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Improvement on Student Learning Interest through the Integrated Sciences Learning Based on Webbed Model

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A B S T R A C T

This study aims to determine differences in increasing student interest in the learning process through integrated science learning based on Webbed Model. The basis of this research was the students low interest in the learning process as a result of the implementation in natural science learning that is not in accordance with the mandate of the 2013 curriculum. The research method was a quasi-experiment with a randomized pretest-posttest control group design. Data collection techniques were questionnaires for students interest in learning based on predetermined indicators. While data analysis techniques, which were in the form of descriptive analysis and statistical analysis, were using the Independent Sample T Test. The results showed that an increase in student interest in learning through integrated science-based Webbed Models by 2.9% with a very good category. Furthermore, based on statistical tests the f_{count} is 10.813 > f_{tabel} 0.40 and 0.315 was obtained with a significance value of 0.04. Thus, it can be concluded that there are some differences in student interest in learning through integrated Webbed Model-based science learning.

1. Introduction

Learning science was implemented in the 2013 curriculum simultaneously in 2014. According to the Indonesian Dictionary, integrated means it has been put together or has been merged. According to the curriculum center, one of the goals of implementing integrated learning is to increase student interest. Interest is one of the factors that comes from within a person that can influence in dealing with something and interest is also one of the internal factors that cause student difficulties in teaching and learning process (Zikkra et al., 2015). Based on the

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results of the national exam in 2016 and 2017, it showed that more than 60% of madrasah tsanawiyah students in Kampar district scored below 60 for natural science subjects. This is an indication that students interest in learning in science subjects is still low because someone who has a good interest in learning will get good academic grades too (Noordin & Nor, 2002). Although it has been mandated in the 2013 curriculum that science learning is carried out in an integrated manner, the current condition that occurs in schools is that science learning is carried out separately, which it is one of the causes of the low student interest in the learning of sciences.

According to Slameto (2010), there are four indicators of interest in learning, namely interest, happy feelings, acceptance and involvement. The low student interest in learning is known from the lack of student interest in participating in Madrasah Science Competence (KSM) activities in the field of Natural Sciences which are carried out by the Ministry of Religion every year. Most students must be appointed by the subject teacher or the school principal. In addition, student involvement in the teaching and learning process is also still lacking where students do not want to ask or answer questions given to the teacher, students are more silent and not actively involved in practicum activities carried out in the teaching and learning process. Interest and involvement are indicators that can describe student interest in learning.

The characteristics of integrated learning according to Trianto (2012) is holistic, which is an event that is the center of attention in integrated learning studied from several fields of study as well as to understand a phenomenon from all sides. The meaningful links between other concepts will increase the meaningfulness of the concepts learned and it is expected that students are able to apply the acquisition of learning to solve real problems in their lives. Integrated learning allows students to directly understand the principles and concepts that they want to learn through direct learning activities, they understand from the results of their own learning not just the teacher notice. Active that is, integrated learning is developed through a discovers-inquiry approach, students are actively involved in the learning process which can indirectly motivate children to learn.

Fogarty (1991) states there are 10 integrated learning models, one of which is the Webbed Model. Webbed model is a teaching and learning pattern in integrated learning that uses topics or themes to integrate and link several interrelated concepts into one learning package. The strength of the Webbed model is that the selection of themes can be determined according to the child's interest to be motivated to learn, easier to do by teachers who have no teaching experience, easier to plan, thematic approaches can motivate children, and can make it easier for students to see activities that are interrelated. While the weakness is the difficulty of selecting themes so there is a tendency to form superficial themes and the teacher is more focused on activities rather than concept development.

Researchers use the Webbed model because in this study linking the subject matter of physics, chemistry, biology, cultural and religious values. Physics, chemistry and biology are subjects that are in the Natural Sciences group. The religious values

were included in learning because madrasah tsanawiyah is a junior high school (SLTP) under the Ministry of Religion on a religious basis so that it is important to include religious values in every learning including general subjects, one of which is subjects Science. In addition, there is also the implementation of spiritual competencies contained in the core competencies in the 2013 curriculum. Kampar Regency has many local cultural values that can be used as a material for teachers in delivering subject matter and also science learning can be developed based on the uniqueness and excellence of an area (Kartono et al., 2010). With local cultural values that are known, it is expected that students interest in learning will increase. In addition, this Webbed model is an alternative for implementing innovative learning because teachers need to design innovative learning so that students are actively involved in learning (Suarman et al., 2018).

