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The Correlation between Learning Motivation Level and Students Learning Outcomes on Science Subjects of Junior High School Class VII

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Abstract

Student learning motivation is the driving force in students to be able to achieve optimal learning outcomes so that the desired goals of the learning subject can be achieved. The motivation that can come from within the student himself is called intrinsic motivation and comes from outside the student's self or extrinsic motivation. The purpose of this research was to analyze the level of learning motivation of seventh-grade students of SMPN 4 Siak Hulu in science subjects. The method used in this research is a survey method with a quantitative approach. The data collection technique used a learning motivation questionnaire instrument consisting of 25 statement items and the research subject was 67 students. The data analysis technique is through descriptive analysis of the science learning motivation. The research results showed that students' learning motivation was in the high category with a score of 82.45%, while the average learning outcome was 41.1 in the low category. Thus the learning motivation of class VII students of SMPN 4 Siak Hulu is contrary to the learning outcomes obtained by students, so a better learning system is needed to provide solutions or improvements to optimal student learning outcomes by high motivation, especially in science subjects in Class VII SMPN 4 Siak Hulu.

Keywords: Learning Motivation, Science, Learning Outcome

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INTRODUCTION

Education is related to the student learning process since learning is a process of change and renewal within each individual that comes from internal and external factors and through interaction with the surrounding environment (Sari & Sunarno, 2018). Changes produced by the learning process involve behavioral changes in multiple dimensions, including the three domains identified by Bloom, Engelhart, Furts, Hill, and Krathwohl (1956), including: the cognitive, affective, and psychomotor domains of each individual student. Students and teachers are the main factors that affect the process of science learning in schools. Internal factors include learning motivation, student interest in learning science, learning direction or goals, and then external factors from teachers, i.e. factors related to curriculum, teacher-student interaction and teachers' applied learning models (Syachtiyani & Trisnawati, 2021).

Science is classified as difficult subject since it refers to a collection of knowledge about objects and phenomenon in nature which have inherent scientific value. The process of natural science is empirical, systematic and logical and is closely related to scientific attitudes such as curiosity, respect for evidence, critical, and creative by involving the scientific process in studying and learning it (Aliyah Agnezi et al., 2017). Meaningful learning in

science is supported by different modes or ways, such as spoken and written language, images and gestures, which all of those have different abilities (Fredlund et al., 2021). Science learning is an integrated learning with respect to scientific concepts of the surrounding nature related to nature in a systematic manner and cannot just give passive directions by listening to the teacher explaining concepts. Science is classified as difficult because learning needs to be done through experimentation and observation (Nugroho, 2020)**.**

Students' motivation on learning activities which related to goals and good learning outcomes is one of the aspects which should be noticed is in learning science. Motivation is an important factor for increasing student involvement and activity in the teaching and learning process. Also, it is a key role in encouraging student achievement (Aliyah Agnezi et al., 2017)**.** Motivation is a very complicated psychological process and triggers a person or group to achieve the expected goals, is dynamic and contextual related to learning strategies that can be controlled by the students themselves. Learning motivation is a meaningful way to get grades and to achieve academic achievements, regardless of whether the material/task is interesting or not. This relates to several constructs such as exploration, curiosity, learning objectives, and intrinsic intellect (Triyanto, 2019)**.**

Student learning motivation is the driving force inside the students' personality so they are able to achieve student learning outcomes maximally. Then, the desired goals of the learning subject can be achieved. Motivation comes from the students' inside (intrinsic motivation) and also from the outside (extrinsic). Students who have high motivation will carry out their learning activities with full confidence and responsibility when compared to students who have low learning motivation, so they will achieve optimal learning results (Nisa et al., 2018). Learning outcomes are patterns of attitudes, values, definitions, appreciation and skills as a result of the learning process received at school to become a reference in identifying or evaluating learning objectives in order to measure learning success and describe the abilities or competencies students have in certain subjects (Mangangantung et al., 2022).

The relationship between motivation and enthusiasm for learning is aligned in supporting the high and low learning scores. However, it seems that the effort and concern obtained the value construction that students get inversely or at low risk (Penk et al., 2014). Particularly for junior high school students, interesting and fun learning may be an important aspect in motivating them to put out their best efforts to produce good grades as well. High learning motivation is expected to be in line with good learning outcomes. Learning outcomes are the result of learning interactions and teaching actions from the teacher through the process of evaluating the achievements of students after the learning process is based on their abilities (Nasrah, 2020).

