JPBIO (Jurnal Pendidikan Biologi)
Vol. 7, No. 2, November 2022, 146 – 157 //e-ISSN 2540-802X
http://jurnal.stkippersada.ac.id/jurnal/index.php/JBIO/index

The human circulatory system learning during the covid-19 pandemic: Video media equipped with crossword puzzle

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Article Info

Article History:
Received 26 Mei 2021
Revised 28 June 2021
Accepted 20 June 2022
Published 30 November 2022

Keywords:
Media Video
LKPD type crossword puzzle
Covid-19

ABSTRACT

The provision of variations in the use of media equipped with methods in learning is carried out in order to attract students in learning during the Covid-19 pandemic which aims to find out the influence of the use of video learning media equipped with crossword puzzle type Student Worksheets (LKPD), on learning outcomes during the Covid-19 pandemic; This type of research is experimental research, using a mixed methods approach with the concurrent triangulation design method. The results showed that: (1) there was a positive influence on the use of video learning media equipped with crossword puzzle type Student Worksheets on learning outcomes, shown from the results of the hypothesis test, namely 0.000 or Sig values. < 0.05; (2) there are differences in student learning outcomes between the use of power point learning media (PPT) and video learning media equipped with crossword puzzle type LKPD, shown by the average posttest of the control class 56.56 and the posttest of the experimental class 82.76. It can be concluded that the use of video media equipped with crossword puzzle type LKPD has a positive influence on learning outcomes on human circulatory system material during the Covid-19 pandemic.

Citation: Radandima, R.F., Rano, V.O., & Ina, A.T. (2022). The human circulatory system learning during the covid-19 pandemic: Video media equipped with crossword puzzle. *JPBIO (Jurnal Pendidikan Biologi), 7*(2), 146-157. DOI: https://doi.org/10.31932/jpbio.v7i2.1207

INTRODUCTION

The Corona Virus Desease-2019 (Covid-19) pandemic has hit all countries around the world including Indonesia. The spread of the virus initially had a huge impact on the economic world, but now it is also felt by the world of education. In the report from the daily news (Kompas, 2020) that the state including Indonesia issued a policy by shifting learning that was originally carried out in schools to study at home, so that the government and related institutions must present alternative learning processes for students in educational institutions.

The Ministry of Education and Culture issued Circular Letter Number 4 of 2020 to the Education Unit and Number 36962 MPK. A / HK / 2020 concerning the Implementation of

Education during the Corona Virus Disease 19 (Covid-19) emergency period that learning activities are carried out online (online) in order to prevent the spread of Covid-19 (Minister of Education, 2020). Online learning can be done using various digital media such as Google Classroom, Zoom, learning videos, Learning Houses, WhatsApp Groups (WAG), and others.

SMP Negeri 2 Waingapu is one of the schools that has implemented online learning since March 2020 during the Covid-19 pandemic. Based on the results of an interview on August 21, 2020, with teachers in the field of Natural Sciences (IPA) class VIII of SMP Negeri 2 Waingapu for the 2020/2021 school year, it was found that the online learning process during Covid-19 was still running smoothly with the use of power point media (PPT) and assignments through student handbooks. PPT and assignments are given by teachers using digital media, namely WAG. PPT media and assignments given certainly make students less able to receive material or learning concepts to the maximum that should be obtained through explanations by teachers and other supporting media. The teacher admitted that he had used video media downloaded from You tube but because of the incorrect explanation, so the delivery of the material that students received was small. It is also supported by an explanation from the vice principal of Curriculum, that online learning is currently teachers using PPT media by utilizing the WhatsApp application. Some students did not collect assignments, doing the questions was still wrong and even their scores did not reach the Minimum Completion Criteria (KKM) which was 71. The teacher explained the details of the achievements of students who had not been completed 55.17% and 44.82% who were completed in science lessons in online learning.

Based on these problems, researchers will use online learning in the form of video learning media. Several studies have been conducted to determine the influence of the use of learning media can affect student learning outcomes. (Sari, M; Huzaifah, S; & Santoso, 2017, p. 30) researching the "effect of the use of video media on student biology science learning outcomes" received a positive response from students, judging from the index obtained gain of 0.72 and the score was included in the high category. In line with the opinion (Sukiman, 2012, pp. 187–188) that one of the digital media that can be used as a learning medium is video media. Video media can display images and sounds at the same time.