With the learning of integrated science based on Webbed Model, it is expected that students learning interest can increase and the final goal of this study is to determine the effect of integrated learning based on Webbed Model on increasing student learning interest in tsanawiyah madrasas.

2. Methodology

This research was a quasi-experimental study with Randomized Control Group Pretest-Postets Design (Emzir, 2017) which is shown in Figure 1.

Pretest	Treatment	Posttest
T_1	X	T_2
T_1		T_2

Figure 1. Randomized Control Group Pretest-Postets Design

The experimental class had been given an integrated learning based on Webbed Model, while the control class had been given a conventional learning. This research was conducted at Madrasah Tsanawiyah Muhammadiyah Gobah that located at l. Gobah KM 7 Tambang, sub-district of Kampar district, from December 2018 to February 2019.

The data in this study were obtained by distributing questionnaires to students. The questionnaires contained statements that sought information about students learning interests. Those statement items were made according to the specified grid based on indicators of interesting in learning process, namely; interests, feelings of pleasure, acceptance, and involvement. The data analysis was in the form of descriptive analysis to determine the categories of students interest in learning which were grouped into 5 categories, namely; not good, not good, good enough, good and very good. The statistical tests were performed using the Independent Sample T Test to determine differences in increased student interest in learning through integrated Webbed Model-based science learning. The integrated science learning design with Webbed Model can be seen in Figure 2.

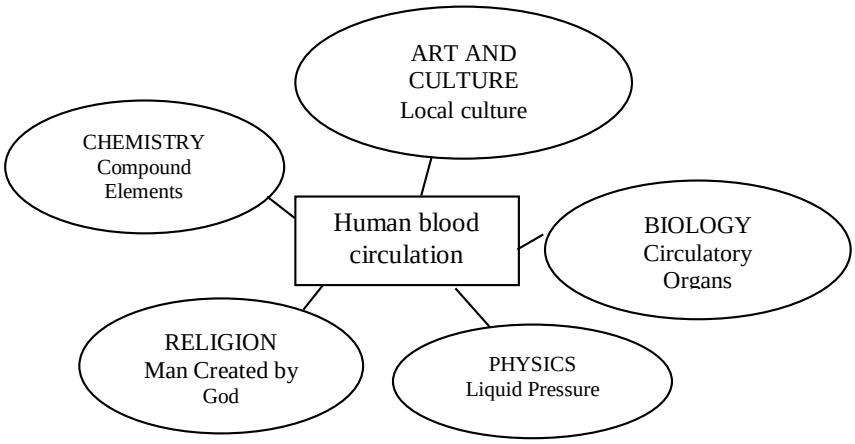

Figure 2. Webbed model sub-theme of human blood circulation

The hypotheses in this study were:
Ha = There was differences result of students' learning interest in grade VIII MTS by using integrated science learning based on Webbed Model and conventional science learning
H0 = There was no difference result of students' learning interest in grade VIII MTS by using integrated science learning based on Webbed Model and conventional science learning

3. Results and Discussion

Application of Webbed Learning model can be seen in Figure 3.

