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Exploring the Correlation between Learning Motivation and Biology Achievement: A Study on Students of SMAN 7 Pangkep

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ABTRAK

Motivasi memiliki peran strategis dalam aktivitas belajar seseorang. Motivasi belajar diperlukan untuk menumbuhkan minat dalam pelajaran, sehingga siswa termotivasi untuk belajar. Hasil belajar merupakan manifestasi dari proses siswa dalam memotivasi diri mereka sendiri dalam belajar sehingga siswa memiliki hasil belajar yang tinggi di mana siswa memiliki tingkat penguasaan yang tinggi dalam menerima materi dari guru dalam mata pelajaran yang dipelajari. Penelitian ini bertujuan untuk menentukan deskripsi motivasi belajar dan hasil belajar biologi siswa di SMAN 7 Pangkep. Jenis penelitian yang digunakan adalah penelitian deskriptif dengan teknik simple random sampling. Pengumpulan data dalam penelitian ini menggunakan kuesioner motivasi belajar dan data hasil belajar siswa diambil dari hasil ujian semester ganjil dalam bentuk dokumentasi di mana data tersebut diolah dengan dua cara, yaitu analisis deskriptif dan inferensial. Teknik analisis data menggunakan uji regresi sederhana. Hasil penelitian ini menunjukkan bahwa ada hubungan positif antara motivasi belajar dan hasil belajar siswa dalam pembelajaran biologi dengan nilai koefisien korelasi sebesar 0,487 yang menunjukkan bahwa data yang diperoleh berada dalam kategori sedang. Kesimpulan dari penelitian ini adalah bahwa ada hubungan positif dan signifikan antara motivasi belajar dan hasil belajar siswa kelas XI MIPA di SMAN 7 Pangkep dalam pembelajaran biologi. Ini berarti semakin tinggi motivasi belajar siswa, semakin tinggi pula hasil belajarnya. Dengan motivasi, siswa dapat mengembangkan kegiatan dan inisiatif yang dapat mengarahkan dan menjaga ketekunan dalam menjalankan aktivitas belajar.
Kata kunci: Korelasi Hasil belajar dan motivasi, pembelajaran biologi

ABTRACT

Motivation has a strategic role in a person's learning activities. Learning motivation is needed to foster interest in lessons, so that students are encouraged to learn. Learning outcomes are a manifestation of a student's process of motivating themselves in learning so that students have high learning outcomes where the student has a high level of mastery in receiving material from the teacher in the subject being studied. This research aims to determine the description of learning motivation and biology learning outcomes of students at SMAN 7 Pangkep. The type of research used is descriptive research using simple random sampling techniques. Data collection in this research used a learning motivation questionnaire and data on student learning outcomes was taken from odd semester exam results in the form of documentation where the data was processed in two ways, namely descriptive and inferential analysis. The data analysis technique uses a simple regression analysis test. The results of this research show that there is a positive relationship between learning motivation and student learning outcomes in biology learning with a correlation coefficient value of 0.487 indicating that the data obtained is in the medium category. The conclusion of this research is that there is a positive and significant relationship between learning motivation and the learning outcomes of class XI MIPA students at SMAN 7 Pangkep in biology learning. This means that the higher the student's learning motivation, the higher the learning outcomes. With motivation, students can develop activities and initiatives that can direct and maintain persistence in carrying out learning activities.
Keywords: Correlation Learning outcomes and motivation, biology learning

1. INTRODUCTION

The rapid development of the world and the swift global changes in various aspects of life pose challenges to nations in preparing future generations, including students. In this modern era, education plays a crucial role in shaping generations capable of keeping pace with the advancements in science and technology. Education is a determinant of a nation's progress or decline (Rachmantika et al., 2019). Education is a system, and educational activities are comprised of several components such as educators, students, educational objectives, educational facilities, and the educational environment. Each component that builds an educational system is interrelated. Each educational component has its own function in achieving educational objectives (Hidayat et al., 2019).

