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Utilization of Interactive Module to Improve Student Learning Interests in Materials Hydrocarbons and Earth Oil in XI IPA

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ABSTRACT
The research was conducted to find out whether there was an increase in student learning interest by using an interactive module and how much the increase was. The research subjects were students of class XI IPA Santo Kristoforus High School Jakarta with two treatments namely class XI IPA 1 as a control class using a student handbook totalling 33 students and class XI IPA 2 as an experimental class using interactive modules totalling 33 students. The total number of 66 students. Students and sampling techniques are done by purposive sampling (directly). Data collection techniques in this study used a Likert scale questionnaire with two group research design: pre non-test and post-nontes. Data obtained from the results of the pre-test was processed in excel which then tested for normality and homogeneity using SPSs 22 for Windows. From the test results obtained the results for the normality test sig value = 0.200 sig 0.05, meaning that it can be normally distributed. Whereas for homogeneity test obtained sig 0,420 sig 0,05 which means the data is homogeneous. To find out how to improve student learning outcomes, calculate the score through the gain test. In the control class there was an increase in student learning interest of 6.5%, with the highest indicator of pleasure of 46.51% while in the experimental class there was an increase in student interest in learning by 12.92%, with the highest indicator of interest of 72.41%.

Keywords: *Improvement, interest in learning, interactive modules, feeling of pleasure, interest*

1. INTRODUCTION

Quality education is very supportive of the creation of intelligent human resources and able to compete in the era of globalization. If in an environment the community takes education, then that environment will be superior to other environments (Buerck et al., 2003). This can be strengthened based on the research which says that the government must have a commitment to be serious in improving the quality of education for the prosperity and progress of the nation in order to become a nation that can follow the progress of the times (Muhardi, 2004; Rosyid, 2016).

For this reason, professional teachers are needed, meaning that the work of teachers can only be carried out by people who have academic qualifications, competencies and educator certificates for each type and level of education (Laelasari, 2013; Muhlison, 2014). To make teachers professional, educational institutions must hold activities that can develop the potential within the teacher through the provision of workshops, seminars, training and others (Berliani, 2017; Riyadi, 2016). The indicators of interest in learning are having curiosity about what is learned, liking what is learned, high enthusiasm to get the desired results and always paying attention in order to know or master the lesson (Ahmadi, 2010; Aritonang, 2008).

2. LITERATURE REVIEW

2.1. Interactive Module

Media is anything that can be used to convey messages from the sender to the recipient of the message (Adi Widodo et al., 2018; Widodo, 2018; Widodo et al., 2019, 2018). It was said so, because the module was made based on a comprehensive and systematic learning program and was designed for an independent learning system (Ena, 2011; Jonassen et al., 1994; Saputro, 2016) 2008).

Work sheets that must be filled out by students, and evaluation programs to be carried out (Asih Mardati, 2016; Budimah et al., 2014; Hutabri, 2017; Syahrir and Susilawati, 2015). The module is a printed teaching material designed to be studied independently

by learning participants (Berliani, 2017; Riyadi, 2016). An interactive module is the utilization of advances in computer technology (Putra et al., 2017).

2.2. Student Learning Interest

Interest can be interpreted as a joy, passion or pleasure in something (Aritonang, 2008; Krapp, 1999; Schiefele, 1991). According to Sudirman (2007), interest is a condition that occurs when someone sees the characteristics or meanings of a situation that is associated with their own desires or needs (Sudarmin et al., 2017; Sudirman et al., 2018).

According to Bernard states that interest arises not suddenly or spontaneously but rather arises as a result of participation, experience, habits during study or work (Susanto, 2013). Also shows that achievement and subject-related affect are interrelated and influence each other (Susanto, 2013). The emergence of interest in a person can in principle be divided into two types, namely interests originating from innate traits and interests arising from external influences (Indaryati and Jailani, 2015; Suswina, 2011).

According to William James that student interest is a major factor in determining the degree of student learning activities (Darmadi, 2017). So, interest is a factor that determines active student involvement in learning. Furthermore, Kurt singer (1987) suggests several factors that can lead to interest in learning (Dunlosky et al., 2013; McGlannan and Eysenck, 1977; Schiefele, 1991; Silvia, 2008). The analysis can be done on four things, namely: the desire to have something, (1) the object or activity that is preferred; (2) Types of activities carried out to obtain something that is liked; (3) Efforts made to realize the desire or taste for certain objects or activities (Susanto, 2013).

3. METHOD

3.1 Research Location and Time

This research will be conducted in SMA Santo Kristoforus 2 Jakarta class XI IPA 1 and 2 even semester, July 2017/2018 school year

3.2 Sampling Technique

The sampling technique was done by purposive sampling (directly), namely class XI IPA 1 as a control class totalling 33 students and the class XI IPA 2 as an experimental class totalling 33 students. In total there are 66 students.

