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THE EFFECT OF LEARNING INTEREST AND MATHEMATICAL ANXIETY ON MATHEMATICS LEARNING OUTCOMES OF STUDENTS OF STATE SENIOR HIGH SCHOOL 2 KUTA BARO

PENGARUH MINAT BELAJAR DAN KECEMASAN MATEMATIS TERHADAP HASIL BELAJAR MATEMATIKA SISWA SMA NEGERI 2 KUTA BARO

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Abstract

This study aims to analyze the effect of learning interest and mathematics anxiety on the mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro. A quantitative approach with a causal-associative method and an ex post facto design was employed. Data were gathered through questionnaires measuring learning interest and mathematics anxiety, alongside documentation of students' report card grades for learning outcomes, involving a total sample of 77 eleventh- and twelfth-grade students analyzed using descriptive statistics and multiple linear regression in IBM SPSS Statistics 26. Results showed mean scores of 17.66 for learning interest, 55.81 for mathematics anxiety, and 80.86 for learning outcomes. Partial testing revealed that neither learning interest ($p=0.762>0.05$) nor mathematics anxiety ($p=0.621>0.05$) had a significant effect on mathematics learning outcomes. Simultaneously, both variables showed no significant influence ($F=0.131$, $p=0.878>0.05$), with a coefficient of determination ($R^2=0.004$) indicating that they jointly accounted for only 0.4% of the variance, while the remaining 99.6% was affected by other unexamined factors; thus, learning interest and mathematics anxiety were not significant predictors of mathematics learning outcomes in this study.

Keywords : Learning Interest, Mathematics Anxiety, Mathematics Learning Outcomes, High School Students.

Abstrak

Tujuan dari penelitian ini adalah untuk menganalisis pengaruh minat belajar dan kecemasan matematis terhadap hasil belajar matematika siswa SMA Negeri 2 Kuta Baro. Penelitian ini merupakan penelitian

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kuantitatif dengan metode asosiatif kausal dan desain *ex post facto*. Sumber dan metode pengumpulan data dalam penelitian ini diperoleh melalui penyebaran angket untuk mengukur minat belajar dan kecemasan matematis serta dokumentasi nilai rapor matematika sebagai data hasil belajar. Responden dalam penelitian ini berjumlah 77 siswa kelas XI dan XII SMA Negeri 2 Kuta Baro yang ditentukan dengan teknik *total sampling*. Data penelitian dianalisis menggunakan statistik deskriptif dan analisis regresi linear berganda dengan bantuan IBM SPSS Statistics 26. Hasil penelitian menunjukkan bahwa rata-rata skor minat belajar siswa sebesar 17,66, kecemasan matematis sebesar 55,81, dan hasil belajar matematika sebesar 80,86. Hasil uji parsial menunjukkan bahwa minat belajar tidak berpengaruh signifikan terhadap hasil belajar matematika dengan nilai signifikansi sebesar 0,762 > 0,05. Kecemasan matematis juga tidak berpengaruh signifikan terhadap hasil belajar matematika dengan nilai signifikansi sebesar 0,621 > 0,05. Secara simultan, minat belajar dan kecemasan matematis tidak berpengaruh signifikan terhadap hasil belajar matematika, dengan nilai Fhitung sebesar 0,131 dan signifikansi sebesar 0,878 > 0,05. Nilai koefisien determinasi (R^2) sebesar 0,004 menunjukkan bahwa minat belajar dan kecemasan matematis secara bersama-sama hanya menjelaskan 0,4% variasi hasil belajar matematika, sedangkan 99,6% lainnya dipengaruhi oleh faktor lain di luar model penelitian. Dengan demikian, minat belajar dan kecemasan matematis belum menjadi prediktor yang signifikan terhadap hasil belajar matematika siswa SMA Negeri 2 Kuta Baro dalam penelitian ini.

Kata Kunci : Minat Belajar, Kecemasan Matematis, Hasil Belajar Matematika, Siswa SMA.

1. INTRODUCTION

Improving the quality of mathematics education in Indonesia still faces challenges in the form of gaps in students' numeracy skills at the secondary education level. This situation indicates that improving learning outcomes depends not only on curriculum improvements and learning strategies, but also on internal student factors, particularly the psychological and emotional aspects that influence the learning process (Hedo et al., 2026). In mathematics learning, interest in learning and mathematical anxiety are two aspects that require attention because they can be related to students' attention, engagement, concentration, and ability to understand and solve mathematical problems (Hartati et al., 2024).

This problem is also found in Aceh Province, including Aceh Besar Regency. The uneven quality of mathematics learning is related to various obstacles, such as low active student participation and a suboptimal learning environment (Syahputra et al., 2025; Saleh et al., 2022). This situation is further complicated when students experience difficulty understanding the material, dislike mathematics, and fear making mistakes when working on problems or facing learning evaluations (Nurjannah et al., 2025).