According to Husain et al. (2014), education serves as a benchmark for a nation's progress. Thus, it is not wrong to assert that the development of education in Indonesia must be continuously enhanced in line with civilizational progress. The development of education in Indonesia continually encounters various problems at every stage. These problems can only be solved with the participation of all relevant parties within the education system, including parents, teachers, and students themselves. Education begins in the school. Schools are likened to fields of knowledge, where teachers sow knowledge, and students reap knowledge.

External factors that influence students' learning interest include school and family factors. In the education process, teachers have the task of educating and teaching students to become individuals capable of fulfilling their life tasks in line with their nature as human beings. One of the main tasks of teachers is to make students know or perform things in a formal manner (Marleni, 2016).

One of the internal factors that affect students' learning outcomes is motivation, which functions as an effort in achieving success. Usually, individuals make efforts because of motivation. Learning motivation is one of the factors that influence students' achievement in their learning activities. The higher the motivation of students, the more effective and efficient their learning will be; conversely, a lack of motivation will result in less satisfactory learning outcomes (Rozaini, 2017). Motivation plays a strategic role in an individual's learning activities. Learning motivation is needed to cultivate interest in subjects, thus motivating students to learn. At all ages, motivation plays a very important role in a person's life and has a significant impact. Students with high learning motivation tend to have a positive attitude towards success (Slameto, 2010).

Motivation is the energy of an individual that can create a level of willingness to engage in activities. This willingness, whether intrinsic (from within the individual) or extrinsic (from external sources), plays a role in learning (Suharni, 2018). Learning motivation is the situation during learning; the more precise the motivation given, the more successful the learning (Fitriani, 2019). Meanwhile, according to Safitri (2021), learning motivation is the drive or force within students that generates behavior in learning activities, in the form of mental strength, so that the desired goals can be achieved.

Speaking about the types or kinds of motivation can be viewed from various perspectives. Therefore, motivations or active motives vary greatly. According to Emda (2018), motivation can be divided into two types: intrinsic and extrinsic. Intrinsic motivation involves the situation in learning, meeting the needs, and students' goals. Learning outcomes are a manifestation of a student's motivation in learning, so that a student has high learning outcomes, where the student also has a high level of mastery in receiving material from the subject teachers. High learning outcomes are greatly influenced by high learning motivation of students, and vice versa.

Learning outcomes are a form of achieved or unachieved learning goals. Learning outcomes are the results obtained that lead to changes in behavior towards learning. Students will achieve high learning outcomes if, during the learning process, teachers and participants can collaborate to achieve learning goals (Mutiaramses, 2021). Learning outcomes are the abilities acquired by students after learning activities. Learning itself is a process of an individual's attempt to obtain a form of behavior change (Rahmawati, 2018). Learning outcomes are changes that occur in students in terms of cognitive, affective, and psychomotor aspects as a result of learning activities. Learning outcomes are also defined as the level of student success in learning certain subject matter in school, in the form of scores obtained from tests on specific subject matter. The success of children in achieving learning goals can be known through evaluation, which is the use of information to make effective considerations in meeting students' needs.

Student learning achievements are measured not only by the level of mastery of knowledge but also by attitudes and skills (Susanto, 2013).

Based on observations conducted at SMAN 7Pangkep and interviews with one of the biology teachers at SMAN 7Pangkep, they stated, "There are several students who are not ready to receive biology lessons. Therefore, some students lack motivation to learn. There are several factors, including environmental factors. Factors from the environment such as the family, namely the lack of encouragement from students' parents to study. Families have not fully prepared their children to be responsible for themselves, as seen from the many students who do not study the material deeply, so they rely solely on the material presented by the teacher. The problems that occur in the learning process require solutions to ensure effective learning. One solution to address these issues is to provide motivations during the teaching and learning process to facilitate good, smooth, orderly, and goal-oriented teaching and learning, with the hope that all students in the class will be enthusiastic about learning and improve their learning outcomes.
Learning motivation is essential in conducting learning activities. With motivation within students, they will be eager to learn. This will have a positive impact on students' learning scores. Students with strong motivation will have a lot of positive energy in learning activities, resulting in maximal learning achievements.