3.3 Indicator of Interest

The Likert scale is a scale that contains five levels of answers regarding the respondent's agreement to the statement or statement put forward the answer options provided (Boone and Boone, 2012; Clason and Dormody, 1994; Sullivan and Artino, 2013). However, the Likert scale has been modified to eliminate weaknesses contained in the five-level scale. So in this study have used four alternative answers, namely: strongly agree (SS), agree (S), disagree (TS), and strongly disagree (STS). Likert scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social phenomena (Sugiyono, 2010).

Table 1. Indicator of Interest

Indicator	Number of Item Statement
Feelings of pleasure (Types of activities carried out to get the ikes)	1,2,3,4
Involvement (student activity in the learning process)	5,6,7,8
Interest of Learning	9,10,11, 12
Attention	13,14,15,16

4. RESULT

Table 2. Data Description

Class	Paired differences			t	df	sig
	Mean	Std. deviation	Std. error mean			
Cont.	3.503	7.911	1.377	2.544	32	0.016
Exp.	11.08	9.393	1.635	6.776	32	0.000

4.1 Indicator of Involvement

In the control class it is known that prior to the treatment of students, pre-test there were 228 students agreeing to answers, while after treatment using a handbook and giving a post-test there was a decrease in the answers of students who agreed to 192.

4.2 Interest Indicator

In the control class it is known that prior to the treatment of students, pre-test there were 180 students who agreed, while after treatment using the handbook

and giving a post-test there was a decrease in the answers of students who agreed to be 162.

4.3 Indicator of Attention

In the control class it is known that prior to the treatment of students, pre-test there were 204 students agreeing answers, whereas after treatment using the handbook and giving a post-test there was an increase in the answers of students who agreed to be 219.

4.4 Normality Test

The normality test is carried out with two approaches namely the Kolmogorov-Smirnov approach and as a comparison, the Shapiro-Wilk approach is used. The normality test results can be seen in table 3.

Table 3. Result of the Normality Test

Score	Kolmogorov-Smirnov		
	Statistic	df	Statistic
Pre-Nontest	0.083	66	0.200

Based on the results described above, it can be stated that the research data is normally distributed, with sig 0.200 > 0.05

4.5 Homogeneity Test

Homogeneity test in this study was also conducted to see whether the data is homogeneous or not. Homogeneity is also one of the requirements in conducting data analysis based on parametric statistics. In this study, homogeneity testing was carried out using the Levene approach. The homogeneity test results can be seen in table 4.

Table 4. Result of the Normality Test

Lavene's Statistic	df1	df2	Sig.
1.080	7	16	0.420

Homogeneity test results in table 4.3.1 above indicate that the significance value (Sig.) In the Levene approach is 0.420. The significance value is greater than 0.05 (0.420 > 0.05) so it can be stated that the research data are homogeneous.

4.6 Hypothesis Test

Based on the paired t test results in table 5 above, it is known that the significance value (Sig.) For the control class is 0.016 less than 0.05. This means that the media used in the control class significantly influence student interest in learning. Furthermore, it is also known that the significance value (Sig.) For the experimental class is 0,000 less than 0.05. This means that the interactive modules used in the experimental class are significantly beneficial to students' learning interests. The significance value in the experimental class is better than the significance value in the control class. So it can be stated that the interactive module used has better benefits in increasing student interest in learning.

Table 5. Result of the Hypothesis Test

Class	Paired differences			t	df	sig
	Mean	Std. deviation	Std. error mean			
Cont.	3.503	7.911	1.377	2.544	32	0.016
Exp.	11.08	9.393	1.635	6.776	32	0.000

Research activities continued with learning activities using an interactive module, after teaching using the interactive module, the researcher gave a post-test with the same questionnaire statement. The questionnaire was processed using SPSS 22 for windows and Likert scale calculations. Using the T-Test. From the results of data processing, the results show that the t-test for the pre-test control class is 1489 total score 1584 and the post-test control class is 1563 total score ≤ 1584 or sig (2-tailed) score of 0.016 < 0.05, it means the learning media with textbooks used in the control class have a significant effect on student interest in learning. T-count for the pre-test experimental class was 1492 total error ≤ 1584; post-test amounted to 1726 total score ≤ 2112 or sig (2-tailed) score; the significance value (Sig.) is 0,000 < 0.05.

4.7 Gain Test

The gain test results in this study were divided into two parts. The first part is the overall gain test and the second part is the gain test for each indicator in a questionnaire consisting of four indicators. The overall gain test results can be seen in the table 6.

Table 6. Gain Test Result for Control Class

Indicator	Average pre-nontest	Average post-nontest	Gain	Precentage
Feeling happy	92.5	91.75	0.1	10%
Involvement	96	97.75	0.4375	43.75%
Attraction	89.25	94.75	0.4651	46.51%
Attention	94.75	106.5	0.238	23.80%
Whole	372.5	390.25	0.00651	6.52%

Based on table 6 it is known that the value of the gain for the indicator of feeling happy is 0.1, if it is presented it can be stated that the textbook can increase student interest in learning by 10%. In relation to the gain index, the gain value for the feeling of pleasure indicator is included in the normal category. The gain value for the engagement indicator is 0.4375. If it is presented, it can be stated that the textbook can increase student learning interest by 43.75%, in relation to the gain index, the gain value for the engagement indicator is included in the medium category. The gain value for the interest indicator is 0.4651.