Providing different variations in the learning process is one of the efforts to spur the motivation and activity of students. This variation uses a crossword puzzle type Learner Worksheet (LKPD) as an interesting learning medium, can refresh memories, and add insight to students without losing the essence of learning that is taking place during learning from home. (Kurniawati, D; Masykuri, M; - Broom, 2016, pp. 88–95) stated that LKPD provides assistance in the form of learning arrangements to be learned so that it can increase activities in the learning process. The experience and learning process of students are very important in the learning process to improve learning outcomes, so teachers need to make interesting variations of learning during the current pandemic in order to help improve student learning outcomes.

RESEARCH METHODS

Research Design

This type of research is experimental research, using a mixed methods approach with a concurrent triangulation design method by combining quantitative and qualitative research with the two methods mixed in a balanced manner (50% quantitative methods and 50% qualitative methods). According to (Sulhadi; Susilogati, S. S; & Dwi, R. A, 2016, pp. 4) quantitative research is research to obtain measurable data in the form of numbers or values while qualitative research is research that examines objects scientifically where the researcher is a key instrument (Windhiyana, P. E, 2020, p. 4).

Population and Samples

The population in this study was all students of class VIII of SMP Negeri 2 Waingapu, East Sumba Regency, East Nusa Tenggara Province. The sample selected classes VIII-B as the experimental class and VIII-D as the control class. The selection of samples in this study used purposive sampling type techniques. The selection of samples is given by science teachers with certain considerations, namely that each class has the same ability.

Instruments

The researcher conducts interviews with parties related to the problem to be studied. In this study, researchers also conducted interviews with several students to find out the satisfaction of students in using video media equipped with LKPD type crossword puzzle. The test given is multiple choice. Tests are divided pretest and posttest. Pretests are carried out in order to find out the initial state of a group before being given treatment. Posttest is done in order to be able to know the state of a group after being given treatment.

The questionnaire is carried out to collect data that is carried out in writing through a structured list of statements with alternative answers which have been made available, so that the respondent chooses the right answer in his personal opinion. The questionnaire was distributed to students using a google form shared via WhatsApp group (WAG). The percentage criteria are as Table 1.

Table 1. Questionnaire percentage criteria

Percentage	Criterion
0%-20%	Very weak
21%-40%	Weak
41%-60%	Enough
61%-80%	Strong
81%-100%	Very powerful

(Source: Riduwan & Akdon, 2013: 18)

Observation aims to collect research data in the form of data on the real conditions of schools. Observation is carried out using observation guidelines in order to obtain clear and directed data. Document study is one of the qualitative data collections by observing and analyzing documents both written, unwritten, and electronically contained in the research location.

Procedures

As for the research procedure from the beginning to the end of the study. The research procedure aims as a guide so that the research carried out is directed. The research procedure is divided into 3 stages, namely; pre-field or preparatory stage, where this stage as the researcher stage designs and conceptualizes the initial to final research process; the implementation stage in the field, where the researcher carries out all the preparatory stages that have been conceptualized at the beginning while the final stage or conclusion is the stage of concluding all things that have been conceptualized at the beginning to the end, as well as reviewing the things that need to be analyzed both quantitatively and qualitatively. More succinctly can be seen in Chart 1.