Indicators of learning motivation can be measured by several criteria which include: (1) the desire to succeed; (2) tencouragement and need in learning; (3) having future hopes and aspirations; (4) interested in learning activities; (5) diligently in doing the task; (6) tenacious in facing difficulties; (7) working happily and independently; and (8) enjoy looking for problems and solving problems (Dian Ahmad Yani, 2021; Nasrah, 2020) **.**

Based on the background and theoretical studies put forward, it can be seen that learning motivation is a determinant of learning outcomes. However, high learning motivation does not guarantee good learning outcomes, because it is also influenced by several other factors, this is what happened to the research subjects. This research will describe that learning motivation does not always affect learning outcomes. Therefore, researchers will analyze how the relationship between learning motivation and learning outcomes of class VII students in science subjects at SMPN 4 Siak Hulu. This study aims to determine the level of students' motivation towards science lessons in junior high school.

METHOD

This research used a survey method with a quantitative approach. The data collection technique used a questionnaire which was analyzed descriptively. These quantitative data were obtained by calculating numerical scores based on the answers given by students. This research was conducted at SMPN 4 Siak Hulu on Monday, 30 May 2022. The research population was all 160 grade VII students. The sampling technique uses simple random sampling technique where the sample is taken randomly without regard to strata in the population. The number of research samples was 67 students, taken from 2 homogeneous classes based on the homogeneity test on secondary data using the one-way ANOVA technique with the help of SPSS version 26 for windows.

The instrument used in data collection was a learning motivation questionnaire adapted from (Natun, 2019) which consisted of 25 statement items. The learning motivation indicators used in this figure can be seen in Table 1.

Table 1. The learning motivation indicators

No.	Aspects	Indicators
1.	Preseverence in Learning	a. Attendances at school b. Participating in PBM in class c. Keep learning outside school hours
2.	Tenacious in facing difficulties	a. Response to difficulties b. Efforts to solve the problems
3.	Interested and paid attention fully in learning	a. Habits in attending lessons b. Enthusiasm in participating in PBM
4.	Outstanding in learning	a. Desire for achievement b. Outcomes quality
5.	Independent in learning	a. Completion of tasks or homework b. Using opportunities outside of class hours while at school

Source: (Natun, 2019)

This research is using Likert Scale as its instrument. It has 4 options as the answers and the score of each answer can be seen at table 2.

Table 2. Score of each answer

Alternative Answers	Positive Item Score	Negative Item Score
Selalu (SL)	4	1
Sering (S)	3	2
Jarang (J)	2	3
Tidak Pernah (TP)	1	4

Source: (Siregar, 2013)

Questionnaires were distributed to students to obtain data about students' learning motivation towards science subjects. The data that has been obtained will be processed and analyzed quantitatively by calculating the score of the student's questionnaire answers. Then the results of the description data analysis are given. The percentage of learning motivation can be calculated using the formula of students (Sudijono, 2008) as follows**.**

$$P = \frac{f}{n} \times 100\% \quad (1)$$

Annotation:
P = Motivation percentage
F = Frequency of motivational questionnaire answers
n = Number of Samples

The descriptive analysis conducted by the researcher on the level of students' learning motivation in science subject class VII based on the percentage criteria which can be seen in table 3.

Table 3. Percentage Criteria of Learning Motivation

No	Learning Motivation Intervals	Categories
1	86% - 100%	Very High
2	71% - 85%	High
3	56% - 70%	Moderate
4	41% - 55%	Low
5	25% - 40%	Very Low

Source: Adapted by (Sundayana, 2014)

The students outcomes was obtained by their final exam on even semester which contained of 25 multiple choice questions, then it summed up the total value obtained in each class divided by 67 students who took the exam to obtain the overall average value using the following formula:

$$Average\ value = \frac{(\text{Total amount of data})}{(\text{Numbers of data})} \qquad (2)$$

Correlation analysis between the two variables was carried out with the Pearson product moment test using SPSS version 26 for windows. This is done to test whether there is a significant relationship between learning motivation and student learning outcomes. The criteria for the value of the correlation coefficient can be interpreted in Table 4 below:

Table 4. Interpretation of the Correlation Coefficient

No.	Percentage	Categories
1.	0.00 – 0.199	Very low
2.	0.20 – 0.399	Low
3.	0.40 – 0.599	Moderate
4.	0.60 – 0.799	High
5.	0.80 – 1.000	Very High

Source : Adapted by (Syahputra & Lubis, 2019)

RESULTS AND DISCUSSION

Student learning motivation determines how students can follow the learning well. Student motivation is also closely related to the way teachers carry out learning in the classroom. In addition, student motivation can be seen based on student attitudes during the learning process. Based on the research that has been carried out through the distribution of student learning motivation questionnaires in science subjects which consist of 11 indicators and 25 statement items, the results are as shown in Table 5.