2. METHODS

The type of research used is descriptive correlational research. Descriptive correlational research is intended to gather information about the status related to an existing phenomenon, which is the phenomenon as it is at the time the research is conducted (Arikunto, 2010). This research will show the correlation between learning motivation and biology learning outcomes. This research will be conducted at SMAN 7 Pangkep, located in Pangkep Regency, South Sulawesi Province. The research will be conducted in the odd semester of the academic year 2022/2023 for class XI. Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn from (Sugiyono, 2013). The population in this study is all students of class XI MIPA at SMAN 7 Pangkep, with a total of 5 classes, each consisting of 18 students, totaling 90 students. The sample is taken using the Isaac and Michael table. If the population is 90 and using a 5% error rate, the obtained sample size is 72 students.

Operational definitions of variables in the study are intended to provide a clear picture of the variables under study, namely learning motivation, which is something inherent in a person that drives them to behave and act to achieve specific goals. Keller's ARCS model of Learning Motivation (2009) consists of 4 indicators: attention, relevance, confidence, and satisfaction. Learning motivation can be measured through a learning motivation questionnaire using a Likert scale. The data score measurement of the questionnaire results is calculated using the Likert scale measurement scale. With categories of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). There are two forms of statements in the Likert scale, namely positive statements to measure positive scales, and negative statements to measure negative scales. Positive statements are given scores of 4, 3, 2, 1, while negative statements are given scores of 1, 2, 3, 4.

Learning outcomes in this study refer to the learning outcomes achieved by students from the learning process or after taking the end-of-semester exams in academic subjects at school. This data is obtained from the end-of-semester exams in the odd semester of the academic year 2022/2023 from the biology subject teachers. The research instruments consist of 2 instruments: the Learning Motivation Instrument and the Learning Outcomes Instrument. The research procedure is a series of steps from the beginning to the end of the research conducted sequentially or systematically from one stage to the next. This research is carried out through 3 stages: the pre-research stage, implementation stage, and evaluation stage.

The data collection technique consists of two methods: the learning motivation questionnaire method and the learning outcomes measurement method. The learning motivation data is collected through the distribution of questionnaires. The data is obtained using a questionnaire filled out directly by students. The learning outcomes data is obtained from the end-of-semester exams in the odd semester of the

academic year 2022/2023 from the biology subject teachers. The data analysis technique in this study is divided into two: descriptive analysis of the learning motivation variable and inferential analysis. Descriptive analysis is divided into two: analysis of the learning motivation variable and descriptive statistics, which is used to analyze data by describing or depicting the collected data as it is without intending to make general conclusions or generalizations. The questionnaire data score is calculated using descriptive statistics with the following formula.:

$P = F/N \times 100$

Explanation:

P = Percentage value of respondent's answers

F = Frequency of respondent's answers

N = Total number of respondents

Based on the calculation of student learning motivation data, it is then adjusted with the categorization of the levels of student learning motivation.

Table 1. Categories of Student Learning Motivation Levels

Score	Category
81-100	Very high
61-80	High
41-60	Moderate
21-40	Low
0-20	Very Low

(Source: Sumartono & Normalina, 2015)

Next, the descriptive analysis of student learning outcomes variables aims to describe the overview of student learning outcomes. The data obtained from students are then calculated as percentages to determine the level of student learning outcomes. From the calculation results of student learning outcome data, they are then adjusted with the categorization of learning outcomes.

Table 2. Categories of Student Learning Outcome Levels

Percentage Value	Category
81-100	Very high
61-80	High
41-60	Moderate
21-40	Low
0-20	Very Low

(Source: Riduwan, 2013 in Agnafia 2019)

The second data collection technique is inferential analysis. Inferential analysis itself is divided into three parts: normality test, linearity test, and hypothesis testing. The normality test aims to determine whether the regression model of the dependent and independent variables has a normal distribution of data or not. The normality test is conducted using the Kolmogorov-Smirnov test. Normality data calculation is assisted using the SPSS software for Windows. The decision-making for normality testing is that the data is considered normal if the obtained significance > 0.5 and can also be reinforced by looking at the statistical test in the Kolmogorov-Smirnov table.

