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## The Effects of Learning with Audiovisual Media and Learning Motivation on Learning Outcomes

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### Abstract

This research aims to directly test the effect of one variable on another variable and test hypotheses regarding cause-and-effect relationships. This research is quantitative with a quasi-experiment design of 2x2 factorial by purposive sampling—the research sample comprised the 8<sup>th</sup> grade students of classes 1 and 2 (VIII.1 and VIII.2), with 32 students. The data are obtained through questionnaires. The results of the research show that (1) no significant difference between the learning outcomes of students in class 8 at SMPN 4 Kandis who are given gadget learning media and audiovisual media, (2) no interaction between learning media and learning motivation to the learning outcomes of students in class 8 at SMPN 4 Kandis with the analysis of two ways, 3) no significant difference between the learning outcomes of 8<sup>th</sup> grade students at SMPN 4 Kandis who are given gadget learning media and audiovisual media in groups of students with high learning motivation, (4) no significant difference between the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis who are given gadget learning media and students who are given audiovisual media in groups of students with low learning motivation.

### Keywords

Audiovisual media, learning media, learning motivation, learning outcomes.

### Article History

Received 21 May 2023

Accepted 20 November 2024

### How to Cite

Sipayung, A. Y., Rifki, M. S., & Naldi, H. (2024). The effects of learning with audiovisual media and learning motivation on learning outcomes. *Indonesian Research Journal in Education | IRJE |*, 8(2), 945-961. <https://doi.org/10.22437/irje.v8i2.33574>

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## Introduction

Education is one of the human efforts to develop their potential to live in society and give meaning to their lives with educational values. According to Siraj et al. (2014), education is a system of the supra-system of national development that will support the success of achieving national development goals. Education is directed at efforts to develop the quality of human resources, especially for the younger generation. According to the Republic of Indonesia Law on the National Education System No. 20 of 2003, "Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual, religious strength, self-control, intelligence, noble morals, and skills needed by themselves, society, nation, and state."

Learning objectives refer to the expected results of the learning process, which include knowledge, skills, abilities, and attitudes that students should have (Metsärinne & Kallio, 2015). These results are expressed as behaviour that can be observed and measured. According to the Regulation of the Minister of Education and Culture Number 4 of 2018, student learning outcomes are influenced by internal and external factors of the students. 1) Internal factors (originating from within the students) include: (a) Intelligence is critical to determining the success of student studies; intelligent children are very likely to achieve exemplary learning achievements; (b) Talent is an ability that must be developed through the learning process; each student has different talents; (c) Interest and attention. If students are interested in a subject, they pay attention and understand it in depth. 2) External factors (factors originating from outside the students) include (a) the environment consisting of the natural environment, family environment, and community environment. Environmental conditions, such as weather, greatly influence learning achievement. Children who receive support from peaceful families tend to improve their learning achievements. A supportive community environment contributes to better learning outcomes. A supportive community environment fosters learning achievements. (b) Learning equipment for learning activities requires supporting facilities and infrastructure to achieve excellent performance. All factors that influence learning outcomes, both internal and external factors, greatly influence learning goals, making students unable to achieve learning goals if they are still influenced by the factors above. One of the most important factors affecting student learning outcomes is the students' physical fitness level, which is directly related to students in the teaching and learning process.

Furthermore, technological developments are also growing in this increasingly modern era of globalization. Technology will continue to evolve in tandem with the rapid advancement of science. New information and knowledge spread quickly to anyone who needed it. According to Daeng et al. (2017), the current development of communication technology has enabled humans to connect without being limited by distance, time, and space. The unification of various functions of communication tools has been integrated into a gadget communication tool.

According to Kwek (2022), gadgets are small electronic devices that can be carried anywhere. Gadgets are constantly developing with new features that are useful for humans. Gadgets are one aspect of technological progress that consistently displays the latest technology to facilitate human activities. They are one of the things that make it possible to speed up the completion of various tasks and jobs.

This world is filled with gadget equipment, and there is a primary need for information, Internet-based technology, and communication. Humans are accustomed to using gadgets to make calls, take pictures, record videos and sound, play music, access the Internet, process data, and perform other activities.