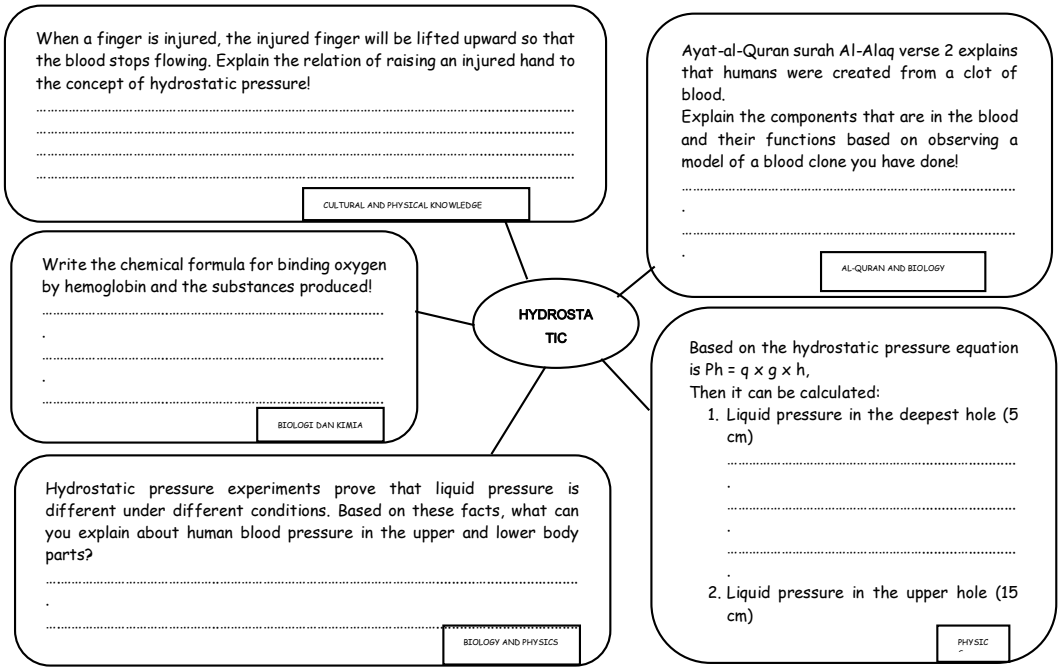

Figure 3. Webbed Model on Circulatory Material

Webbed Model is a pattern of teaching and learning in integrated learning that uses topics or themes to integrate and connect several interrelated concepts into one learning package (Fogarty, 1991). Circulatory material in humans as the subject matter is related to the subject of liquid pressure in Physics, circulatory organ material in Biology, material elemental compounds in Chemistry, human material as the creation of Allah al-Quran (religion) and local wisdom. One of the keys to integrated learning is to provide a learning environment that allows students to experience learning about the interrelation of concepts from various fields at the SMP / MTS level. The results of research on learning interests of class VIII students can be seen in table 1.

Table 1. Student Learning Interest of Class VIII Madrasah Tsanawiyah Muhammadiyah Gobah

Indicator	**Control Class**		**Experimental Class**	
	Before (%) Category	**After (%) Category**	**Before (%) Category**	**After (%) Category**
Attraction	53,5 Enough	57,8 Enough	53,6 Enough	77,6 Good
Feeling happy	52,4 Enough	62,1 Good	51,8 Enough	84,7 Very Good
Reception	46,3 Enough	46,8 Enough	46,5 Enough	81,5 Very Good
Vacation	60,1 Enough	66,8 Good	58,9 Enough	82,8 Very Good
Average Category	53,1 Enough	58,4 Enough	52,7 Enough	81,7 Good

Based on the table 1, it can be explained that before being given treatment, the students learning interest in the control class and the experimental class was not much different in both for learning goal indicators and the student overall learning interests. It could be seen in the overall percentage of student learning interest in the experimental class by 52.7% and in the control class by 53.1% with enough categories. By seeing the result, it means that improvement in student learning interest is needed in order to achieve good results since interest in something will certainly have an impact on the results achieved (Putri, 2016). Before did the treatment, both classes had implemented the integrated science learning with a scientific approach. Seen from the percentage, it can be said that students initial interest in the control class is somewhat better compared to the experimental class.

In the experimental class that carried out the integrated science learning based on the webbed model, there was a significant increased in student learning interest. The student learning interest increased from 52.7% to 81.7% with a rise of 29% in the good category. With the results obtained, it can be concluded that the way of learning given by the teacher in the experimental class with integrated learning based on Webbed Model influential could increase student interest in learning. The Webbed model is one way that teachers can use to convey and integrate subject matter and according to Nurma (2016), how to learn is one of the factors that determine student interest in learning.

However, in the control class, there was not much different between before and after the implementation of learning, from 51.1% to 58.4% with a rise of 7.3% . Thus the category that did not change was in the sufficient category. There was no change in students' interests because they were not interested in learning science. Yet, interest is one of the internal factors that has the greatest influence on students' difficulties in learning (Zikkra et al., 2015), so teachers need to design ways of learning that can build happiness and also trigger tha students to be active in the learning process (Slameto, 2010). The improvement experienced was not too high because most students still did not like science lessons with the assumption that science lessons are difficult and unpleasant. In addition, the way of learning provided by the teacher did not differ between before and after treatment, which was both implementing integrated science learning with a scientific approach.

