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THE EFFECT OF LEARNING MOTIVATION ON STUDENTS' MATHEMATICS LEARNING OUTCOMES AT STATE SENIOR HIGH SCHOOL 1 KUTA COT GLIE

PENGARUH MOTIVASI BELAJAR TERHADAP HASIL BELAJAR MATEMATIKA SISWA DI SMA NEGERI 1 KUTA COT GLIE

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Abstract

This study aims to analyze the influence of learning motivation on mathematics learning outcomes of students at SMA Negeri 1 Kuta Cot Glie. This type of research is quantitative with an associative approach. The research subjects were determined using a purposive sampling technique, namely 37 students consisting of 17 students in grade XI and 20 students in grade XI-I. Data collection was carried out using a learning motivation questionnaire instrument (variable X) and a documentation study of semester mathematics report card scores (variable Y). Data processing was analyzed using the SPSS 26 for Windows program through descriptive statistical analysis, analysis prerequisite tests (Shapiro-Wilk normality test and linearity test), and simple linear regression tests. The results of the descriptive analysis showed an average value of learning motivation of 71.89 (good category) and an average value of mathematics learning outcomes of 81.78 (very good category). The data of both variables are normally distributed (Sig. 0.469 and 0.285 > 0.05) and have a linear relationship (Deviation from Linearity Sig. 0.972 > 0.05). The results of the hypothesis test show a regression equation Y = 63.725 + 0.251X with a significance value of 0.000 (<0.05) and a calculated t of 4.266. The conclusion of this study is that learning motivation has a positive and significant effect on the mathematics learning outcomes of students at SMA Negeri 1 Kuta Cot Glie, where every increase in learning motivation is directly followed by an increase in mathematics learning outcomes.

Keywords : Learning Motivation, Mathematics Learning Outcomes, Simple Linear Regression, SMA Negeri 1 Kuta Cot Glie.

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Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh motivasi belajar terhadap hasil belajar matematika siswa di SMA Negeri 1 Kuta Cot Glie. Jenis penelitian ini adalah kuantitatif dengan pendekatan asosiatif. Subjek penelitian ditentukan menggunakan teknik *purposive sampling*, yaitu sebanyak 37 siswa yang terdiri dari 17 siswa kelas XI dan 20 siswa kelas XI-I. Pengumpulan data dilakukan menggunakan instrumen kuesioner motivasi belajar (variabel X) dan studi dokumentasi nilai rapor matematika semester (variabel Y). Data diolah menggunakan program SPSS 26 for Windows melalui analisis statistik deskriptif, uji prasyarat analisis (uji normalitas Shapiro-Wilk dan uji linearitas), serta uji regresi linear sederhana. Hasil analisis deskriptif menunjukkan nilai rata-rata motivasi belajar sebesar 71,89 (kategori baik) dan nilai rata-rata hasil belajar matematika sebesar 81,78 (kategori sangat baik). Data kedua variabel berdistribusi normal (Sig. 0,469 dan 0,285 > 0,05) serta memiliki hubungan yang linear (*Deviation from Linearity* Sig. 0,972 > 0,05). Hasil uji hipotesis menunjukkan persamaan regresi Y = 63,725 + 0,251X dengan nilai signifikansi 0,000 (< 0,05) dan nilai t hitung sebesar 4,266. Kesimpulan dari penelitian ini adalah bahwa motivasi belajar berpengaruh positif dan signifikan terhadap hasil belajar matematika siswa di SMA Negeri 1 Kuta Cot Glie, di mana setiap peningkatan motivasi belajar diikuti secara langsung oleh peningkatan hasil belajar matematika.

Kata Kunci : Motivasi Belajar, Hasil Belajar Matematika, Regresi Linear Sederhana, SMA Negeri 1 Kuta Cot Glie.

1. INTRODUCTION

Education is the primary foundation for improving the quality of human resources to meet the increasingly complex demands of the times. Through education, each individual is encouraged to optimally develop their full potential, both in terms of mastery of knowledge, technical skills, and the development of character-based personality traits. However, achieving success in this learning process does not occur in isolation but is massively influenced by the dynamics of students' internal and external factors. Internal factors encompass all neuropsychological and affective conditions originating within the student, such as interests, innate talents, and motivation levels. While external factors include the learning ecosystem, teacher professionalism, parental guidance, and the completeness of educational facilities and infrastructure. Among all these elements, learning motivation holds a crucial position as the primary driving force (Sari et al., 2021). According to the Great Dictionary of the Indonesian Language, motivation is a conscious or unconscious urge within a person to perform an action with a specific goal (Novianti et al., 2020). In academic discourse, learning motivation is understood as the overall internal and external driving force that gives rise to learning activities, ensures the continuity of practice, and provides direction to these activities so that the planned learning objectives can be achieved optimally (Winata, 2021).

