The Impact of Audio-Visual Media toward Learning Result in the Subject of Seizing Picture

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Article Info	Abstract
	The development of the learning model aimed to create learning conditions that facilitate students to be active and enjoy every learning process so that the students can optimize their achievement. One of the support tools to create an ideal learning atmosphere was learning media. The aimed of this study were to understand the impact of audio-visual media in seizing picture subject between two groups of students. This research applied Research and Development (R&D) approach. The participants consist of 2 lecturers with media expertise, 2 teachers, and 34 students of the X grade students of Light Vehicle Engineering who were selected randomly. The finding showed that there was a significant difference in the learning result. The experiment group that used audio-visual media achieved 83,24% (very high categories), while the control group that used written material achieved 49,43% (adequate-category). Based on the result above, it can be concluded that audio-visual media can improve students' competency in seizing pictures subject.

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INTRODUCTION

Covid 19 pandemic is the number one health crisis in the world. Many countries preferred to close the school and university included in Indonesia (Purwanto et al., 2020). Covid 19 brings positive and negative effects to human beings and the universe. Everything had done by the government to decrease Covid 19 cases. One of the policies was online learning and social distancing to all students (Dwi et al., 2020).

Distance learning became a solution to solve face-to-face learning or direct learning. It gave a new challenge to all education elements to maintain the class remains active even though the school had been closed. The wave of online learning occurred around the world during the pandemic (Goldschmidt & Msn, 2020). The teacher as the education front line faced a change and never had before, traditional or face-to-face classroom transformed into distance learning. (Basilaia & Kvavadze, 2020).

There were many challenges in conducting online learning. Putri et al., (2020) explained that students, teachers, and parents assumed online learning contained limited communication. Furthermore, the students were not disciplined, lack of mastering technology, and the internet cost was high. Allo (2020) found that students asked the teacher to make a group assignment for each assignment since most of the students did not have adequate internet, mobile phone, laptop, or computer.

Based on the observation in Vocational High School (SMK) Saraswati Salatiga, most of the teachers used google classroom. It was chosen because easy to use, to solve the internet cost, low internet networking in students' homes. During online learning, many teachers used written-handout without animation or videos and uploaded assignments through google classroom. The students were difficult to understand the materials, which caused their learning achievement to become low. Widjanarko et al. (2021) found that students who passed the minimum score in Engineering were 40% to 45%. But it can be avoided if the teacher applied audio-visual media in the learning process. Zhang et al. (2006) explained that it was crucial to integrate interactive audio-visual media in an e-learning system. It is because learning media can help students to improve their knowledge (Ghory & Ghafory, 2021).

With the growing fast of technology in the 4.0 industry, audio-visual media became one of the solutions in conducting online class-based technology. Many advantages of audio-visual in the learning process were: a) easy to use in the learning process, b) more interesting to attract students, c) can be edited anytime. Adopting audio-visual media can be used to deliver material included learning materials visualization, and the class became more interesting (Haryoko, 2015). Ashaver & Igyuve (2013) explained the importance of audio-visual media in the learning process that included all senses and experiences. Ashaver & Igyuve (2013) supported students' participation, stimulate students' interest, and became learning sources.

Based on Khumaedi's research (2019) about students' achievement in Engineering Drawing, students were in the needed category to use media in Engineering Drawing subject. In learning media, Asmara (2015) elaborated that learning media needed to add attractive animations and audio to improve the slide. Furthermore, Fakhri et al. (2019) elaborated that the learning process added interactive learning to train students' psychomotor so that the learning output was optimum. Apriansyah et al. (2020) said that learning video-based animation can be a new face in interactive learning between teachers and students.

Based on the background above, the researcher concluded that a deep study needed to be conducted. The aimed of this study were to know how audio-visual media can give a positive impact in seizing picture subject. Furthermore, the improvement percentage (%) of students' achievement among students will be presented.
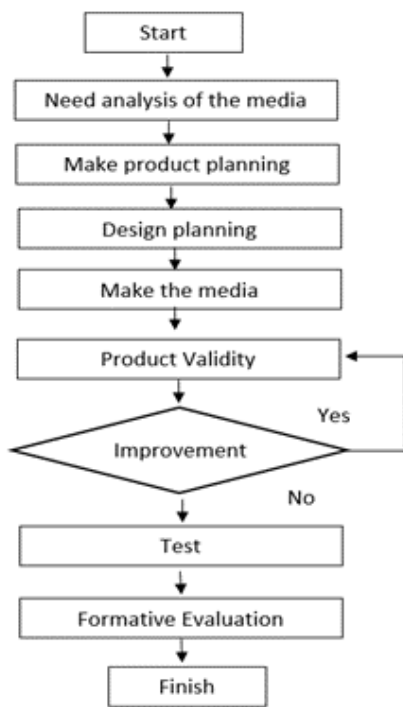
METHOD

This research applied Research and Development approach to get the product as learning media in seizing picture subject. Sugiyono (2016) said that research and development methods were a method that was used to gain certain results and examined the effectiveness of the product.