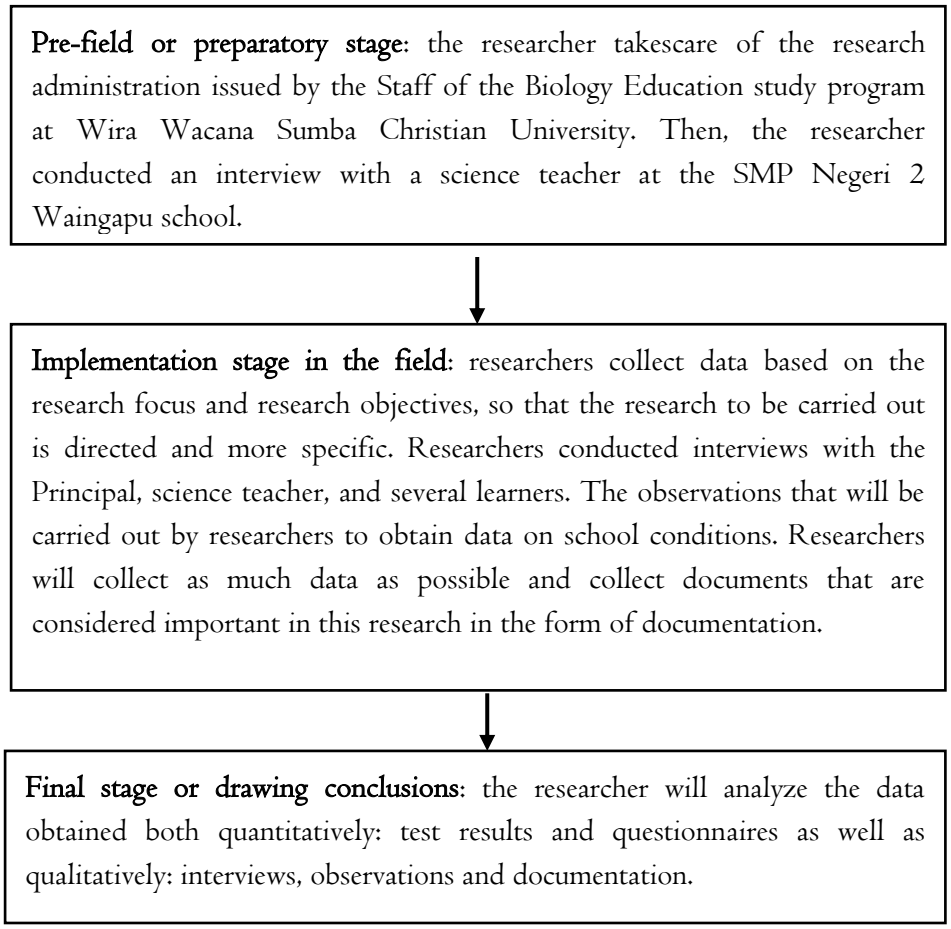

Chart 1. Research procedure

Data Analysis

The validity test aims to guarantee the measurement results are in accordance with what is measured (Tedjo, 2009: 188). The validity of the questions is carried out in order to show the level of difficulty of the questions. Researchers used the SPSS version 22 for windows program. The decision rules are as follows:

- If $r_{counts} > r_{table}$ then the item is valid.
- If $r_{counts} < r_{table}$ then the item is invalid.

An instrument is said to have a high reliability value, if the test made has consistent results in measuring what is to be measured (Sukardi, 2008: 122). Researchers used the SPSS version 22 for windows program. The decision rules are as Table 2.

Table 2. Reliability Criteria

Reliability Value	Criterion
0,00-0,20	Small
0,20-0,40	Low
0,41-0,70	Keep
0,70-0,90	Tall
0,90-1,00	Very high

The normality test was carried out using the One Sample Kolmogorov-Smirnov Test approach using the SPSS version 22 for windows program. Normality is an important condition because with normally distributed data, the data is considered to be able to represent a population. The decision rules are as follows:

- If Sig. (2-tailed) > 0.05 means the data is normally distributed.
- If Sig. (2-tailed) < 0.05 means the data is not normally distributed.

It is used to find out whether the two samples used in the study have the same variant or not. Researchers used the Levene Statistic approach on the SPSS program version 22 for windows. As for the decision rules:

- If Sig. > 0.05, then the distribution of data is homogeneous.
- If Sig. < 0.05, then the distribution of data is not homogeneous

Hypothesis testing is carried out to take the right decision from the hypothesis or temporary conjecture to the study. Among them are paired sample t-test and independent sample t-test.

RESULT

The results of the experimental class pretest data validity test with the value of r_{count} number 1 = 0.261, number 3 = 0.312, number 7 = 0.302, number 8 = 0.091, number 10 = 0.250, number 11 = 0.288, number 17 = 0.218, and number 18 = 0.306. For more details, the results of the validity test can be seen in Table 3.