In terms of its developmental dynamics, learning motivation can stem from intrinsic factors stemming from students' internal awareness and interests, as well as extrinsic factors triggered by stimulation from the external environment (Nurrawi et al., 2023). Students with high intrinsic motivation tend to demonstrate strong articulation of learning engagement; they are not only diligent and enthusiastic, but also tenacious, resilient, and highly focused when absorbing learning materials in class (Nur Annisa, 2019). Conversely, if students' learning motivation levels are low, their participatory engagement in learning will decrease drastically, thus triggering a passive attitude, indifference to teacher explanations, and a reluctance to unleash their academic potential (Novianti et al., 2020). This phenomenon of low motivation has a direct impact on academic performance in the field, as indicated by students' average daily test scores, which often fail to exceed the Minimum Completion Criteria (KKM) at the standard level of 70 (Novianti et al., 2020). To overcome this problem, teachers play a strategic role as facilitators whose task is to awaken and maintain students'

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motivation to learn through providing appreciation, developing a conducive classroom atmosphere, and understanding the differences in individual student characteristics (Nur Annisa, 2019).

Within the school curriculum, mathematics occupies a crucial role in developing reasoning skills, analytical logic, and systematic problem-solving skills. Despite its pivotal role in the structure of science, mathematics is often perceived by most students as a daunting, complex, and tedious discipline (Nurrawi et al., 2023). This negative perception stems primarily from the inherent complexity of mathematical calculations, theoretical formulations, and a strong attachment to abstract symbols. This psychological state of math anxiety ultimately becomes a barrier that triggers student resistance to learning. Therefore, a strong intrinsic drive is needed to sustain and overcome cognitive barriers during the learning process.

To overcome negative perceptions and the complexity of the material, strong learning motivation is an absolute prerequisite for learning mathematics. Mathematics requires more than just memorizing formulas; it also requires a deep understanding of concepts, a high level of precision, and consistently structured logical reasoning. Students equipped with a strong learning drive will not give up easily when faced with complex mathematical problems; instead, they feel challenged to actively seek solutions, diligently work on practice problems, and strive to dissect abstract concepts until they are truly mastered (Rahman, 2020). This learning resilience and persistence are the key differences between students who achieve academic success and those who experience cognitive stagnation.

Conceptually, the success of this mathematical knowledge accumulation process is reflected through student learning outcomes, which are measured periodically. Mathematics learning outcomes are quantitative and qualitative indicators that indicate the extent to which students have assimilated the material taught, which is generally represented through the accumulation of scores on daily tests, midterm exams (UTS), and final exams (UAS) (Wulandari et al., 2023). Achieving satisfactory academic scores indicates that the process of knowledge transfer and mastery of mathematical concepts has been effective. Conversely, if the learning outcome indicator shows a continuously declining graph, this indicates a fundamental obstacle in material absorption that needs to be immediately identified and addressed.

However, empirical evidence on the ground shows that low mathematics learning outcomes remain a persistent problem in secondary education. These low academic scores are inextricably linked to a lack of motivation to learn, characterized by students' inattention when teachers explain material, low frequency of active participation in class, and the habit of procrastinating or not completing assigned mathematics assignments (Sari et al., 2021; Putri & Rahma, 2022). This series of determinants confirms the strong correlation and functional link between learning motivation and student academic achievement. Based on the dynamics of this problem, the authors deem it crucial to conduct an in-depth scientific study and exploration through research entitled "The Influence of Learning Motivation on Mathematics Learning Outcomes of Students at SMA Negeri 1 Kuta Cot Glie."

2. RESEARCH METHOD

In determining the research subjects, the target population included all students of SMA Negeri 1 Kuta Cot Glie enrolled in grades X, XI, and XII (Rasyid, 2022). Sampling from this population was carried out using a purposive sampling technique, namely determining the sample based on certain specific criteria and considerations through an intensive consultation process with mathematics subject teachers. These consideration criteria determined grades XI and XI-I as the research sample based on considerations of willingness to be respondents, completeness of administrative data on learning outcomes, possession of a history of positive interactions when the researcher implemented the School Field Introduction (PLP/PPL) program at the school, and ease of access in building coordination during the data collection process.