The linearity test aims to determine whether two variables have a linear relationship or not. The linearity test can be known by looking at the significance value in the deviation from linearity at a significance level of 5%. There are two criteria for testing: first, if the significance value < 0.05, then there is no linear relationship, and if the significance value ≥ 0.05, then there is a linear relationship. Correlation analysis is used to test the hypotheses in this study. The correlation coefficient is used to measure or determine the relationship between learning motivation and student learning outcomes. The statistical test used in this study is the Pearson Product-Moment Correlation using SPSS 25.0 for Windows. The correlation coefficient obtained is then consulted with the t-table at a significance level of 5%. The correlation is considered significant if the calculated correlation coefficient is greater than the tabulated correlation coefficient at a significance level of 5%.

3. RESULT AND DISCUSSION

This research was conducted at SMAN 7 Pangkep, Liukang Tupabbiring sub-district, Pangkep Regency. The results of this research are the answers to the formulated problems that have been determined previously and aim to understand the overview of Learning Motivation and learning outcomes in the subject of biology, to determine the relationship between learning motivation and student learning outcomes in the subject of biology. Data collection in this research was done by distributing learning motivation questionnaires to students and final semester exam scores to determine the biology learning outcomes of students. The sample in this study consisted of 72 respondents from class XI MIPA 1, XI MIPA 2, XI MIPA 3, XI MIPA 4, and XI MIPA 5 selected using simple random sampling technique.

The data from this research consist of two variables, namely the independent variable of learning motivation and the dependent variable of learning outcomes. At this stage, it will provide an overview of the researched objects through population data using SPSS version 25.0 for Windows. The data on learning motivation variables of class XI MIPA students at SMAN 7 Pangkep were obtained through a questionnaire consisting of 30 statement items with a sample size of 72 students. The results of descriptive analysis of learning motivation can be seen in Table 3.

Table 3. Descriptive Statistical Analysis Results of Learning Motivation

Statistic	Statistic Value
Sample size (n)	72
Highest score (X_{maks})	77
Lowest score (X_{min})	43
Mean score ($\bar{x}$)	61
Standard deviation (s)	9

Based on Table 3, the highest score obtained by students on the learning motivation questionnaire is 77, while the lowest score is 43. The mean (M) is 61 and the standard deviation (s) is 9. The average score of student learning motivation is 61 out of the ideal score of 100, indicating that the learning motivation of class XI MIPA students at SMAN 7 Pangkep is categorized as moderate.

Table 4. Calculation of Percentage Categories of Learning Motivation

Interval	Frequency	Percentage (%)	Category
81-100	0	0	Very High
61-80	40	56	High
41-60	29	40	Moderate
21-40	3	4	Low
0-20	0	0	Very Low
Total	72	100%	

Based on the data in Table 4, learning motivation is categorized as very high for 0 students, with a

percentage of 0%. For the high category, there are 40 students with a percentage of 56%, while for the moderate category, there are 29 students with a percentage of 40%. As for the low category, there are 3 students with a percentage of 4%, and for the very low category, there are 0 students with a percentage of 0%.

Table 5. Level of Learning Motivation of Class XI MIPA Students Each Indicator

Category	Learning Motivation Indicators							
	Attention		*Relevance*		*Confidence*		*Satisfaction*	
	(Σ)	(%)	(Σ)	(%)	(Σ)	(%)	(Σ)	(%)
Very High	7	10	5	7	4	6	7	10
High	34	47	48	67	25	35	49	68
Moderate	27	38	19	26	39	53	16	22
Low	4	5	0	0	4	6	0	0
Very Low	0	0	0	0	0	0	0	0
Total	72	100	72	100	72	100	72	100

The data in Table 5 shows the level of learning motivation of class XI MIPA students at SMAN 7 Pangkep for each learning motivation indicator. Judging from the average scores, students' achievements in the attention indicator generally fall into the high category with a total of 34 students, or 47%. The relevance indicator generally falls into the high category with a total of 48 students, or 67%, while the confidence indicator falls into the moderate category with a total of 39 students, or 53%. Furthermore, the satisfaction indicator mostly falls into the high category with a total of 49 students, or 68%. The data for the learning outcomes variable were obtained through the average scores of the midterm exams in biology, with a total of 72 students.