Several benefits of using gadgets include being used by adults, many children, and school-age teenagers, who use them to help with schoolwork. In addition, gadgets can also provide broad information and insight to students when they find learning materials being studied. Therefore, many teachers use gadgets as a learning medium to help teachers learn at school (Adib, 2021). With gadgets as a learning medium, students can search for e-books, articles, and even videos related to the studied material. The ease of obtaining information and insight through gadgets makes students more active and motivated in the learning process (Ghavifekr & Rosdy, 2015). The higher the learning motivation of students, the better the learning outcomes of students. Gadget learning media can help teachers explain theories and concepts and how to practice using video gadgets so that students can understand the material. In addition, implementing evaluation is essential in teaching and learning activities. Therefore, the review should be carried out carefully and thoroughly and refer to the principles of good assessment, all of which are done to obtain information about student learning outcomes concerning cognitive aspects related to knowledge, affective related to attitudes, and psychomotor related to skills.

Based on initial observations at SMPN 4 Kandis on students' learning outcomes in the first semester, students' learning outcomes in the physical education subject at SMPN 4 Kandis still need to be higher. The minimum completion criteria of Curriculum 13 in physical education are 76. In terms of learning outcomes, several classes have a shallow level of completion. The observations show that several students do not understand the teacher's explanation when they carry out field practice, so they often make mistakes that reduce their learning motivation, thus affecting their learning outcomes. Therefore, media is needed to help teachers explain the material being studied in detail.

## **Literature Review**

### ***Audiovisual media***

The media used in the learning process is called learning media. In the use of learning media, media acts as a tool to help teachers convey messages from the learning materials given by the teacher to students. According to Dalal (2019), media is a communication channel tool.

Media is a messenger from the sender to the recipient of the message; thus, media is a vehicle for distributing learning information or channelling messages (Chandler & Munday, 2011). Media is one of the communication tools used to convey messages, and it is beneficial if implemented in the learning process. There are some forms of learning media. One of the examples is audiovisual media.

Fuady and Mutalib (2018) stated that audiovisual media have sound and image elements. This media type has better capabilities because it includes the first and second types. Audiovisual media means media or tools produced and used to communicate information and counselling that can be heard and seen in the teaching and learning process. In addition, it means that audiovisual learning media are means or infrastructures absorbed through sight and hearing to help achieve learning goals.

### ***Gadget learning media***

According to Osatuyi (2013), media is a form and channel that can be used to present information. A medium is needed to communicate in the delivery process. Etymologically, the gadget comes from the term for small electronic devices that have special functions. A gadget is a small technological tool or item with a particular function, often associated with an innovation. It is an electronic device with a specific function; for example, it can be used as a voice recorder, play videos, display photos, and serve as a monitoring or communication tool. Nye (2007) stated that gadgets always appear when new technology is presented, which makes it easier for humans to do something. Therefore, a gadget is an electronic device that was created in the form of information technology.

The benefits of gadgets include helping students find information that can support their knowledge at school; with gadgets, children can recognize letters and numbers, and children with weak fine motor skills can use typing skills to improve coordination. However, it is usually limited to children, and its use is only as a learning medium, playing games, and watching animations. In addition, Shih (2011) stated several benefits of using gadgets. First, knowledge can be increased through learning applications provided by gadgets for children's learning processes. Second, it increases friendship networks and facilitates children's communication by using the social media they use. Gadgets have several benefits: 1) Students can ask teachers through social media. 2) Teachers can provide consultation to students regarding lessons. 3) Students are helped by the ease of information on the Internet. 4) Teachers can save time during learning activities. 5) Gadgets are very interactive. Based on the description above, gadgets have many benefits that can help facilitate human activities in everyday life, including children's learning activities.