For the experimental class, the gain test provides data that the gain value for the indicator of feeling happy is 0.1953. If it is presented, it can be stated that the interactive module can increase student learning interest by 19.53%. In relation to the gain index, the gain value for the feeling of pleasure indicator is included in the normal category. The gain value for the engagement indicator is 0.205. If it is presented, it can be stated that the interactive module can increase student learning interest by 20.50%, in relation to the gain index, the gain value for the engagement indicator is included in the normal category. The gain value for the interest indicator is 0.7241. If it is presented, it can be stated that the interactive module can increase student learning interest by 72.41%, in relation to the gain index, the gain value for the engagement indicator is included in the high category. The gain value for the happiness indicator is 0.398. If presented, it can be stated that interactive modules can increase student learning interest by 39.8%. The gain value for the attention indicator is 0.5. If presented, it can be stated that the interaction module can increase student interest in learning by 50%. In relation to the gain index, the gain values for indicators of interest, pleasure and student involvement are included in the moderate category. For more details can be seen in the table 7.

Table 7. Gain Test Result for the Experiment Class

Indicator	Average pre-nontest	Average post-nontest	Gain	Precentage
Feeling happy	89.25	110.25	0.1953	19.53%
Involvement	95	1005.25	0.205	20.50%
Attraction	85.5	75	0.7241	72.41%
Attention	97.25	111	0.5	50%
Whole	367	401.5	0.1292	12.92%

5. DISCUSSION

The research began with the giving of pre-test in the form of a questionnaire of learning interest, amounting to 16 statements. Data obtained from the pre-test results are processed in the form of excel which is then tested for normality and homogeneity using spss 22 for windows. From the test results obtained for the normality test the value of sig = 0,200 sig 0.05, meaning it can be normally distributed. Whereas for homogeneity test, sig 0,420 sig 0,05, which means the data is homogeneous.

Using the t-test. From the results of data processing, the results show that the t-test for the pre-test control class is 1489 total score skor 1584 and the post-test control class is 1563 total score ≤ 1584 or sig (2-tailed) score of 0.016 < 0.05, it means the learning media with textbooks used in the control class have a significant effect on student interest in learning. T-count for the pre-test experimental class was 1492 total error ≤ 1584; post test amounted to 1726 total score ≤ 2112 or sig (2-tailed) score; the significance value (sig.) Is 0,000 < 0.05.

5.1 Indicator of feeling happy

In the control class it is known that prior to the treatment of students, pre-test there are 270 students who agree with answers, while after treatment using a handbook and giving a post-test there is a decrease in the answers of students who agree to 213 with the highest statement item at no. 1 i.e. Happy after learning hydrocarbon and petroleum chemical materials taught by the teacher using the student's handbook "with an indicator of feeling happy. While in the experimental class it is known that before conducting treatment, pre-test there were 48 students who agreed very much as agreed, after doing treatment using an interactive module and giving post-test there was an increase in answers of students who strongly agreed to be 208 with no. Item 1 statement "happy after learning hydrocarbon

and petroleum chemical materials taught by the teacher using an interactive module"

5.2 Interest indicator

In the control class, it is known that prior to the treatment of students, there were 180 pre-test answers of students who agreed, while after treatment using the handbook and giving a post-test there was a decrease in the answers of students who agreed to be 162 with the highest statement item at no. 12 ie "always pay attention to the teacher's explanation." with indicators of interest.

5.3 Indicator of attention

In the control class it is known that prior to the treatment of students, pre-test there are 204 students who agree with answers, while after treatment using a handbook and giving a post-test there is an increase in the answers of students who agree to be 219 with the highest statement item in no. 13 namely "listen well when the teacher is explaining the chemistry taught by the teacher using the student handbook" with indicators of attention. While in the experimental class it is known that before conducting treatment, pre-test there are 104 students who agree strongly agree, after conducting treatment using an interactive module and giving post-test there is an increase in answers of students who strongly agree to 236 with no. Item 13: "listen well when the teacher is explaining the chemistry taught by the teacher from the interactive module."

6. CONCLUSIONS

Based on the results of the analysis and discussion explained in the previous chapter, it can be concluded that (1) There is a significant student interest in learning in class XI IPA of SMA Santo Kristoforus 2 Jakarta through the use of interactive modules on Hydrocarbons and Petroleum materials. This is evidenced through the paired t test results that show that the significance value of the class using the interactive module is 0,000 less than 0.05. There is also a significant interest in learning in students in the class who do not use interactive modules, but nevertheless students in class who use interactive modules better. (2) The magnitude of the increase in student learning interest that uses interactive modules is 16%. While the increase in interest of students who do not use interactive modules is 5%. This means that the magnitude of increased interest in learning students who use interactive modules is better than students who do not use interactive modules.

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