The research development of this study applied the ADDIE model. Pribadi (2014) explained that there were five steps in developing this model. Those were analysis, design, development, implementation, and evaluation.

The need analysis became the number one reason whether learning media such as audio-visual was needed or not in the learning process. Direct observation was used to gain some information such as situations, conditions, and learning media in the class. The need analysis towards audio-visual media in seizing picture subjects was students' competency in deciding the picture size. The core and base competency in Engineering Drawing, especially in seizing pictures forced the teachers to use innovative and creative media. The analysis result as the guidance to construct the pattern design such as material, learning media, learning process, appearance design of audio-visual media in seizing picture subject.

After constructing materials and making the learning media, an examination was needed. It to know whether it was suitable or not in seizing picture subjects. After examining the media, the researcher applied evaluation media. The aimed of evaluation media were to know the strength and the weakness of media that have been made. After evaluating the media, the researcher examined the validity of the design. The purpose was to measure whether the output was better or not than before. After the examiner stated the media was worthy to be used, the learning media can be stated as valid.

The product implementation was given to the control class and the experiment class. The experiment design was used to test the effectiveness of audio-visual media in the seizing picture subject. The evaluation procedure used formative evaluation. It meant that the evaluation was held at the end of each topic discussion. The purpose of this evaluation was to control the picture and learning media quality. In addition, this formative evaluation also was used to know the efficiency of developed learning media by the researcher. The diagram of product planning can be seen in picture 1.

This research was held on the second semester 2020 – 2021 academic year in the X grade of Light Vehicle Engineering SMK Saraswati Salatiga with a population consisted of X TKRO-A, X TKRO-B, X TKRO-C, dan X TKRO-D class. Proportional random sampling was applied in this research. Sugiyono (2016) explained that the data of proportional random sampling was taken randomly without considering the population level.

The analysis technique of this research was changing quantitative data into a percentage to examine the worthiness of developed learning media. The researcher used a formula to analyze the data:

$$P = \frac{\sum x}{\sum x_i} \; x \; 100 \; \%$$

(Arikunto, 2013)

Note:

P : The Persentage of Validity

$\sum x$: The total number of answer in all items

$\sum x_i$: The total number of ideal score in all items

Picture 1. The Diagram of Product Design

Table 1. The criteria of media validity

No.	Achievement	Qualification	Category
1	81-100%	Very well	Very worthy
2	61-80%	Good	Worthy
3	41-60%	Adequate	Unworthy
4	21-40%	Not good	Not feasible
5	<20%	Poor	Very unworthy

(Arikunto, 2013: 35)

The performance test was conducted to gain the data, and a pre-test was held by examined students' performance that had been validated. The purpose of the diagnostic test was to know the

students' competence in experiment groups and control groups. The result was the two groups had the same competence. If there was a gap score in the post-test, it meant the treatment of the experiment class had an influence on the student achievement.

RESULT AND DISCUSSION

3.1 The validity result from experts

The purposed of expert validation was to know the validity and the feasibility of the product result based on expert judgment. The result of expert validity is fundamental data to organize a revision before testing the product. This activity consisted of two parts those are material expert validation and media expert validation.