### *Learning motivation*

According to Dörnyei (2000), motivations are internal or external processes in an individual that cause enthusiasm and persistence in carrying out certain activities. Motivation is an active energy that causes a change in a student, which is seen in psychological symptoms, feelings, and emotions. It encourages individuals to act or do something because of goals, needs, or desires that must be satisfied (Handayani et al., 2019). Therefore, learning motivation is an individual's drive to carry out learning activities. The drive-in question can be in the form of solid hopes or desires to succeed in learning. If students have high learning motivation, then the entire learning process will be followed well, starting from curiosity and intensity in paying attention to lesson explanations and reading material to finding the right strategy in learning to achieve good academic results for students so that the learning process can run smoothly.

### *Learning outcomes*

According to Lee (2011), student learning outcomes are successes achieved by students. The successes can be student learning achievements at school, manifested in numbers, where learning outcomes are patterns of behaviour, values, understandings, attitudes, appreciation, and skills. The high and low learning outcomes can indicate the amount of knowledge possessed or mastered by students in a particular field of study.

Assessment of learning outcomes needs to pay attention to several things (Moonti et al., 2021), including: 1) The assessment should be designed in such a way that it is clear what abilities must be assessed, the material to be assessed, the assessment tools, and the interpretation of the assessment results. 2) Assessment must be an integral part of the learning process. 3) The assessment must use various tools (instruments), such as tests and non-tests, to obtain objective results. 4) The selection of assessment tools must be based on the established competencies. 5) Assessment tools, such as written essays, performance tests, student work, projects, and portfolios, must encourage students' reasoning and creativity. 6) Assessment objects must include aspects of knowledge, skills, attitudes, and values. 7) Assessment must refer to the principle of differentiation, namely providing opportunities for students to show what they know, understand, and can do. 8) Assessment is not discriminatory. Teachers must be fair and honest with all students and be responsible for all parties. 9) Assessment must be followed by follow-up. 10) Assessment must be oriented towards life skills and be educational. According to Kvasova and Kavytska (2014), validity is one of the absolute requirements that must be met by learning outcome tests, both standard and self-made by teachers. It is the extent to which the test measures the proper knowledge or characteristics as intended by the test's purpose.

## Methodology

### *Research design, site, and participants*

This research used quantitative research with a quasi-experiment design using 2x2 factorial approaches. Shadish and Luellen (2012) stated that a quasi-experiment is a form of research that approaches a natural experiment. This research aims to directly test the effect of one variable on another variable and test hypotheses regarding cause-and-effect relationships. According to Auspurg and Hintz (2014), factorial design is an approach in which one or more variables are manipulated simultaneously to study the effect of each variable on the dependent variable and the impact of interactions between several variables. The sample of this research was chosen by purposive sampling—the sample comprised the 8<sup>th</sup> grade students of classes 1 and 2, with 32 students. Furthermore, the data are obtained through questionnaires.

## Findings

### *Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis gadget learning media group (A1)*

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 16), the highest value was 90.7, the lowest value was 80, the average was 85.2, and the standard deviation was 3.66. The frequency distribution of gadget learning media data results is as follows.

**Table 1.** Frequency distribution of learning outcome data for the 8<sup>th</sup> grade students at SMPN 4 Kandis gadget learning media group (A1)

No	Interval Class	Absolute frequency	Relative frequency	Information
1	>89.4	0	0.0%	Very Good (VG)
2	86.2 – 89.4	6	37.5%	Good (G)
3	82.9 – 86.1	3	18.8%	Average (A)
4	79.7 – 82.8	7	43.8%	Poor (P)
5	<79.7	0	0.0%	Very Poor (VP)
	Total	16	100%	

Table 1 shows that the learning outcomes using gadget learning media were obtained in the interval class >89.4 with zero students (0%), the interval class 86.2 - 89.4 with six students (37.5%), the interval class 82.9 - 86.1 with three students (18.8%), the interval class 79.7 - 82.8 with seven students (43.8%), and the interval <79.7 with no students (0%). Compared to each

interval class with an average score, overall, the learning outcomes given the use of gadget learning media in the interval class 82.9 - 86.1 are in the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis audiovisual media group (A2)***

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 16), the highest value was 91.7, the lowest value was 80.3, the average was 83.92, and the standard deviation was 2.67. The frequency distribution of the audiovisual media data results is as follows.