In the experimental class of the four indicators analyzed, there was a very high increasing occurred in the acceptance indicator. The percentage of the interest in learning on the acceptance indicator had increased by 35%, which increased from 46.5% to 81.5%. In the following integrated science learning with the Webbed Model, most students wanted to try and be able to complete the tasks given. The students were eager to carry out learning activities that have been designed by the teacher. Students who were initially more active in learning becoming more focused. The students' enthusiasm in learning was caused by the material presented by the teacher combined with local culture that was common known by students. By combining subject matter with local culture, the students are able to solve problems when working on assignments (Aji et al., 2017). Besides, the subject matter was also combined with the religious values of Islam-Science in the learning process. It leads human beings will have spiritual depth, moral grandeur, intellectual breadth, and professional maturity (Sri, 2015). With intellectual breadth, the students will be able to see the relationship between the material being studied with other fields of science.

In the control class, there were no significant differences between before and after treatment. In addition, compared to other indicators, there were no indicators that had been increased. The results of students' learning interest in the control class reflected the learning outcomes obtained by students during this time.

The next test conducted on the student learning interest data is a statistical test. Before conducting statistical data analysis, there are several prerequisite tests that must be met, namely homogeneity and normality tests. Homogeneity test value for students learning interest is 0.830> 0.05, meaning that students learning interest in the control class and the experimental class has the same variance. Furthermore, the normality test value for students learning interest is 0.057> 0.05, meaning that students learning interest data is normally distributed. Furthermore, the results of statistical analysis for student interest can be seen in table 2.

Table 2. Statistical Analysis of Student Interest in Class VIII Madrasah Tsanawiyah Muhammadiyah Gobah

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	Control – Experiment	-23,38750	26,55826	6,63956	-37,53940	-9,23560	-3,522	15	,003

Based on the table 2, it can be seen that the value of t_{count} is 3.522 with a standard defiation of 15. The value of t_{count} is compared with the value of t_{table} that is 2.13 at a confidence level of 5% and 2.95 at a confidence level of 1%. T value is greater than the table value and the significance of 0.003 is smaller than 0.005. Thus, H0 was rejected and Ha was accepted. Because, there were some differences in the increment of positivity and significant student interest in learning through Webbed Model-based integrated science learning and conventional science learning.

The next test conducted on student learning interest data is a statistical test. Before conducting statistical data analysis, there are several prerequisite tests that must be met, namely homogeneity and normality tests. Homogeneity test value for students 'learning interest is 0.830> 0.05, meaning that students' learning interest in the control class and the experimental class has the same variance. Furthermore, the normality test value for students 'learning interest is 0.057> 0.05, meaning that students' learning interest data is normally distributed. Furthermore, the results of statistical analysis for student interest can be seen in table 2.
The model-based integrated science learning is an integrated science learning that is carried out intact and integrated which is facilitating and sharpening students' thinking power. So, the students will be triggered to see the science interrelation between one learning topic to other topics (Sanjaya et al., 2019).

Learning interest is the student's interest in learning so that there will be a feeling of pleasure for participating in a learning process repeatedly to digest and accept learning. Integrated learning Science integrated Webbed Model was one type of integrated learning that had the potential to be implemented in science learning (Heru & Sri, 2014). Because teachers could set the learning strategies that able to trigger the attention and activeness of students in the learning process.

Integrated learning with Webbed Model is one of the ways that can be used by teachers in delivering the learning. The method chosen by the teacher in delivering subject matter has a significant relationship with students interest in learning (Nurma, 2016). The teacher needs to choose the right way of learning so that it can trigger students interest in participating in the learning process so that students feel happy to follow the learning process and be able to accept the material that is delivered and is active in learning. Science learning with local genius content can change the learning environment into a fun environment and enable students to be actively involved in learning based on the culture they already know (Wardani et

al., 2016). Besides that, the values contained in science are religious values that can be developed for example by inserting verses of the Koran that are relevant to the discussion in science (Djudin, 2011).

Furthermore, this supports the results of the descriptive analysis that has been done previously, where the average increase in student interest in the experimental class is greater than the student interest in the control class. In addition, each indicator of interest determined has a greater increase in the classes that carry out integrated Webbed Model-based science learning compared to those that carry out conventional integrated science learning. This result is strengthened by research conducted by Heru et al. (2014) where in his research it was found that integrated science learning with Webbed Model could increase student activities.

4. Conclusion

Based on the discussion of the above research results, it can be concluded that there was an increase in student interest to learn through integrated Webbed-based science learning in each of the specified learning interest indicators. In addition, the greatest increase in interest occurred in the indicator of interest. The increment in student interest in the learning process means that integrated learning based on Webbed Model has a positive and significant effect on increasing student learning interest.

Aknowledgnent

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