Table 5. The Results of Data Analysis for Each Indicator of Student Learning Motivation in Science Subjects

Aspect	Indicator	Average (%)	Category
1	a. Attendaces at school	93.84	Very high
	b. Participating in PBM	96.18	Very high
	c. Learning outside school hours	65.55	Moderate
2	a. Responses to difficulties	88.56	Very high
	b. Effort to solve the problems	75.19	High
3	a. Habits in attending lessons	84.89	High
	b. Enthusiasm in participating in PBM	70.71	Moderate
4	a. Desire for achievement	87.87	Very high
	b. Outcomes quality	80.78	High
5	1. Completion of tasks or homework	79.10	High
	2. Using opportunities outside of	84.33	High

	class hours while at school	
Average	**82.45**	**High**

The results of the final exam obtained by Class VII SMPN 4 Siak Hulu students can be seen in Figure 1. Student learning outcomes are also a concern in this study, because learning outcomes are the main benchmark for determining success or failure in the learning and teaching process. Based on data on student learning outcomes, it has not shown results that are in line with the high motivation of students where the average score of 41.4 is in the low category.

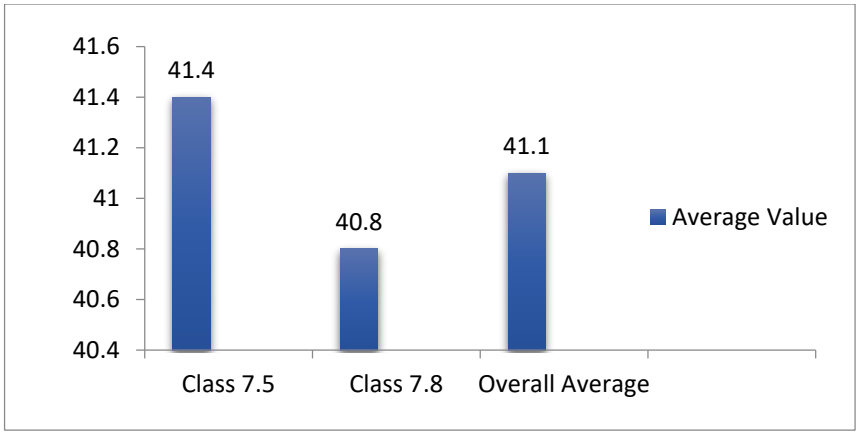

Figure 1. The average value of the Semester End Examination

The results of the correlation test between variables can be seen in Table 5.

Table 5. Correlation Test Results of Learning Motivation and Learning Outcomes

		Learning Outcomes
Learning Motivation	*Pearson Correlation*	-0,144
	Sig.(2-tailed)	0,245

Based on the table above, the results of the correlation coefficient (r) obtained are -0.144, meaning that the level of strength of the relationship between the motivation variable and learning outcomes is very weak, the coefficient is negative so that the relationship between the two variables is not unidirectional and the significance value obtained is (p= 0.245 > 0 .05) means that there is no significant relationship between learning motivation and learning outcomes. Thus, an increase in learning motivation does not mean that it is followed by an increase in learning outcomes as well.

The results of learning motivation for class VII students at SMPN 4 Siak Hulu in learning science based on Table 4 is analyzed according to the aspects reviewed. The school attendance indicator is in the very high category (93.84%). This indicator is relatively high because students generally always come to the school and attend the class, except when they are sick or when there are other urgent needs, requiring permission not to attend school. Attendance is proof that the student has participated in the teaching and learning process at school (Setiyani, 2019). According to Setiawan & Mais (2017) student attendance at school is the physical and mental participation of students in school activities during effective hours. Students must be at school during these effective hours, if unable to go to school students can provide valid information known to their parents or guardians. The role of the family in providing learning motivation to increase student attendance at school is very necessary (Khadifa & Sugihen, 2018).