Based on a preliminary study and interviews with mathematics teachers at SMA Negeri 2 Kuta Baro, Aceh Besar Regency, some eleventh and twelfth grade students still experience difficulties in mastering mathematics. This is evident in their suboptimal learning outcomes and the ongoing need for ongoing efforts to restore academic understanding (SMA Negeri 2 Kuta Baro, 2025). Initial observations also indicated that some students tended to be passive during learning, procrastinating on completing assignments, and giving up easily when faced with difficult problems. These conditions indicate problems with student engagement and interest in learning. Furthermore, the fear of making mistakes and the tension of exams indicate symptoms of mathematical anxiety, which can potentially hinder students' concentration and ability to solve math problems (SMA Negeri 2 Kuta Baro, 2025).

Theoretically, learning interest can encourage students to focus, engage actively, and persist in the face of difficulties in learning mathematics (Prasetyo & Dasari, 2023; Sirajuddin et al., 2023). Conversely, mathematical anxiety can disrupt concentration and working memory capacity, making it difficult for students to process information and apply problem-solving steps (Sorvo et al., 2022; Azzahra et al., 2026). However, previous research has yielded mixed results. Salsabila (2025) found that interest in learning and mathematical anxiety significantly influenced mathematics learning

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outcomes, while Arsyatiara and Liansari (2023) and Kurniawati and Sari (2026) reported that interest in learning and mathematical anxiety did not always significantly influence learning outcomes. These differing findings indicate the need for further research tailored to student characteristics and the learning context under study.

Based on these problems, this study aims to analyze the influence of learning interest and mathematical anxiety on mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro, both partially and simultaneously. This study is expected to provide empirical evidence regarding the relationship between these two factors and mathematics learning outcomes and serve as a consideration for teachers and schools in developing learning that takes into account both academic and psychological aspects of students.

2. RESEARCH METHOD

This study employed a quantitative approach with a causal associative method and an ex post facto design. This design was used to analyze the influence of learning interest and mathematical anxiety on mathematics learning outcomes based on pre-existing conditions, without any treatment or manipulation of the research variables. The study was conducted at SMA Negeri 2 Kuta Baro, Aceh Besar Regency, from August 1–3, 2026, in the odd semester of the 2026/2027 academic year.

The accessible population of the study consisted of 77 students in grades 11 and 12 who had received mathematics report cards for the even semester of the 2025/2026 academic year. The sample was determined using a total sampling technique, ensuring that all members of the accessible population were included as respondents. The sample consisted of 18 students in grades 11 A, 18 in grades 11 B, 20 in grades 12 A, and 21 in grades 12 B. Students in grade 10 were excluded due to not meeting the criteria for the availability of report card documentation required for the study.

Data collection was conducted through questionnaires and documentation. A questionnaire was used to obtain data on students' interest in learning and mathematical anxiety, while documentation was used to obtain math report card grades as an indicator of learning outcomes. The learning interest instrument was developed based on four indicators developed by Safari (2003): enjoyment, attention, interest, and student engagement. Meanwhile, mathematical anxiety was measured through a questionnaire covering emotional, physiological, cognitive, and behavioral aspects. Both questionnaires used a Likert scale with four answer alternatives. The research instruments also underwent validity and reliability testing to assess their suitability for measuring the research variables.

Data were analyzed using IBM SPSS Statistics 26. Descriptive statistical analysis was used to describe the characteristics of each variable based on minimum, maximum, mean, and standard deviation values. Furthermore, prerequisite analysis tests were conducted, including tests for normality, multicollinearity, heteroscedasticity, and linearity. Hypothesis testing used multiple linear regression, a t-test to determine the partial effect of each variable, an F-test to examine the simultaneous effect of both variables, and correlation and determination coefficients to determine the closeness of the relationship and the model's ability to explain variations in mathematics learning outcomes.

3. RESULT AND DISCCUSSION

This study involved 77 eleventh and twelfth grade students at SMA Negeri 2 Kuta Baro, Aceh Besar Regency. Descriptive statistical analysis revealed an average student interest score of 17.66 with a standard deviation of 4.579, a minimum score of 7, and a maximum score of 27. Meanwhile, mathematics anxiety had an average score of 55.81, while mathematics learning outcomes, as measured by report card grades for the even semester of the 2025/2026 academic year, had an average of 80.86. These data provide an overview of the characteristics of the three variables, which were then

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analyzed using multiple linear regression to examine the effect of interest in learning and mathematics anxiety on mathematics learning outcomes.

The results of the hypothesis testing indicated that interest in learning did not significantly influence students' mathematics learning outcomes. The partial test yielded a regression coefficient of -0.054, a t-value of -0.304, and a significance level of 0.762 > 0.05. Thus, the hypothesis that learning interest significantly influences mathematics learning outcomes is not supported by the data in this study. These findings indicate that differences in learning interest scores have not been shown to be associated with significant changes in learning outcomes in the students studied. These results align with research by Wahyuddin, Rusdin, and Nur (2022), which found that math interest did not significantly influence high school students' mathematics learning outcomes. Arsyatiara and Liansari (2023) also reported that learning interest did not significantly influence mathematics learning outcomes. However, these results do not imply that learning interest is unimportant in the learning process, but rather indicate that its influence on learning outcomes has not been statistically proven in the context of this study.