3.1.1 The Result of Material Experts Validation

Many aspects had been validated, such as learning design, appropriate material, and the benefit of presented audio-visual learning media. The result of experts' validation activity can be seen as follows.
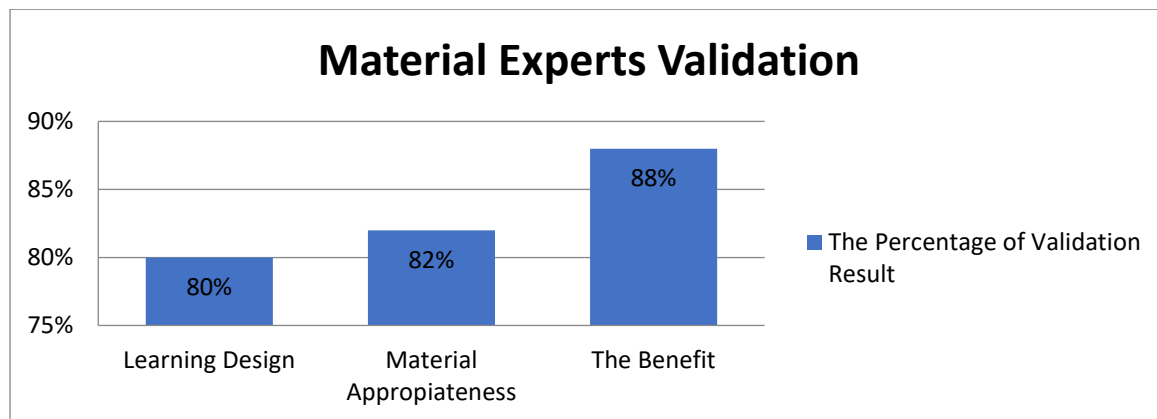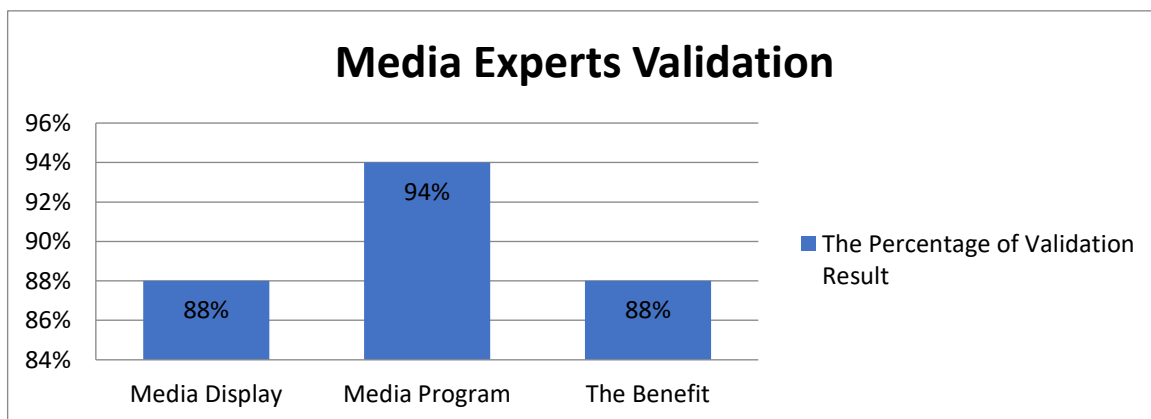

Picture.2 The graphic of material expert validation

3.1.2 The Result of Media Experts Validation

The validation aspects consisted of the media display, media program, and the benefit of learning media. The result of media experts' validation can be seen in the following graphic.

Picture.3 The graphic of media experts' validation

The analysis of media expert validation in picture 3 showed that the average score of media experts achieved 88,4% for a very worthy category. All media aspect categories were pronounced as very worthy and can be used in the learning process.

3.2 Product Revision

Even though audio-visual learning media in the seizing pictures had been judged as worthy, the experts gave some advice to improve the material and the media. The suggestions will be elaborated into two categories; material revision, and media revision.

3.2.1 Material Revision

Based on material experts' validation, the developed media had some weaknesses that needed to be improved, namely:

a. Some materials were not complete and needed to add
b. In the video, some materials were not explained

3.2.2 Media Revision

Based on media experts' validation, some aspects needed to revise:

a. The icons were not colorful/ contrast
b. The button sizes were not appropriate

c. The font sizes and the font types were not appropriate

3.3 The Result of Product Testing

The researcher gave the product to the 15 students of X TKRO-D that had followed the learning process in the seizing pictures competency.