The indicator of participating in PBM in class is the highest motivation with a value of 96.18%. The indicator for participating in PBM in this class is higher, because the majority of

students come to school to take part in PBM which takes place in class. Motivation plays an important role in one's learning activities, if there is no motivation then learning activities will not exist either. Having learning motivation is the main thing and students must be in the learning process, students who are present at school means they have the motivation to take part in learning in class (Febianti, 2018; Novalinda et al., 2018).

Next, the indicator of learning outside of school hours is the lowest indicator compared to other indicators, namely 65.55%, this is because students feel it is not urgent to study or repeat lessons outside of school hours. They prefer playing and doing fun activities and playing with gadgets. In line with Candra Devi & Sukanti research (2018) it was found that many students did not take advantage of the time outside class hours to repeat lessons or prepare for the next lesson, but only relaxed or played gadgets. Even though learning that is carried out outside school hours can supposedly add insight and knowledge to students and be able to complete assignments given by the teacher (Hartina et al., 2019).

Related to the indicator of attitude towards difficulties, the category is very high with a score of 88.56%, because students feel the need to improve their learning abilities if they are considered insufficient. The research results of Novalinda et al., (2018) stated that if students have difficulty doing assignments, they will try to look for them in books or other references to make it easier to do the assignments given. Meanwhile, in the effort to overcome difficulties indicator, the high category was obtained with a value of 75.19%. The motivation that exists within students will determine whether they will do a difficult task or give up on the task (Yilmaz et al., 2017).

Motivated students tend to show enthusiastic behavior, never give up, and are active in learning. Students with high learning motivation show high enthusiasm for learning, always pay attention and listen to the explanations conveyed by the teacher, and have a strong desire to study tenaciously and complete their assignments on time (Sari & Sunarno, 2018).

Aspects of interest and sharpness of attention in learning include indicators of habits in following lessons including the high category with a value of 84.89%. This caused by study habits are learning activities that are carried out repeatedly (H.Daud & Lidi, 2020)**.** The results of Syardiansah research (2016) imply that study habits can affect learning outcomes. In other words, if students are not accustomed to learning at the beginning of the lesson, student learning outcomes will be bad, but conversely if students are motivated to learn then student learning scores and results will also increase. While the indicator of enthusiasm in participating in PBM is in the moderate category with a value of 70.71%, enthusiasm in participating in PBM is a positive encouragement that comes from within the students and the surrounding environment. found that students who have high motivation will be actively involved in the learning process, study hard, feel happy, and are optimistic in completing assignments. While students with low learning motivation, do not try to study hard.

The aspect of achievement in learning related to the indicator of the desire to achieve is in the high category with a value of 87.87%. Students have motivation to learn when they show several actions such as having high enthusiasm and enthusiasm in doing assignments, persistence in facing difficulties, showing interest in solutions to solving problems, and not easily bored with the same task, if they believe something they are capable defend his opinion (Mangangantung et al., 2022). Those who want to learn are closely related to those who want to excel. Therefore, motivated people require action and full attention in the learning process to achieve the expected goals. Furthermore, the indicator for the quality of student learning outcomes at SMPN 4 Siak Hulu is 80.78% in the high category, in line with the results of Sinuraya & Barus research (2021) with a high quality score of student learning outcomes. Therefore the quality of good learning has an indication of good knowledge. Students who are already motivated are more likely to work hard, be tenacious, and diligent and have full concentration in the learning process.

The independent aspect of learning with indicators of doing homework and assignments obtained the level of students' motivation in learning in the high category 79.10%. By giving

homework, students will get used to study hard and stimulate students to keep learning, even though they are outside of school and provide opportunities for students' reasoning to develop and make individuals better at learning (Rudini & Agustina, 2021). Furthermore, the indicator of learning outside class hours while at school is included in the high category with a score of 84.33%. This is in accordance with the study of Candra Devi & Sukanti (2018) where the use of free time at school can be used during recess where there are two breaks at school so that boredom does not arise in learning and the level of understanding of the material that has been taught by the teacher is maximized. Other factors that affect the use of study time besides motivation within oneself are external factors such as family and playmates.