The primary and secondary data collection process was carried out through two main techniques, namely the distribution of closed questionnaires and documentation studies. The learning

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motivation questionnaire was adapted from a tested instrument by Dian Ayu Setianingrum (2024) which uses a four-choice Likert Scale (Strongly Agree, Agree, Disagree, Strongly Disagree) to measure indicators of interest, motivation, self-confidence, independence, environment, and obstacles to student learning (Koo & Yang, 2025). Meanwhile, the documentation technique was used to record secondary data in the form of official report card grades in mathematics subjects. All collected data were then processed using SPSS 26 for Windows software through descriptive statistical analysis to present an overview of data characteristics such as the average value (mean), median, mode, standard deviation, and frequency distribution of each variable in a structured and measurable manner (Sandra et al., 2025).

3. RESULT AND DISCCUSSION

Study This held at SMA Negeri 1 Kuta Cot Glie on May 7 to 12, 2026 with objective analyze influence motivation Study to results Study mathematics students. Respondents involved totaling 37 people, consisting of over 17 students class XI and 20 students class XI-I, selected Because student class XII has complete their study period. Data collection was carried out through distribution questionnaire For measure variables free in the form of motivation study (X) and documentation mark report card For variables bound in the form of results Study mathematics (Y). All data collected Then processed use the SPSS 26 for Windows program pass a series test analysis, start from statistics descriptive until testing hypothesis.

Analysis descriptive show description general condition respondents in a way representative with achievements that are classified as very good. Based on data processing, variables motivation Study record minimum value 52, value maximum 92, average (mean) of 71.89, and standard deviation 9.348. Meanwhile that, the result Study mathematics show more numbers high, namely minimum value 75, maximum 90, average 81.78, with standard deviation 4.015. The average value at second distant variables more big than standard the deviation confirm that relative data distribution well, at the same time prove that part big student own encouragement enough study tall And in harmony with achievement academic they are in class.

Before enter on testing hypothesis main, testing prerequisite the first thing to do is test normality use Shapiro-Wilk method of remembering amount sample not enough of 50 respondents. Test This aim ensure is the data from second variables normally distributed as condition absolute analysis parametric. Results SPSS output shows that mark significance (Sig.) for variables motivation Study is at 0.469, while variables results Study mathematics record mark significance of 0.285. Because second mark significance the more big from limit tolerance 0.05, then can withdrawn conclusion Certain that the data on second variables study distributed normally and worthy to be continued on testing next.

Prerequisite analysis second is test functional linearity ensure existence a linear relationship between motivation Study as variables free And results Study mathematics as variables bound. Based on Deviation from Linearity testing, obtained calculated F value of 0.387 with mark significance (Sig.) reached 0.972. The figure far- reaching significance exceed limit this 0.05 criterion in a way convincing prove that connection second variables the walk in harmony And form valid linear line in a way statistics. Fulfillment condition normality And linearity This give strong foundation For step to stage test simple linear regression without existence constraint data distribution.

Testing hypothesis done through analysis simple linear regression that produces equality regression **Y = 63.725 + 0.251X**, where mark constant positive 63,725 indicates results Study base student without existence motivation, and coefficient regression 0.251 indicates that every improvement motivation will increase results learning. Analysis This prove existence significant influence based on mark significance of 0.000 which is far below probability 0.05, supported by t - value positive of 4,266. The result absolute This reject hypothesis zero (H0) and accept hypothesis alternative (H1), which confirms in a way empirical that the more tall motivation Study students, then the more high yields Study the mathematics they achieve.

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Discussion

This research was conducted at SMA Negeri 1 Kuta Cot Glie located in Kuta Cot Glie District, Aceh Besar Regency, Aceh Province, by considering the ease of coordination between researchers and the school so that all stages of the research can run effectively and efficiently. The subjects who became respondents in this study were students of grades XI and XI-I with a total involvement of 37 people, divided into 17 students of grade XI and 20 students of grade XI-I. This research was specifically designed to examine two main variables, namely learning motivation as the independent variable (X) and mathematics learning outcomes as the dependent variable (Y). Fundamentally, the implementation of this research aims to map the level of student learning motivation, describe the achievements of mathematics learning outcomes obtained, and empirically prove whether or not there is a significant influence of learning motivation on students' academic mathematics achievement at SMA Negeri 1 Kuta Cot Glie.