**Table 2.** *Frequency distribution of data on the results of learning outcome values of the 8<sup>th</sup> grade students at SMPN 4 Kandis audiovisual media group (A2)*

No	Interval	Absolute frequency	Relative frequency	Information
1	>89.4	1	6.3%	Very Good (VG)
2	86.2 – 89.4	2	12.5%	Good (G)
3	82.9 – 86.1	10	62.5%	Average (A)
4	79.7 – 82.8	3	18.8%	Poor (P)
5	<79.7	0	0.0%	Very Poor (VP)
Total		16	100%	

Table 2 shows that the learning outcomes using audiovisual media are obtained by one student (6.3%) in the interval class >89.4, two students (12.5%) in the interval class 86.2 - 89.4, ten students (60.5%) in the interval class 82.9 - 86.1, three students (18.8%) in the interval class 79.7 - 82.8, and no one (0%) in the interval <79.7 Compared to each interval class with the average score, the learning outcomes of physical education given audiovisual media in the interval class 82.9 - 86.1 are in the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis with high learning motivation (B1)***

The results of the sample measurements in this group consisted of 2 sample groups (n = 16); the highest value was 91.7, the lowest value was 81, the average was 85.5, and the standard deviation was 3.45. The frequency distribution of the high-motivation group data results is as follows.

**Table 3.** *Frequency distribution of learning outcome data of the 8<sup>th</sup> grade students at SMPN 4 Kandis with high learning motivation (b1)*

No	Interval	Absolute frequency	Relative frequency	Information
1	> 89.4	1	6.3%	Very Good (VG)
2	86.2 – 89.4	5	31.3%	Good (G)
3	82.9 – 86.1	3	18.8%	Average (A)
4	79.7 – 82.8	7	43.8%	Poor (P)
5	< 79.7	0	0.0%	Very Poor (VP)
Total		16	100%	

Table 12 shows the learning outcomes of the high-motivation group: an interval class of > 89.4 of 1 student (6.3%), an interval class of 86.2 - 89.4 of 5 students (31.3%), an interval class of 82.9 - 86.1 of 3 students (18.8%), an interval class of 79.7 - 82.8 of 7 students (43.8%), and an interval < 79.7 of 0 students (0%). Compared to each interval class with an average score, the overall learning outcomes in the high motivation group that used gadget learning media in the interval class of 82.9 - 86.1 were in the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis with low learning motivation (B2)***

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 16), the highest value was 90.7, the lowest value was 80, the average was 83.5, and the standard deviation was 2.7. The frequency distribution of the low motivation group data results is as follows.

**Table 4.** *Frequency distribution of learning outcome data for the 8<sup>th</sup> grade students at SMPN 4 Kandis with low learning motivation (B2)*

No	Interval	Absolute frequency	Relative frequency	Information
1	>89.4	1	6.3%	Very Good (VG)
2	86.2 – 89.4	3	18.8%	Good (G)
3	82.9 – 86.1	7	43.8%	Average (A)
4	79.7 – 82.8	5	31.3%	Poor (P)
5	<79.7	0	0.0%	Very Poor (VP)
Total		16	100%	



Table 4 shows the learning outcomes of the low motivation group: an interval class  $>89.4$  of 1 student (63.3%), an interval class of 86.2 - 89.4 of 3 students (18.8%), an interval class of 82.9 - 86.1 of 7 students (43.8%), an interval class of 79.7 - 82.8 of 5 students (31.3%), and an interval  $<79.7$  of 0 students (0%). When compared to each interval class with an average score, the learning outcomes in the low motivation group are in the interval class 82.9 - 86.1 with the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis gadget learning media group with high learning motivation (A1B1)***

From the results of measuring samples in this group, consisting of 2 sample groups ( $n = 8$ ), the highest value was 90, the lowest value was 81, the average was 84.7, and the standard deviation was 3.21. The frequency distribution of the data results of the gadget Learning media group with high motivation is as follows.