Table 3. Validity of experimental class pre-test questions

Question	Calculated r value	Information
Problem1	0,261	Invalid
Problem2	0,427	Valid
Problem3	0,312	Invalid
Problem4	0,491	Valid
Problem5	0,469	Valid
Problem6	0,462	Valid
Problem7	0,302	Invalid
Problem8	0,091	Invalid
Problem9	0,418	Valid
Problem10	0,250	Invalid
Problem11	0,288	Invalid
Problem12	0,569	Valid
Problem13	0,711	Valid
Problem14	0,385	Valid
Problem15	0,375	Valid
Problem16	0,553	Valid
Problem17	0,218	Invalid
Problem18	0,306	Invalid
Problem19	0,602	Valid
Problem20	0,502	Valid

A total of 29 learners with a_{table} r value = 0.349. The data is said to be invalid if the value of $r_{counts} < r_{table}$. The result of the control class pretest data validity test with the value Number 1 r_{count} = 0.138, number 9 = 0.001, number 10 = 0.115, number 11 = 0.183, number 20 = 0.755. For more details, the results of the validity test can be seen in Table 4.

Table 4. Validity of control class pre-test questions

Question	Calculated r value	Information
Problem1	0,138	Invalid
Problem2	0,712	Valid
Problem3	0,622	Valid
Problem4	0,761	Valid
Problem5	0,757	Valid
Problem6	0,442	Valid
Problem7	0,511	Valid
Problem8	0,545	Valid
Problem9	0,001	Invalid
Problem10	0,115	Invalid
Problem11	0,183	Invalid
Problem12	0,741	Valid
Problem13	0,603	Valid
Problem14	0,673	Valid
Problem15	0,438	Valid
Problem16	0,781	Valid
Problem17	0,616	Valid
Problem18	0,761	Valid
Problem19	0,775	Valid
Problem20	0,075	Invalid

A total of 32 learners with a_{table} r value = 0.367. The data is said to be invalid if the value of $r_{counts} < r_{of\ the\ table}$.

Reliability Test

The results of the experimental and control class pretest data reliability test, with SPSS version 22 for windows using the Cronbach's Alpha approach. For more details, the results of the reliability test can be seen in table 5.

Table 5. Reliability of experimental and control class pretest

Class	Cronbach's Alpha	N of Items	Information
Experimental class	0,742	20	Reliable
Control classes	0.868	20	Reliable

In the experimental class of 0.742 while in the control class of 0.868 shows that the reliability of the problem is high.

Normality Test

The results of the normality test of the pretest and posttest data of the experimental class, with SPSS version 22 for windows using the One Sample Kolmogorov-Smirnov Test approach. For more details, the results of the normality test can be seen in Table 6.

Table 6. Normality of experimental class pretest and post-test questions

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
Pretest	Monte Carlo Sig. (2-tailed)	0.752d
Posttest	Monte Carlo Sig. (2-tailed)	0.076[s]

A significance value of 0.752 was obtained and the posttest result obtained a significance value of 0.076 so that the two tables above concluded that the data were normally distributed because of the significance value>0.05.

The results of the normality test of the control class pretest and posttest data, with SPSS version 22 for windows using the One Sample Kolmogorov-Smirnov Test approach. For more details, the results of the normality test can be seen in Table 7.

Table 7. Normality of control class pretest and post-test questions

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
Pretest	Monte Carlo Sig. (2-tailed)	0.125[d]
Postest	Monte Carlo Sig. (2-tailed)	0.218[d]

Obtained a significance value of 0.125 and the results of the posttest normality trial obtained a significance value of 0.218 so that the table above concluded that the data were normally distributed because the significance value > 0.05.

Homogeneity Test

The results of the homogeneity test of the pretest and posttest data of the experimental and control classes, with SPSS version 22 for windows. For more details, the results of the normality test can be seen in Table 8.

Table 8. Homogeneity of pretest and post-test questions of experimental and control classes

Class	Levene Statistics	Information
Experimental class	0,407	Homogeneous
Control classes	0,473	Homogeneous

The homogeneity test results obtained the significance of the experimental class 0.407 while in the control class obtained a significance of 0.473. It was concluded that the distribution of data is homogeneous, since the significance value > 0.05.