The measurement of students' learning motivation levels through the distribution of questionnaire instruments produced data descriptions that were categorized as positive for the school's academic climate. Based on descriptive statistical analysis of 37 respondents, students' learning motivation scores recorded a minimum value of 52, a maximum value of 92, and an average (mean) of 71.89. This average value indicates that, in general, students' level of mathematics learning motivation is in the good category. This figure explicitly illustrates that the majority of students in grades XI and XI-I have a strong enough internal and external drive to actively engage in mathematics learning activities held in class.

Theoretically and contextually, learning motivation plays a pivotal role as an internal factor that determines the intensity and quality of students' learning efforts. Students with high levels of motivation demonstrate participatory characteristics, such as enthusiasm when listening to material, a strong sense of curiosity, perseverance in completing practice problems, and the mental resilience to persevere when faced with complex mathematical problems. Conversely, low levels of motivation tend to trigger a passive attitude that can potentially hinder understanding of the material. At the research site, this high average learning motivation serves as a valuable foundation because it encourages students to study in a more focused, structured, disciplined manner, and take responsibility for fulfilling their academic tasks.

Moving on to the dependent variable, the data on students' mathematics learning outcomes obtained through report card documentation showed very encouraging achievements. The results of the statistical analysis revealed that students' mathematics learning outcomes ranged from a minimum range of 75 to a maximum of 90, with an average (mean) of 81.78. This average achievement of 81.78 firmly places students' mathematics learning outcomes in the very good category, indicating that the majority of students have successfully mastered the basic competencies and learning objectives set by the school curriculum. This also reflects that the learning interactions taking place at SMA Negeri 1 Kuta Cot Glie have been effective in transferring understanding of the material to students.

The relationship between motivation and learning outcomes was systematically proven through testing the prerequisites for inferential data analysis. Before entering the regression stage, the normality test using the Shapiro-Wilk method produced a significance value of 0.469 for the learning motivation variable and 0.285 for the mathematics learning outcomes variable. Because both significance values were above the 0.05 threshold ($p > 0.05$), the data were confirmed to be normally distributed. Furthermore, the linearity test using Deviation from Linearity produced an F value of 0.387 with a significance level of 0.972. This significance value, which far exceeds 0.05, confirms that the relationship between the learning motivation variable and mathematics learning outcomes is perfectly linear, so that a simple linear regression test is valid.

Through simple linear regression testing, the calculated F value was obtained at 18.195 with a significance value of 0.000 ($p < 0.05$), which proves that the regression model used is very suitable for predicting the relationship between variables. The regression coefficient of the learning motivation variable also recorded a significance value of 0.000, so the null hypothesis (H_0) was rejected and the

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alternative hypothesis (H_a) was accepted. The results of this test gave rise to the regression equation Y = 63.725 + 0.251X. The constant value of 63.725 means that if learning motivation is zero, then the estimated student mathematics learning outcomes are 63.725. Meanwhile, the regression coefficient value of 0.251 which is positive confirms a unidirectional relationship, where every one unit increase in the learning motivation variable will be followed by an increase in mathematics learning outcomes of 0.251 points.

The findings of this study strengthen the foundation of pedagogical theory and align with Slameto's view regarding the dominance of internal factors in academic success. They also confirm the results of previous research such as Wulansari & Manoy (2021) and Munthe & Pasaribu (2023). Overall, the data analysis demonstrates that learning motivation makes a positive and significant contribution to the mathematics learning outcomes of grade 11 and 11-1 students at SMA Negeri 1 Kuta Cot Glie. The implications of these findings emphasize the importance of ongoing synergy between teachers, schools, and parents in designing a stimulating learning environment to maintain and enhance student learning motivation for optimal future academic achievement.

4. CONCLUSION

Based on the results of research on the influence of learning motivation on mathematics learning outcomes of students at SMA Negeri 1 Kuta Cot Glie, the descriptive analysis shows very encouraging results. The level of student learning motivation is in the good category, indicating that students have adequate internal drive, interest, and perseverance in participating in learning activities. In line with this, students' mathematics learning outcomes are in the very good category, reflecting optimal understanding of the material and a thorough mastery of concepts at the school.

Inferentially, the results of the statistical analysis confirm that there is a positive and significant influence between learning motivation and the mathematics learning outcomes of students at SMA Negeri 1 Kuta Cot Glie. This empirical evidence is shown by a significance value of 0.000 which is much smaller than the significance level of 0.05, so that statistically the null hypothesis (H_0) is rejected and the working hypothesis (H_a) is accepted. This finding confirms a unidirectional relationship where any increase in student learning motivation will have a direct impact on the improvement in mathematics learning outcomes they obtain.

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