Table 6. Descriptive Statistical Analysis Results of Learning Outcomes

No.	Statistic	Statistic Value
1	Sample size (n)	72
2	Highest score (X_{maks})	86
3	Lowest score (X_{min})	60
4	Mean score ($\bar{x}$)	80
5	Standard deviation (s)	4

Based on Table 6. the highest score of learning outcomes for class XI MIPA students at SMAN 7 Pangkep is 86, while the lowest score is 60. The standard deviation obtained is 4. The average score of the midterm exams for the academic year 2022/2023 is 80. When considering the categorization of student learning outcomes in Table it falls within the moderate category.

Table 7. Calculation of Percentage Categories of Learning Outcomes

Interval	Frequenscy	Percentage (%)	Category
81-100	30	41	Very High
61-80	32	45	High
41-60	10	14	Moderate
21-40	0	0	Low
0-20	0	0	Very Low
Total	72	100%	

The data in Table 7 shows that out of 72 students from SMAN 7 Pangkep, the majority of students fall into the high category, with a total of 32 students achieving high learning outcomes based on the midterm exam scores for the academic year 2022/2023. It can be concluded that MIPA class students at

SMAN 7 Pangkep have achieved learning outcomes that can be considered high. The average learning outcome score indicates that students at SMAN 7 Pangkep can be categorized as moderate. The data obtained from the data analysis shows that students' learning outcomes are quite good.

Furthermore, the results of inferential analysis, specifically normality in this study, were conducted to determine whether all research variables are normally distributed or not. Normality was tested on each research variable, including learning motivation and learning outcomes. The normality testing used the Kolmogorov-Smirnov technique, and calculations were performed using SPSS 25 for Windows. Data is considered normally distributed if the significance value is greater than 0.05 at a significance level of $\alpha = 0.05$. The normality results for each research variable are presented below.

Table 8. Results of normality Test

Research Variable	Sig	Note
Learning Motivation	0,07	Normal
Learning Outcomes	0,081	Normal

Based on the normality test conducted using the Kolmogorov-Smirnov test, the significance level for the learning motivation variable is 0.070, while for the learning outcomes variable, it is 0.081. The results obtained for both variables have significance levels greater than 0.05, indicating that the data obtained are normally distributed. Next, the linearity test is conducted to determine whether the two variables have a linear relationship or not. Based on the analysis of the linearity test between learning motivation and learning outcomes of students in class XI MIPA at SMAN 7Pangkep, the following results are obtained.

Tabel 9. Result of Linearity Test

Research Variable	Sig	Note
XY	0,758	Linear

The linearity test aims to determine whether two variables have a linear relationship. In the analysis of the linearity test between learning motivation and learning outcomes of students in class XI MIPA at SMAN 7Pangkep, the results are as follows: The significance level for the linearity test between learning motivation and learning outcomes is [insert significance level here]. Based on this significance level, if the p-value is less than 0.05, it indicates that there is no linear relationship between the variables. Conversely, if the p-value is greater than or equal to 0.05, it suggests that there is a linear relationship between the variables.

Based on Table 9, the results of the linearity test on the variables of learning motivation and student learning outcomes show that the Deviation from Linearity (sig) is 0.758, which is greater than 0.05. This indicates that there is a linear relationship between Learning Motivation (X) and Student Learning Outcomes (Y). Hypothesis testing in this research uses correlation analysis to determine the relationship between learning motivation and biology learning outcomes of class XI MIPA students at SMAN 7Pangkep. The correlation test is conducted using the Product Moment correlation technique with the assistance of SPSS 25.0 for Windows.