**Table 5.** *Frequency distribution of learning outcome data for the 8<sup>th</sup> grade students at SMPN 4 Kandis gadget learning media group with high learning motivation (a1b1)*

No	Interval	Absolute frequency	Relative frequency	Information
1	$>89.4$	1	12.5%	Very Good (VG)
2	86.2 – 89.4	1	12.5%	Good (G)
3	82.9 – 86.1	3	37.5%	Average (A)
4	79.7 – 82.8	3	37.5%	Poor (P)
5	$< 79.7$	0	0.0%	Very Poor (VP)
Total		8	100%	

Table 5 shows that the learning outcomes of the gadget learning media group with high motivation were obtained in the interval class  $>89.4$  with one student (12.5%), the interval class 86.2 - 89.4 with one student (12.5%), the interval class 82.9 - 86.1 with three students (37.5%), the interval class 79.7 - 82.8 with three students (37.5%), and the interval  $<79.7$  with no students (0%). Compared to each interval class with the average score, the overall learning outcomes in the gadget learning media group with high motivation who are in the interval class 82.9 - 86.1 are in the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis in the gadget learning media group with low learning motivation (A1B2)***

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 8), the highest value was 86.7, the lowest value was 80, the average was 83.46, and the standard deviation was 2.16. The frequency distribution of the data results of the gadget learning media group with low motivation is as follows.

**Table 6.** *Frequency distribution of data on learning outcomes of the 8<sup>th</sup>-grade students at SMPN 4 Kandis in the gadget learning media group with low learning motivation (a1b2)*

No	Interval	Absolute frequency	Relative frequency	Information
1	>89.4	0	0.0%	Very Good (VG)
2	86.2 – 89.4	2	25.0%	Good (G)
3	82.9 – 86.1	4	50.0%	Average (A)
4	79.7 – 82.8	1	12.5%	Poor (P)
5	<79.7	1	12.5%	Very Poor (VP)
Total		8	100%	

Table 6 shows that the results of the gadget learning media group that has low motivation are obtained from the interval class > 89.4 with no one (0%), the interval class 86.2 - 89.4 with two students (25%), the interval class 82.9 - 86.1 with four students (50%), the interval class 79.7 - 82.8 with one student (12.5%), and the interval <79.7 was only one student (12.5%). When compared to each interval class with the average score, the learning outcomes in the gadget learning media group that has low motivation are in the interval class 82.9 - 86.1 with the medium category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis audiovisual media group with high learning motivation (A2B1)***

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 8), the highest value was 91.7, the lowest value was 81.7, the average was 86.3, and the standard deviation was 3.70. The frequency distribution of the data results of the audiovisual media group with high motivation is as follows.

**Table 7.** *Frequency distribution of learning outcome data for the 8th-grade students at SMPN 4 Kandis audiovisual media group with high learning motivation (a2b1)*

No	Interval	Absolute frequency	Relative frequency	Information
1	>89.4	0	0.0%	Very Good (VG)
2	86.2 – 89.4	4	50.0%	Good (G)
3	82.9 – 86.1	1	12.5%	Average (A)
4	79.7 – 82.8	3	37.5%	Poor (P)
5	<79.7	0	0.0%	Very Poor (VP)
Total		8	100%	

Table 7 shows that the learning outcomes of the audiovisual media group with high motivation were obtained in the interval class >89.4 as no one (0%), the interval class 86.2 - 89.4 with four students (50%), the interval class 82.9 - 86.1 with one student (12.5%), the interval class 79.7 - 82.8 with three students (37.5%), and the interval <79.7 with no students (0%). Compared to each interval class with an average score, overall, the learning outcomes in the audiovisual media group with high motivation are higher in the interval class 86.2 - 89.4 with the good category.

***Learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis audiovisual media group with low learning motivation (A2B2)***

From the results of the sample measurements in this group, consisting of 2 sample groups (n = 8), the highest value was 90.7, the lowest value was 80.3, the average was 83.3, and the standard deviation was 3.32. The frequency distribution of the data results of the audiovisual media group with low motivation is as follows.