The insignificant effect of learning interest can be understood by considering that mathematics learning outcomes are influenced by various interrelated factors. Learning interest can drive student attention and engagement, but academic achievement can also be related to initial abilities, study habits, cognitive strategies, motivation, self-efficacy, and the learning environment. Sirait, Apriyani, and Erlangga (2025), for example, found a positive and significant effect between learning interest and mathematics learning outcomes in junior high school students. Differences with this study indicate that the relationship between learning interest and learning outcomes can vary depending on respondent characteristics, educational level, and the method of measuring learning outcomes. Therefore, the findings of this study need to be understood contextually and not generalized as evidence that learning interest always has no effect on mathematics learning outcomes.

The analysis of the mathematical anxiety variable also showed no significant effect on mathematics learning outcomes for students at SMA Negeri 2 Kuta Baro. The regression coefficient was 0.051, with a t-value of 0.496 and a significance level of 0.621 > 0.05. This coefficient indicates a positive relationship in the regression model, but its significance value confirms that this effect is not statistically proven. Therefore, the hypothesis stating a significant effect of mathematical anxiety on learning outcomes is not supported by the research results. This finding aligns with research by Kurniawati and Sari (2026), which found that mathematical anxiety had no significant effect on conceptual understanding or mathematics learning outcomes. Wahyuddin et al. (2022) also showed that affective aspects, including anxiety, do not always have a significant direct influence on mathematics learning outcomes.

Theoretically, math anxiety can impair students' concentration and working memory capacity when solving math problems (Sorvo et al., 2022). However, this influence does not always appear to be directly related to final grades. In this study, learning outcomes were measured using math report card scores, which are the accumulated results of assessments over a semester, rather than a specific test administered concurrently with the questionnaire. Differences in measurement time and report card characteristics must be considered when interpreting the research results. Therefore, the insignificant effect of math anxiety cannot be interpreted as meaning that anxiety has no potential to hinder students' learning process, but rather indicates that its direct effect on report card grades has not been statistically proven in this study's respondents.

Simultaneous testing showed that learning interest and math anxiety together did not significantly influence math learning outcomes. The F-test results obtained an F-value of 0.131 with a significance level of 0.878 > 0.05. Therefore, these two variables cannot be considered significant predictors of math learning outcomes for students at SMA Negeri 2 Kuta Baro. The analysis also showed a correlation coefficient (R) of 0.059, indicating a very low relationship between the two independent variables and learning outcomes. Meanwhile, the coefficient of determination (R^2) of 0.004 indicates that interest in learning and mathematical anxiety together only explain 0.4% of the

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variation in mathematics learning outcomes. The remaining 99.6% is related to factors outside the research model.

These findings demonstrate that mathematics learning outcomes are multidimensional and cannot be explained solely through interest in learning and mathematical anxiety. Other factors that may play a role include initial mathematics ability, learning motivation, self-efficacy, cognitive strategies, study habits, the quality of teacher-student interactions, learning methods, family support, and the learning environment. This interpretation aligns with Wahyuddin et al. (2022), who showed that affective aspects are not always the primary predictor of learning outcomes when other factors play a role in the learning process. Furthermore, the difference in the results of this study compared to Salsabila's (2025) study, which found a significant influence of interest in learning and mathematical anxiety on cognitive mathematics learning outcomes, may be related to differences in subject characteristics and learning outcome measurement instruments. This study used report card scores, while Salsabila used a direct multiple-choice test.

Overall, this study concludes that interest in learning and mathematical anxiety, either partially or simultaneously, have not been shown to significantly influence the mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro. The very low coefficient of determination indicates that these two variables have limited ability to explain variation in learning outcomes in this research model. This finding does not negate the importance of interest in learning and anxiety management in mathematics learning, but emphasizes the need to consider other academic, psychological, and environmental factors. Therefore, teachers and schools need to develop interactive and supportive learning while also considering students' initial abilities, study habits, motivation, and learning environment. Future research is recommended to use standardized mathematics learning outcome tests administered in close proximity to the measurement of psychological variables, and to consider additional variables to more comprehensively explain factors related to learning outcomes.

4. CONCLUSION

Based on the results of this study on the influence of learning interest and mathematical anxiety on mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro, the following conclusions can be drawn:

1. Learning interest does not significantly influence mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro. The partial test results show a calculated t-value of -0.304 with a significance level of 0.762 > 0.05, thus the research hypothesis is not supported.
2. Mathematical anxiety does not significantly influence mathematics learning outcomes of students at SMA Negeri 2 Kuta Baro. The partial test results show a calculated t-value of 0.496 with a significance level of 0.621 > 0.05, thus the research hypothesis is not supported.
3. Learning interest and mathematical anxiety simultaneously do not significantly influence mathematics learning outcomes. The F-test results show a calculated F-value of 0.131 with a significance level of 0.878 > 0.05. The R^2 value of 0.004 indicates that these two variables only explain 0.4% of the variation in learning outcomes, with the remaining 99.6% falling outside the research model.

Overall, the results indicate that interest in learning and mathematical anxiety are not significant predictors of mathematics learning outcomes in this research context. This finding indicates that student learning outcomes are multidimensional and likely related to factors other than the variables studied.

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