The results of the correlation test between learning motivation and student learning outcomes show that there is a relationship between the variables of learning motivation and learning outcomes. The decision-making basis is that if the significance value is less than 0.05, there is a correlation or relationship between the two variables. Conversely, if the significance value is greater than 0.05, there is no correlation or relationship between the two variables. The Pearson correlation coefficient is 0.487. Since the direction of the correlation coefficient is positive, the correlation is directly proportional. This means that the higher the learning motivation, the higher the student learning outcomes. This study examines two variables: learning motivation and academic performance. Learning motivation is a dynamic aspect crucial in the learning process, driven by impulses that direct behavior towards achieving specific goals (Emda, 2018). Learning motivation was measured using a learning motivation questionnaire adapted from the ARCS model of learning motivation by Keller (2009).

The descriptive analysis of learning motivation data revealed that the average motivation score of XI MIPA class students at SMAN 7Pangkep, with a total of 72 students as research samples, was 61 out of an ideal score of 100. This indicates that the learning motivation of students is high. The highest score

obtained by students after completing the learning motivation questionnaire was 76, while the lowest score was 43. The fact that the maximum score for motivation has not been achieved suggests that there are still areas that need improvement to support students' learning motivation. Based on the average scores of each indicator, the lowest averages were observed in the attention and confidence aspects. This indicates that the focus on learning by students at SMAN 7Pangkep is not yet optimal. Additionally, most students lack confidence in learning and problem-solving.

Several factors influence the level of learning motivation, including attitudes, needs, stimuli, emotions, competencies, and reinforcement (Badaruddin, 2015). Optimal learning motivation is crucial as it enables students to achieve desired processes and goals. Learning motivation can be influenced by individual drive as well as reinforcement from the physical and non-physical environment, such as parents, teachers, peers, and the community. High learning motivation among students increases the likelihood of achieving good results. In addition to learning motivation, academic performance is essential in the learning process, reflecting changes in student behavior after appropriate teaching and learning processes. The descriptive analysis of academic performance data showed that the average score of XI MIPA class students at SMAN 7Pangkep was 80 out of a maximum of 100. This indicates that students' academic performance is high, with the highest score obtained being 86 and the lowest being 60.

The correlation test between learning motivation and academic performance yielded a significance value of 0.001, indicating a significant correlation between the two variables. Thus, the hypothesis "There is a relationship between learning motivation and academic performance of XI MIPA class students at SMAN 7Pangkep" is accepted. This finding is consistent with research by Nuriyatin (2015), which found a correlation between learning motivation and academic performance. Biology learning in this study involves deepening previous knowledge acquired at the junior high school level. Students are generally motivated to learn biology because many biological phenomena are closely related to their daily lives. Therefore, students can understand the relevance of biology learning to their daily lives.

The Pearson correlation coefficient of 0.487 indicates a strong positive correlation between learning motivation and academic performance. An increase in learning motivation is associated with improved academic performance in biology learning. Conversely, low learning motivation leads to lower academic performance. This finding aligns with research by Nugraha (2017), which found that students with high motivation tend to have better academic performance. The relationship between learning motivation and academic performance can also be explained by specific indicators of learning motivation, such as attention, relevance, confidence, and satisfaction. Attention involves curiosity, which encourages students to learn and inquire further. Relevance implies a connection between learning material, student needs, and conditions. Confidence is crucial because lack of confidence leads to academic dishonesty and decreased academic performance. Success in achieving goals leads to satisfaction, motivating students to pursue similar goals.

According to Loes (2015), motivation strongly correlates with academic performance. Students with high motivation and academic performance are interested in problem-solving, enjoy challenges, and receive guidance and attention from parents regarding their academic achievements. Similarly, Rozaini (2017) emphasizes the importance of learning motivation in teaching and learning activities, as motivated students are enthusiastic learners, leading to optimal academic achievement. So, the results of this study indicate a positive relationship between learning motivation and academic performance. Motivation plays a crucial role in the learning process, and students' level of motivation serves as a benchmark for their academic achievement. Therefore, low learning motivation in a particular subject can affect students' academic performance in that subject.

4. CONCLUSION

Based on the research findings and discussion conducted by the researcher, it can be concluded that there is a positive and significant relationship between learning motivation and academic performance of XI MIPA class students at SMAN 7Pangkep in biology learning. This means that the higher the students' learning motivation, the higher their academic performance will be.

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