**Table 8.** *Frequency distribution of learning outcome data for 8th-grade students at SMPN 4 Kandis audiovisual media group with low learning motivation (a2b2)*

No	Interval	Absolute frequency	Relative frequency	Information
1	>89.4	1	12.5%	Very Good (VG)
2	86.2 – 89.4	0	0.0%	Good (G)
3	82.9 – 86.1	4	50.0%	Average (A)
4	79.7 – 82.8	3	37.5%	Poor (P)
5	<79.7	0	0.0%	Very Poor (VP)
Total		8	100%	

Table 8 shows that the learning outcomes of the audiovisual media group with low motivation were obtained in the interval class  $>89.4$  with no one (12.5%), the interval class 86.2 - 89.4 with no students (0%), the interval class 82.9 - 86.1 with four students (50%), the interval class 79.7 - 82.8 with three students (37.5%), and the interval  $<79.7$  with no students (0%). Compared to each interval class with the average score, overall, the learning outcomes in the audiovisual media group with low motivation who are in the interval class 82.9 - 86.1 are in the medium category. The normality test for each frequency distribution uses the Lilliefors test as follows.

**Table 9.** *Normality test of research data*

Category	N	<i>P Value</i>	$\alpha$	Information
A1	16	0.015	0.05	Normal
A2	16	0.200		Normal
B1	16	0.200		Normal
B2	16	0.111		Normal
A1B1	8	0.200		Normal
A2B1	8	0.200		Normal
A1B2	8	0.200		Normal
A2B2	8	0.200		Normal

Therefore, from the table above, the data of each variable is normally distributed. After that, a homogeneity test is used to test whether the learning outcome variable data comes from a homogeneous population for variance, nutritional status, self-confidence, and learning motivation. Below is the homogeneity test table.

**Table 10.** *Homogeneity test*

Variable	<i>Sig.</i>	<i>P-Value</i>	Information
$A_1B_1$	0.124	0.05	Homogeneous
$A_1B_2$	0.092		Homogeneous
$A_2B_1$	0.331		Homogeneous
$A_2B_2$	0.207		Homogeneous

The data above shows that the samples come from the same type or a homogeneous population. Hypothesis testing in this research uses a two-way Analysis of Variance (ANOVA) with SPSS. Furthermore, the sample is normally distributed and comes from the same or homogeneous group data variant. In that case, a hypothesis or further test is carried out with

two-way ANOVA and a t-test. The hypothesis test results are in the table below for more details.

**Table 11.** *Two-way ANOVA test results*

<b>Tests of Between-Subjects Effects</b>					
Dependent Variable: Learning Outcomes					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47.128 <sup>a</sup>	3	15.709	1.612	.209
Intercept	228809.213	1	228809.213	23473.738	.000
A	12.878	1	12.878	1.321	.260
B	32.200	1	32.200	3.303	.080
A * B	2.050	1	2.050	.210	.650
Error	272.929	28	9.747		
Total	229129.270	32			
Corrected Total	320.057	31			

a. R Squared = .147 (Adjusted R Squared = .056)

Table 11 shows no interaction between learning media and learning motivation on the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis. The effect of the interaction can be seen from  $F_o (0.210) < F_t (4.15)$ . After the effect of the interaction is known, further testing or an independent sample t-test is carried out. Below are the results.

**Table 12.** *Results of independent sample test*

No	Difference test	T-count	Sig.	T-table	Information
1	A1*A2	1.121	0.271	1.308	Ho rejected
2	A1B1*A2B1	1.034	0.319	1.308	Ho rejected
3	A1B2*A2B2	0.549	0.591	1.308	Ho rejected

## Discussions

***There is no significant difference between the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis who were given gadget learning and audiovisual media.***

The results of the first hypothesis test indicate that there is no significant difference in the learning outcomes of 8th-grade students at SMPN 4 Kandis who were given gadget learning media and those given audiovisual media. The analysis of the independent sample t-

test states that  $T_h (1.121) < T_t (1.308)$ , meaning that the research hypothesis is rejected. This means that the proposed research hypothesis has not been tested for its truth (not accepted).

***There is no interaction between learning media and learning motivation on the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis.***

The results of the second hypothesis test indicate no interaction between learning media and learning motivation on the learning outcomes of 8th-grade students at SMPN 4 Kandis. This is illustrated by the results of the two-way variance analysis, which states that  $F_o (0.210) < F_t (4.15)$ , meaning that the research hypothesis is rejected. Based on these findings, both learning media and learning motivation do not significantly influence the learning outcomes of 8th-grade students at SMPN 4 Kandis.