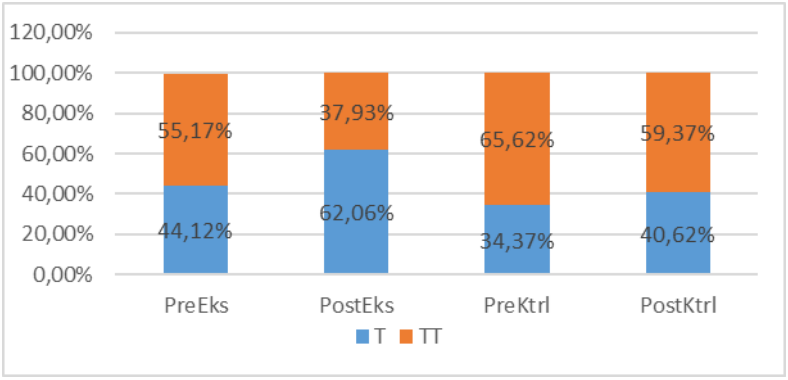

Figure 1. Percentage of completion of experimental and control class learning outcomes

Based on the bar chart above, it shows the percentage of completion of the learning outcomes of the experimental class and the control class. In the experimental class, before the material was given, the results of the pretest were completed as many as 13 students (44.12%) and those who were not completed as many as 16 students (55.17%). After the material was given, there was an increase in the number of complete students, namely 18 students (62.06%) and those who were not completed as many as 11 people (37.93%). In the control class, before the material was given, the results of the pretest were completed as many as 11 students (34.37%) and those who were not completed by 21 students (65.62%). After the material was given, the postest results were completed as many as 13 students (40.62%) and those who were not completed as many as 19 students (59.37%).

H testipotesis

Paired sample t test

The results of the paired sample t test of the experimental class with SPSS version 22 for windows. For more details, the results of the paired sample t test can be seen in Table 9.

Table 9. Paired sample t test experimental class

Paired Sample Test			
Class	df	Sig. (2-tailed)	Conclusion
Experimental class	28	0,000	Positive influence

The results of the paired sample t-test of the experimental class above, the sig value is 0.000. This means that the value of sig<0.05, this means that H_{o1} is rejected and H_{a1} is accepted. Shows that there is a positive influence on the use of video media equipped with crossword puzzle type LKPD on learning outcomes during the Covid-19 pandemic.

Independent Sample t Test

The results of the independent sample t test of the experimental and control class with SPSS version 22 for windows. For more details, the results of the independent sample t test can be seen in table 10.

Table 10. Independent sample t test experimental class and dick

Independent Sample Test		
Postest	Sig. (2-tailed)	Conclusion
Experimental class	0,000	There is an influence
Control classes	0,000	There are differences

The results of the independent sample t test, each sig. value of 0.000, means that the sig value < 0.05 this means that H_{o2} is rejected and H_{a2} is accepted. Shows that there are differences in learning outcomes after the use of PPT learning media and video learning media equipped with crossword puzzle type Student Worksheets (LKPD) on learning outcomes during the Covid-19 pandemic.

Questionnaire Data Analysis

Table 11. Experimental class questionnaire data results

No.	Criterion	Score	Sum	Percentage
1	Strongly agree	5	121	42%

2	Agree	4	67	23%
3	Neutral	3	41	14%
4	Disagree	2	40	13,88%
5	Strongly disagree	1	19	6,59%

Based on the table above, researchers obtained data from an experimental class of 29 students. 42% voted strongly in favor of 42%, 23% voted for an affirmative opinion, 14% neutral, 13.88% voted for a disapproving opinion, and 6.59% strongly disagreeing.

Table 12. Results of control class questionnaire data

No.	Criterion	Score	Sum	Percentage
1	Strongly agree	5	62	25%
2	Agree	4	83	33,46%
3	Neutral	3	46	18,54%
4	Disagree	2	43	17,33%
5	Strongly disagree	1	14	5,64%

Based on the table above, researchers obtained data from a control class of 32 learners. 62 voters voted strongly in favor of 62 or in percentage terms of 25%, 33.46% voted for agreeing opinions, 18.54% neutral, 17.33% voted for disagreeing opinions, and 5.64% strongly disagreed

DISCUSSION

The Influence of Video Media Equipped with LKPD Crossword Puzzle Type on Learning Outcomes

Based on the results of the study, it can be concluded that online learning during the Covid-19 pandemic in the subject of Natural Sciences (IPA) material on the human circulatory system has a positive effect. Supported from the results of the paired sample t test hypothesis test (cf. table 4.9) shows that there is a significant positive influence between the pretest and posttest results. This is in accordance with the advantages of video media according to (Daryanto, 2010, p. 90) namely that flexible video sizes can be adjusted as needed, as teaching materials that are rich in information and straightforward and can add new dimensions in learning. This has an impact on the learning of students at home, learning partisanship increases, then thinking activities also increase which in the end can increase the ability of learning outcomes so that it affects the improvement of cognitive learning outcomes of students. This statement is supported by (Sukiman, 2012, pp. 187–188) that one of the digital media that can be used as a learning medium is video media, because the media can display images and sounds at the same time.