To gain the students' response toward audio-visual media, the researcher gave questionaries to the 15 students. The questionnaire content consisted of some aspects such as learning design, learning media, media program, learning material, and the benefit. The graphic of product validity can be shown in picture 4.
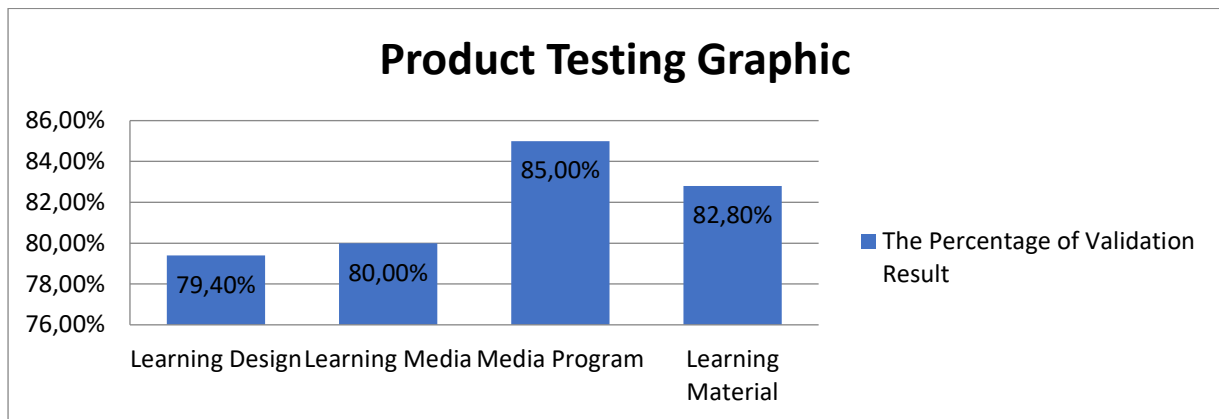
Picture.4 The graphic of product testing

The data showed that the media program achieved 85,0% and 82,8% for learning material. In other words, the two aspects got very worthy categories. Furthermore, learning design gained 79,4% and learning media achieved 80,0%. The students gave some advice for the improvement product such as media display and the comprehensiveness of the material.

3.4 Pre- Test

To ensure the experiment and control group had the same initial competencies, the researcher conducted a pre-test. All data of the present research applied IBM SPSS ver. 20,0 application and the acceptance criteria in the probability level of 0,05 (5%). After that, the pre-test result was analyzed by using Independent Sample Test. The result can be seen in table 2.

Table 2. Pre-test result

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Pre-test	Equal variances assumed	0.016	0.899	0.324	66	0.747	0.588
	Equal variances not assumed			0.324	65.99	0.747	0.588

Table 2 showed learning achievement between two groups had t 0,324 score and sig = 0,747 bigger than (>) 0,05. In conclusion, the zero hypotheses (Ho) were accepted and the alternative hypotheses (Ha) were rejected. The result of the two groups was similar. It can be stated that the experimental group and the control group had the same initial competency in seizing picture subjects before the treatment.

3.5 Normality Test and Homogeneity Data

The post-test result was examined to fulfill normality and homogeneity standards. Normality test used *Kolmogorov Smirnov* while homogeneity test applied *Levene's Test*. The significant criteria (sig.) were 0,05. The normality result by *Kolmogorov Smirnov* can be shown in table 3.

Table 3. Pre-test result using by *Kolmogorov Smirnov*

Group	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Experiment	0.147	34	0.062
Control	0.145	34	0.067

Table 3 showed Sig score, and the result of post-test achieved 0,062> 0,05 or the data stated as normal-distributed. On the other hand, the class control achieved a 0,067> 0.05 Sig score, and the data was stated as normal-distributed. In conclusion, the data of post-test were normally distributed.

Homogeneity purposed *Levene's Test* test can be seen in the table 4.

Table 4. Homogeneity test by *Levene's Test*

Levene Statistic	df1	df2	Sig
0.015	1	66	0.903

The significance of homogeneity got 0,903 (≥ 0.05), it showed post-test in the experiment and control class stated as homogeneous.

3.6 Post Test

The purpose of the Post-test was to evaluate the learning result with developed media in the group experiment and control group that applied common learning. The post-test was analyzed by using *the Independent Sample T-Test* in Table.5

Table.5 Post-test Result

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Post-test	Equal variances assumed	8.771	0.004	8.661	66	0.000	15.794
	Equal variances not assumed			8.661	53.537	0.000	15.794

Table 5 showed that t-count achieved 8,661 324 and sig score = 0,00 less than (<) 0,05. The alternative hypothesis (Ha) was accepted, while zero hypotheses (Ho) was rejected. In conclusion, there was a difference in the learning result between the control group and experiment group in seizing pictures competency.

