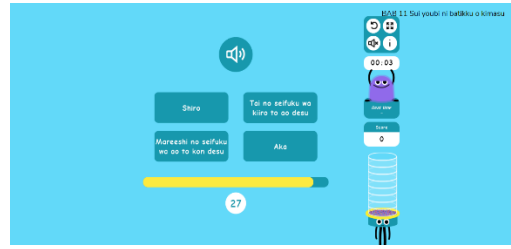

Figure 11: Multiple Choice.

In the Multiple Choice type as in Figure 11, students can choose from four answers that match the questions obtained, which can be in the form of audio, pictures, choosing the correct vocabulary, or choosing grammar that fits the sentence.

In the application of Educandy learning media in teaching and learning activities, researchers use Problem Based Learning methods, as follows:

1. The researcher prepare games based on the focus of learning, namely vocabulary and grammar. Each student opens the Educandy learning media and completes the game in each Educandy category
2. Each student plays using Educandy learning media, students get vocabulary and grammar that will be used in teaching and learning activities.
3. After playing using Educandy learning media, the researcher explained the material studied and answered the questions from students regarding vocabulary and grammar.
4. The researcher asks students to make sentences based on the material they have learned. The results of the sentences that have been made by students are then presented.

Descriptive Statistic

To calculate descriptive statistics, researchers used *SPSS* Statistic Version 26, the results are as follows in Table 1.

Table 1: Pre-test and Post-test Results.

Pre-test	Mean	64.06
	Median	65.00
	Minimum	50
	Maximum	80
	Range	30
	Std. Deviation	7.793
Post-test	Mean	84.69
	Median	85.00
	Minimum	70
	Maximum	100
	Range	30
	Std. Deviation	8.056

Based on Table 1, the resulting table of descriptive statistics showed that the Pre-test learning outcomes show the mean value is 64.06, the median value is 65.00, the minimum value is 50, the maximum value is 80, and the range between maximum and minimum values is 30 with standard deviation value is 7.793. Meanwhile, the results of the Post-test learning outcomes showed that the mean value is 84.69, the median value is 85.00, the minimum value is 70, the maximum value is 100, and the range between maximum and minimum values is 30 with a standard deviation value is 8.056.

Based on the results of statistical descriptive data of both Pre-test and Post-test learning outcomes, it can be concluded that the mean value of Pre-test is 64.06 and the mean value of Post-test is 84.69, indicating that there is an increase in the mean value of Pre-test and Post-test after treatment using the Educandy learning media in Japanese subjects.

Inferential Statistic

Validity Test of Pre-test and Post-test

In the validity test, the researcher used a different class, namely class X PB 2 with the participants in the validity test as many as 20 students with a total of question is 20 questions.

In the validity of the Pre-test, the questions are made in the form of multiple choices including 6 story questions, 2 questions to complete the conversation, 6 questions to choose sentences that match the picture, and 6 listening questions. After being given to the participants, the validity test resulted in data, namely from 20 questions 16 questions were valid because the value of $R_{count} > R_{table}$ or R_{count} was greater than 0.444.

In the validity of the Post-test, the questions are made in the form of multiple choices including 5 questions to choose vocabulary that matched the picture, 3 questions to fill in particles in a sentence, 2 questions were to arrange words into a sentence, 5 questions to complete the conversation with a picture as a clue, and 5 listening questions. After being given to the participants, the validity test resulted in data, namely from 20 questions 6 questions were valid because the value of $R_{count} > R_{table}$ or R_{count} was greater than 0.444.

Reliability Test of Pre-test and Post-test

Reliability test using Cronbach's Alpha with a significance level of 0.05, as shown in Table 2.

Table 2: Reliability Test Pre-Test.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.932	16

As shown in Table 2, in the validity of the Pre-test there are 16 valid questions, then the questions are continued with the reliability test. Based on the results of the Cronbach's Alpha Pre-test, the Cronbach's Alpha value is 0.932 > 0.05. It was concluded Cronbach's Alpha reliability test value on the Pre-test was greater than the significance level so that the Pre-test questions could be called reliable.

In the validity of the Post-test, there are 6 valid questions, then the questions are continued with the reliability test. Based on the results of the Cronbach's Alpha Post-test, the Cronbach's Alpha value is 0.625 > 0.05. It was concluded Cronbach's Alpha reliability test value on the Post-test was greater than the significance level so that the Post-test questions could be called reliable, as shown in Table 3.

Table 3: Reliability Test Post-test.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.625	6

Normality Test of Pre-test and Post-test

The normality test is one of the prerequisite tests needed to determine whether to use a Parametric Statistic or a Non-Parametric Statistic for further hypothesis testing.

The normality test used by the researcher is the Shapiro-Wilk normality test with a significance level of 0.05. The normality test hypothesis, namely:
H_0: Data is normally distributed
H_1: Data is not normally distributed
When Sig. > 0.05 then H_0 is accepted
When Sig. < 0.05 then H_1 is accepted.