The selection of media in online learning during the current Covid-19 pandemic is relatively difficult because there are various factors experienced by each student. The recognition of students, that the first time to do and answer questions in the form of crossword puzzles. The findings of this study are in line with the research (Kurniawati, D; Masykuri, M; - Broom, 2016, pp. 88–95) stated that LKPD provides assistance in the form of learning arrangements to be learned so that it can increase activities in the learning process. In addition, researchers (Silberman, 2009, p. 256) state that this crossword puzzle learning strategy is a review of lessons that can invite the interest and participation of learners. The method of answering questions in the form of crossword puzzles makes the learning process of students feel different from the previous ones, used as experience and gaining new knowledge. However, from the complete students, there are also students who are not

complete. Student responses prove that online learning is ineffective and optimal for some students, namely students who do not have personal cellphones and there is no encouragement or motivation from parents to encourage children when studying at home.

In addition, the online learning process using a combination of models and media is also useful. The benefits obtained include the learning process becoming more interesting for students, can be used at any time according to the material studied and can deliver the material. This is in accordance with the opinion (Cheppy, 2007, p.8-11) of packaged material in which there is a combination of text, animation, sound makes it easier for students to learn which is not only learning in the classroom but wherever the learners continue to learn.

Differences in Learning Outcomes After Video Media Is Equipped with LKPD Crossword Puzzle Type Against Learning Outcomes

Based on the results of the study, it can be concluded that there are differences in online learning outcomes using two different learning media, it can be seen from the completion of posttest learning outcomes, both control classes and experimental classes, obtained 40.62% in the control class and 62.06% in the experiment class. Supported by the results of the hypothesis test independent sample t test (cf. table 4.10) shows that Ho's results were rejected and Ha was accepted, meaning that there was a difference in posttest learning outcomes between the control class and the experimental class. So, it can be stated that after the use of video learning media equipped with A crossword puzzle type LKPD on student learning outcomes there are differences. This is in line with the opinion (Sadiman, A. S; Rahardjo, R; & Haryono, 2012, p. 26) states that learners more easily understand the message / learning material from what they see and hear compared to the delivery of material using verbal symbols. This is because video media can help students in understanding material concepts that are quite difficult.

Furthermore, when viewed from the responses of students, in the control class the category is weak while in the experimental class the categories are sufficient. Thus, video media equipped with crossword puzzle type LKPD can be used as an alternative to learning during the Covid-19 pandemic. The above statement is supported by the opinion (Widjajanti, 2008, p. 2) that LKPD can optimize limited learning aids. There are several factors that researchers observe and obtain in the control class, namely; lack of interest in reading and too many tasks.

Based on the interview results, it was concluded that students are less enthusiastic about participating in online learning, low interest in reading so they do not read the material presented on power point slides, and students tend to do questions looking for answers on the internet. Another thing that makes online learning ineffective and optimal is the inadequate and uncomfortable learning environment conditions, so that students do not concentrate on learning.

Based on other observations that researchers have observed, namely, first, students who are complete before being given learning media, either PPT media or video media, are students who have a smart, active, questioning character and are enthusiastic in participating in online learning. Second, students who are complete after being given learning media are students who strive to learn, have an attraction in online learning through learning media. Third, students who are not complete even though they have been given material are students who have less active characteristics, no attractiveness in online learning, lack of motivation or support from parents and do not have learning facilities, for example personal cellphones.

CONCLUSION

It was concluded: (1)there is an influence on the use of video learning media equipped with LKPD crossword puzzle type, evidenced by the results of the hypotresis test paired sample t test sig value. 0.000 means H_{o1} is rejected and H_{a1} is accepted, (2) based on the results of the hypothesis test independent sample t-test value sig. 0.000 means the sig value < 0.05 means H_{o2}

rejected and Ha_2 accepted, showing that there are differences in learning outcomes after the use of PPT learning media and video learning media equipped with crossword puzzle type Learner Worksheets (LKPD).

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