Students' motivation in learning science as a whole in class VII SMPN 4 Siak Hulu shows an average score of 82.45% which is in high category. While the average score of final exam for science subjects from the two classes that were used as research subjects obtained an average value of 41.1, which in reality was still below the KKM (failed). Low learning outcomes indicate the existence of constraints that affect the students learning process. Indicators in measuring students learning motivation include attendance at school, participating in PBM in class, studying outside of school hours, attitudes towards difficulties, efforts to overcome difficulties, habits in following lessons, enthusiasm in participating in PBM, desire to excel, completion of assignments/homework, and take advantage of opportunities outside of class time while at school. Some of these motivation measurement indicators are in line with or directly related to the process of improving learning outcomes, such as active students learning outside school hours, trying to overcome difficulties and using learning opportunities outside the classroom. In fact, based on the data obtained, the average score of students' final semester exam results is quite low, so further identification is needed regarding the relationship between motivation and student learning outcomes which should be relevant.

Aspects that needed to be reviewed and identified further are the learning process carried out in schools (internal), such as the material conveyed by the teachers in learning, media, strategies and learning models used during the learning and teaching process, with the aim that it can be reviewed whether this also in line with high student learning motivation can obtain high science learning outcomes as well, and it is necessary to identify the influence of external factors such as family, environment and students' playmates, to find out what problems can affect the high and low student learning outcomes.

Research conducted by Penk et al., (2014)showed that student learning motivation is not always directly proportional to the grades obtained or that high motivation should also produce high learning outcomes as well. Furthermore, the results of Ramadhan (2015) also shows that learning motivation has no effect on learning outcomes because students have different learning motivations. Motivated students can see through their activeness such as frequently asking, responding or answering questions from the teacher. In addition there are some students who have followed the learning well, but are not active. This shows that learning motivation does not always affect student learning outcomes. Learning motivation that does not affect learning outcomes means that it is independent of encouragement from outside and within students to learn. In fact, not all students increase their learning activities to maximize learning outcomes. This condition occurs because of other factors that can motivate students to learn (Rinaldi, 2019). Student learning outcomes can be influenced by student motivation in learning**,** Students succeed if they are motivated to learn and when it increases, students' attitudes and behavior during learning will be directed.

Learning motivation is not the only factor that can affect learning outcomes. Therefore, teachers are expected to pay attention to other variables that can affect student learning outcomes in order to achieve good learning outcomes. Other factors that can affect student learning in achieving good learning outcomes are willingness to learn, ability to process material, study concentration, self-confidence, achievement, intelligence, study habits, and

aspirations (Ramadhanti et al., 2022).Thus, high learning motivation does not necessarily result in high learning outcomes, because there are other factors that influence it as described above.

As an educator, the teacher must be able to motivate students in various ways, for example making the teaching and learning process more interesting, either through various learning strategies, models, approaches, methods or the use of learning media that can improve student learning outcomes. In addition, teachers can provide a future picture of the importance of science process skills, especially for a challenging future, so that it requires them to have the ability to think critically, creatively and innovatively to deal with the problems they face (Darmaji et al., 2022). This will be a guideline for teachers and students not only to be motivated to learn, but they also need to have the right and optimal motivation to achieve maximum learning goals and results. In addition to the teacher, in providing motivation, the role of parents is also needed which can be done by giving rewards to their children if they get achievements in learning, so that they are more interested in learning science more optimally (Yolviansyah, 2021; Tanti et al., 2022).

CONCLUSION

Students' learning motivation determines students' ability to learn. High learning motivation should be able to create bigger opportunities in achieving good learning outcomes. Based on the results of this research, it was found that students' learning motivation at SMPN 4 Siak Hulu in science subjects was categorized as high, but not in line with the learning outcomes which is it was still in the low category. For this reason, we need a learning system that can motivate students to learn as well as provide solutions and improvements to help them achieve optimal learning outcomes, especially in science subjects in Class VII SMPN 4 Siak Hulu.

RECOMMENDATION

Recommendations for futhere researchers are to be able to expand the studies studied regarding the relationship between learning motivation and learning outcomes. So that it can be seen what factors can influence student motivation and learning outcomes, especially in science lessons. Obstacles or problems that affect this research, namely the learning outcomes obtained are high, while students' learning motivation is low. This problem can be triggered because students are not honest in filling out the questionnaire. Therefore, for futhere researchers to be able to arrange questionnaire items using sentences that can indirectly trigger students to answer honestly.

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