In the results of the Shapiro-Wilk normality test, the results of the Pre-test in Table 4, the significance is 0.828 or in terms of the Sig. value Pre-test learning outcomes are greater than the significance level of 0.05. So, it can be concluded that the Pre-test learning outcomes are normally distributed or H_0 is accepted.

Table 4: Normality Test Pre-test and Post-test.

Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Pre Test	0.969	16	0.828
Post Test	0.967	16	0.783
*. This is a lower bound of the true significance.			
a. Lilliefors Significance Correction			

Meanwhile, as in Table 4, the results of the Shapiro-Wilk normality test showed that the significance is 0.783 or in terms of the Sig. value Post-test learning outcomes are greater than the significance level of 0.05. So it can be concluded that the Post-test learning outcomes are normally distributed or H_0 is accepted. If it is concluded that the significance value of the Pre-test learning outcomes and the Post-test learning outcomes significance value is greater than the significance level, both learning outcomes are said to be normally distributed.

Homogeneity Test

The homogeneity test used by the researcher is the Levene homogeneity test with a significance level of 0.05. Levene homogeneity test hypothesis, namely:
Sig. > 0.05 then the data is homogeneous
Sig. < 0.05 then the data is not homogeneous

Based on Levene's test in Table 5, shows that the significance value of the Pre-test learning outcomes and Post-test learning outcomes is 0.982. If it is concluded that the significance value of the Pre-test and Post-test learning outcomes is greater than the significance level of 0.05, then the Pre-test and Post-test learning outcomes are called homogeneous.

Table 5: Levene's Homogeneity Test.

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Learning Outcomes	Based on mean	0.001	1	30	0.982
	Based on Median	0.000	1	30	1.000
	Based on Median and with adjusted df	0.000	1	29.875	1.000
	Based on trimmed mean	0.001	1	30	0.980

Paired Sample T-Test

Based on the results of the Shapiro-Wilk normality test that both data, namely Pre-test learning outcomes and Post-test learning outcomes are normally distributed so the hypothesis test used is the Parametric Statistic Paired Sample T-Test. Hypothesis Paired Sample T-Test, namely:

H_0 : Sig. (2-tailed) > 0.05 then there is no difference between Pre-test and Post-test
H_1 : Sig. (2-tailed) < 0.05 then there is difference between Pre-test and Post-test

After the researchers tested the hypothesis using the Paired Sample T-Test, as shown in Table 6, the results on Sig. (2-tailed) Pre-test learning outcomes and Post-test learning outcomes were 0.000 smaller than the significance level of 0.05, then the Pre-test learning outcomes and Post-test learning outcomes have significant differences. If it is associated with the research hypothesis, then H_1 is accepted or there is an effect after using the Educandy learning media on student learning outcomes.

Table 6: Paired Sample T-Test.

Paired Sample Test			
			Learning Outcomes
Paired Difference	Mean		-20.625
	Std. Deviation		2.500
	Std. Error Mean		0.625
	95% Confidence Interval of the Difference	Lower	-21.957
		Upper	-19.293
t			-33.000
df			15
Sig.(2-tailed)			0.000

In line with previous studies which found that the use of learning media in the teaching and learning process can enhance the learning outcomes process (Sudjana & Rivai, 2013; Florayu, Isnaini, & Testiana, 2018), the use of Educandy as learning media in this study also showed a positive impact in teaching and learning, and on students' learning outcome. This can be seen from student learning outcomes of students who experienced changes in learning outcomes based on the results of descriptive statistics and inferential statistics to produce a mean of Pre-test value which is 64.06 which increased to the mean of Post-test which is 84.69, so it can be called improvement of learning outcomes in Japanese learning.

In addition, after being analyzed using the t-test, namely the Paired Sample T-Test, it showed a significant difference which meant an increase in learning outcomes from Pre-test to Post-test. If it is concluded based on previous research, learning use of learning media has a significant impact on student learning outcomes and gets a positive response from students.

Based on this, after the researchers used Educandy learning media in teaching and learning activities it had a positive influence on student learning outcomes and the use of Educandy learning media in teaching and learning activities was very effective because all students felt happy and active during teaching and learning activities.

CONCLUSION

Based on the above analysis on the effect of using the Educandy learning medium on learning outcomes for Japanese learners, the result showed that before using the Educandy learning media, students' learning outcomes were low while after using the Educandy learning media the students' learning outcomes have increased. The tendency for the increased learning outcomes was also proven by the mean value of the Pre-test learning outcomes which was lower than the Post-test learning outcomes. In addition, the tendency also can be proven by the results of the hypothesis test that there is a significant difference between the Pre-test learning outcomes and the Post-test learning outcomes. Hence, it can be concluded that Educandy learning media has a significant influence on student learning outcomes in Japanese subjects.

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