Table 6. The average result between pre-test and post-test

Group	Pre-test Average	Post-test Average	Increasing Percentage (%)
Experiment	44.09	80.79	83.24
Control	43.50	65.00	49.43

Table 6 showed the average score of pre-tests in-class experiment achieved = 44,09 (adequate category). After giving the treatment used audio-visual media, the average score of post-tests increased 83,24% (high category), and in the end, achieved 80,79 (very high category). On the other hand, the average score of pre-tests in the control class was 43,50 (adequate category). After the control group was given materials by using written text, the post-test score achieved 65,00 (high category) increased 49,43% (adequate category). Furthermore, the increasing of learning outcomes especially the students who passed the passing grade (75) can be seen in table 7.

Table 7. the students' percentage (%) who passed the passing grade

Group	Student	Percentage (%)
Experiment	34	82.35
Control	34	41.18

Based on table 7, the students who passed the passing grade criteria in the experiment group achieved 82,35%, while the control group gained 41,18% who passed the passing grade.

3.7 The Result of Students' Score

Research subjects in the study were asked to rate the audio-visual learning media provided after participating in the lesson. The results of student assessments in this study are presented in Picture 5.
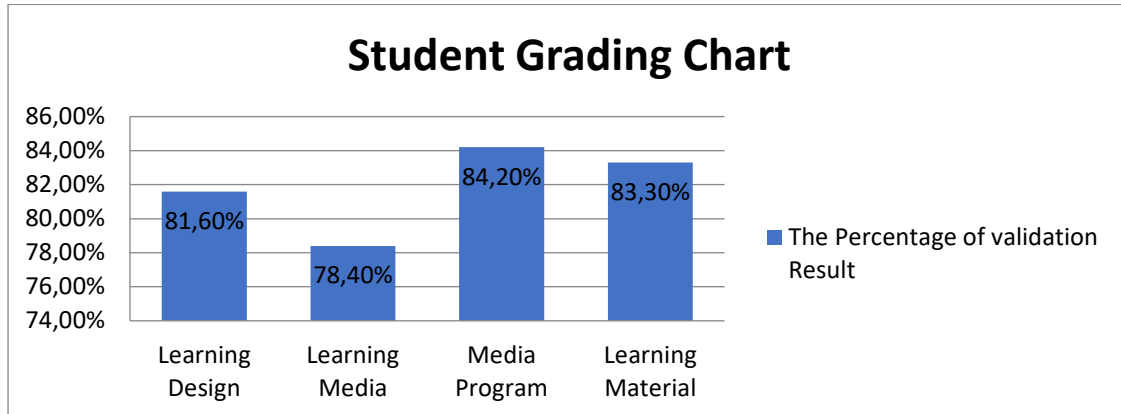
Picture 5. Student Grading Chart

Based on the data the result was 81,6% for learning design as categorized "very worthy", 78,4% for learning media categorized "worthy", 84,2% for media program or "very worthy", 83,3% for learning material as "very worth". After that, the students filled the questionnaire after joining the session. The result for questionnaire can be seen as follows:
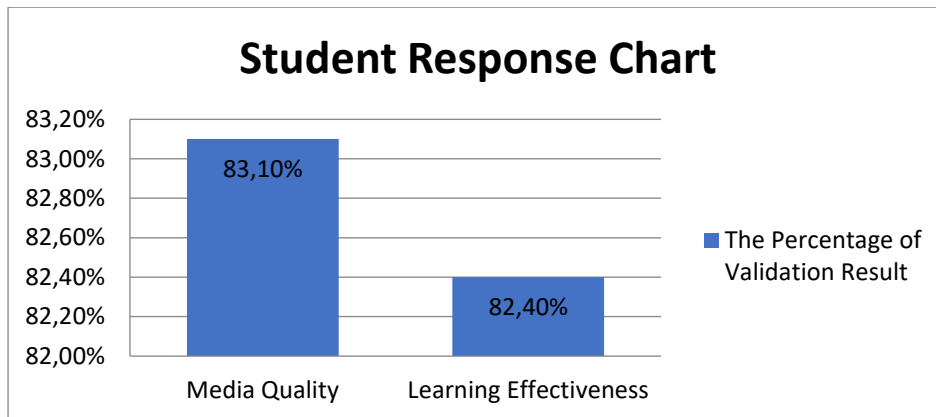
Picture 6. Students Response Chart

Based on the students' responses, the quality of the media achieved 83,1% and 82,4% for the learning effectiveness. In conclusion, the students stated that audio-visual media can help in the learning process.