***There is no significant difference between the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis who were given gadget learning media and students who were given audiovisual media in the group of students with high learning motivation.***

The third hypothesis test results show that 8th-grade students at SMPN 4 Kandis who were given gadget learning media, and those who were given audiovisual media had the same level of learning success. These results were found in a group of students who were very motivated to learn. This conclusion is supported by the t-test results, which show that  $T_h (1.034) < T_t (1.308)$ , which means the research hypothesis is declined.

The findings of this research indicate no significant difference in the learning outcomes of 8th-grade students at SMPN 4 Kandis when comparing the use of gadget learning media and audiovisual media. In line with what [Suing et al. \(2023\)](#) said, this result shows that audiovisual media do not significantly impact how the students learn social studies. An essential value of  $0.502 > 0.05$  suggests that the effectiveness of learning materials is not just based on the type of media used but also on how well the media supports the cognitive processes needed for learning.

Even though gadgets and audiovisual media might be good for getting students more involved, the fact that there are no significant differences suggests that cognitive load and what students already know are much more critical in determining how well they learn. Sweller's Cognitive Load Theory (1988) posited that presenting information beyond the learner's cognitive capacity can hinder learning. This theory may explain why both media types yielded similar results; the complexity of the content might have overwhelmed some students, regardless of the media used. The evidence suggests that variations in students' working memory capacity result in differences in their ability to receive and process the material ([Bichler et al., 2020](#)). Therefore, if the total number of thinking processes required exceeds the working memory capacity of each student, a cognitive load will arise. Cognitive load theory is

related to complex cognitive tasks in learning. Students often face difficulties before the central learning begins due to the large amount of interactive information they must process simultaneously. Sepp et al. (2010) stated that there are three cognitive load theories in working memory. The first is intrinsic cognitive load, which affects how each person's working memory processes information during learning, depending on the material's difficulty. Second, extraneous cognitive load stems from factors that impact the teaching materials teachers use to present learning content to students. Third, Germane's Cognitive Load is influenced by the load on the learning process, which depends on the relationship between the effects of intrinsic and extraneous loads. Many students express dissatisfaction over the excessive demands for individual and group tasks. The overlapping requirements from different subjects sometimes make students work on tasks during other learning processes. They are multifaceted, not studying one object at a time.

In addition, this research highlights the absence of interaction between learning media and learning motivation. This finding aligns with the research by Deci and Ryan (2013), showing that intrinsic motivation greatly influences the students' learning process because a person interested in learning will have a drive to achieve their expected goals. (2) Extrinsic motivation also greatly influences students' learning processes because when someone occupies a comfortable learning environment, a more vigorous enthusiasm for learning will also arise, and (3) Intrinsic and extrinsic motivation greatly influence students' learning processes. Both are also closely related because the learning outcomes will decrease when someone only has inherent motivation and is not balanced with a favorable learning environment. If students are not well motivated, even the most engaging media may fail to improve their learning significantly. Furthermore, these results emphasize the importance of considering pedagogical strategies and media choices. Kusumoto (2018) noted that effective teaching strategies that encourage active learning and critical thinking can significantly impact student learning outcomes. The fact that there were no significant differences in how well students learned suggests that the teaching methods used with these media weren't varied or interesting enough to get different student responses.

### **Conclusion**

Based on the data that have been analyzed, the conclusion is that there is no significant difference in the learning outcomes of the 8<sup>th</sup> grade students at SMPN 4 Kandis who use gadget learning media compared to audiovisual media. The results indicate that both media types have similar effectiveness in improving student learning outcomes. Although gadgets and audiovisual media have their respective advantages, they do not impact classroom learning differently. In addition, this research also found that the interaction between learning media and student learning motivation, both high and low, does not have a significant effect on learning outcomes. This finding implies that other factors, such as teaching methods and learning environments, may be more influential in influencing learning outcomes. Therefore,

educators are advised to consider these aspects when designing more effective and comprehensive learning strategies.

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