The research result showed that media questionnaire validity decided the quality and worthiness of audio-visual learning media in the learning process. The validity can be shown from the display, program, and the benefit of audio-visual media. The selection of colors, fonts, pictures, and the quality of video became the important elements in making learning media. Purwono et al. (2014) explained that audio-visual had audio and visual elements. This media had the better ability because it was completed with audio and visual. Zamani & Nurcahyo (2016) explained that audio-visual became one of the effective media to improve the learning process. Furthermore, it helped students to gain knowledge from hard materials that cannot be observed directly. It correlated with the quality of pictures, sizes, colors, and layouts. Antari et al. (2016) explained that in the teaching-learning process, a picture had to have a good quality from the art side and learning purpose.

The research showed that there were three crucial indicators in questionnaire validity, those were learning design, material, and the benefit. Mujtahidin et al. (2017) elaborated pictures and video was used to enrich the text and concretize the storyline. It had a function to help students' comprehension and imagination. The audio-visual media enriched with pictures can help students in understanding material. Kawuryan & Raharjo (2012) explained that audio-visual became a bridge to the real world.

The result showed that there was a gap between learning output in seizing picture competency. It showed the learning with audio-visual can improve learning outcomes. This model

can be used in each education level and brings a positive effect on students' skills. Indaryati & Jailani (2015) explained that the lesson plan which used audio-visual attracted students, and the learning process became effective. It was in line with Sukma (2008) elaborated audio-visual media influenced students writing skills. Musfiqon (2012:187) stated that the learning process with multimedia was more effective and efficient. Furthermore, Yustina et al. (2018) explained the effectiveness of using audio-visual stimulated the students to explore their skills and be more independent.

The data showed that the percentage of students who passed the passing grade in the experiment group was higher than the students in the control group. It showed the learning with audio-visual media was easier to be accepted by the students. This result was in line with Alshatri et al. (2019) who observed the influence of learning media (visual, audio, audio-visual) in teaching Mathematic for Elementary School, especially for 7 to 9 grades. The result showed that the students preferred audio-visual media. It achieved 80%, while 6% for visual media and 14% for audio media. Ali et al. (2013) stated that the learning process in college was more active when the lecture used audio-visual media, especially for engineering subjects that need visualization.

Students judged that the audio-visual media was feasible and well packaged. Supported layouts, fonts, colors, and systematicity of media helped students to understand the material. Fujiyanto et al. (2016) stated that audio-visual media heighten children's attention with an attractive appearance. In addition, children would be afraid to miss the video if they did not concentrate and pay attention. Audio-visual media that displays the reality of the material can provide factual experiences for students when studying. In addition, Oemar Hamalik in Musfiqon (2012: 32) stated that learning media in the teaching and learning process generated new desires and interests. In addition, Mathew et al. (2013) elaborated that audio-visual as a teaching method was able to stimulate thinking and improve the learning environment in the EFL class of students majoring in English at Aljouf University. It can be said that audio-visual learning media was attractive and interesting.

In addition, the use of audio-visual media in learning received positive perceptions from teachers and students. Shabiralyani et al. (2015) said that most teachers and students have positive perceptions about the use of audio-visual media aids. Rezaie & Barani (2011) explained that teachers also had a good perception of audio-visual media devices based on their role in learning so that these devices were effective and able to improve learning.

CONCLUSION

Based on the finding and the discussion of this research, it can be concluded that the developed media were worthy to use in seizing picture learning based on media expert and material expert validation. Based on media expert validation, developed audio-visual media got 88,4% while the material got 82,1% for the material quality. The experts' judgment exclaimed that the learning media in seizing picture was worthy to be adopted.

The students stated that the learning media was worthy since they gave 83,1% (very worthy) for the quality of the media. Students' responses toward learning media based on questionnaires showed 82,4% of the students stated the media was effective (very worthy).

Audio-visual media and teaching materials resulted in different learning achievements in seizing picture competency. The increase of students' achievement in the experiment group that used audio-visual learning media achieved 83,24% (very high category). On the other hand, the control group who used written teaching materials got 49,43% (adequate-category). The students who passed the passing grade were 82,35% for the experiment group and 41,18% for the control group. Based on the result above, audio-visual media were recommended to be applied in the learning process, especially in seizing picture competency for achieving higher learning output.

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