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# Descriptive Study on Student Interest and Learning Outcomes in Basic Physics Course in the Mathematics Education Study Program at the Faculty of Teacher Training and Education, University of Mataram 2024-2025

Wahyudi[1*], Ni Nyoman Sri Putu Verawati[1]

[1]Physics Education Study Program FKIP Mataram University, Mataram, Indonesia

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**Corresponding Author:**
Wahyudi
wahyudi_arsi@unram.ac.id

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**Abstract:** This study examines the learning outcomes of Basic Physics among Mathematics Education students at the Faculty of Teacher Training and Education (FKIP), Mataram University, during the 2024–2025 academic year. The research aims to identify key factors influencing academic success, with particular emphasis on students' learning interest. A mixed methods approach was employed, using exam scores, learning interest questionnaires, and classroom observations as data collection instruments. The results show that most students achieved good learning outcomes, with scores ranging from 70 to 79, while a small proportion of students obtained scores below 70 and therefore require special academic support. Simple linear regression analysis indicates a very strong relationship between learning interest and learning outcomes, with learning interest contributing up to 99.44% to students' academic achievement. These findings highlight the crucial role of learning interest in improving academic performance and underscore the importance of implementing instructional strategies that enhance student motivation, as well as providing targeted assistance for students with low achievement.

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## INTRODUCTION

Basic physics is a fundamental course required for students, including those in the Mathematics Education Program at the Faculty of Teacher Training and Education (FKIP) Mataram University. This course aims to provide not only theoretical concepts but also their applications in various fields. However, mastering basic physics often presents challenges, especially for students not from a pure science background. Various factors, including interest, motivation, and learning methods, can influence outcomes in basic physics learning.

Higher education plays an important role in shaping students' academic competence and character as future professionals. One indicator of successful college learning is student achievement, reflecting how well learning objectives are met. In the context of Basic Physics, outcomes are influenced not just by cognitive ability but also by affective factors like interest in learning.

This study is designed to comprehensively analyze basic physics learning outcomes among Mathematics Education students at FKIP Mataram University. Its chief focus is to identify key factors as success determinants, providing a clear picture of actual conditions and recommendations for future improvements. Basic physics learning outcomes are affected by many interconnected internal and external factors. Research by Nadiah Rahmayani Imran (2024) shows that self-concept, achievement motivation, and interest in learning contribute, albeit not significantly, to physics learning outcomes (Rahmayani Imran et al., 2024a). Positive self-concept and high motivation can enhance students' understanding of basic physics. Consequently, lecturers and policymakers should pay attention to these factors in the learning process to improve student success in this course.

Astuti (2015) details internal factors affecting physics learning success: initial ability, intelligence level, learning motivation, study habits, anxiety, and interest. External factors include family environment, school, and socioeconomic status. The study asserts that strong learning interest fosters optimism and helps students overcome physics learning difficulties, while low interest may trigger pessimism and poor achievement (Puji Astuti, 2015). Mathematical ability is also a key factor with significant impact. There is a strong, positive relationship between students' perceptions of mathematics and their physics achievement (Rusmalinda, 2025), indicating that a positive math perception aids motivation, concept comprehension, and problem-solving skills in physics—most of which are math-based.

Mathematics acts as a tool for solving physics problems more easily (Yuli Pratiwi et al., 2024). It serves as physics' formal language, enabling quantitative formulation of natural laws through calculus, linear algebra, and vector analysis, used to model phenomena from particle motion to electromagnetic field dynamics. In basic physics learning, outcomes depend not only on cognitive abilities but also on affective factors such as interest.Interest is a sense of fondness or attraction to something or an activity without external encouragement (Slameto, 2010). It arises from within, reflecting a personal tendency to engage actively and voluntarily. Being intrinsic, interest is a foundation for building learning motivation and potential, especially when well-recognized and facilitated in education. Students with strong interest in physics usually show positive attitudes, curiosity, and persistence with complex concepts; conversely, low interest leads to weak motivation, reluctance to learn, and poorer academic achievement.

Various studies show a significant relationship between interest and learning outcomes. Irmawati et al. (2025) confirmed that higher interest and study habits together improve students' science learning outcomes (Irmawati et al., 2025). Dewi Latifah (2016) stated that both interest and motivation influence learning outcomes, so improving interest and motivation is necessary for optimal results (Dewi et al., 2016). Still, in higher education and basic physics especially, further research is needed to clarify to what extent student interest affects outcomes. This study aims to identify the relationship between learning interest and student outcomes, and to offer recommendations for lecturers and institutions in designing learning strategies that increase interest and achievement.

## METHOD

This research uses a mixed methods approach, combining quantitative and qualitative methods in one design for comprehensive understanding (Harahap et al., 2025), rather than just one method (Creswell et al., 2011). Data collection involved two main instruments:

1. Exam scores in basic physics were taken from academic records for objective outcome measurement.
2. Questionnaires assessed learning interest during the course.

Direct class observation was also conducted to see lecturer-student interaction and applied teaching methods. Data analysis was descriptive, presenting statistical score profiles and simple regression analysis to examine the functional relationships between independent (interest) and dependent (outcomes) variables (Jaya, I., 2019). Descriptive analysis was chosen to simply illustrate sample data without broader inferences (Sugiyono, 2013).

**Research Object and Location.**

This study took place at the Faculty of Teacher Training and Education (FKIP) of Mataram University, in Mathematics Education. The population consisted of second-semester students enrolled in Basic Physics for the 2024-2025 academic year. The sample, representing the population (Arikunto, 2020), was selected via purposive sampling, targeting one student group to analyze the predetermined variables (Winarni, 2018).

## RESULT AND DISCUSSION

Analysis of student learning outcome distributions helps reveal academic achievement patterns in the studied group. These data provide insight into score spread, useful for evaluating teaching effectiveness and identifying general performance trends. Figure 1 shows a bar graph of learning outcomes by interval.

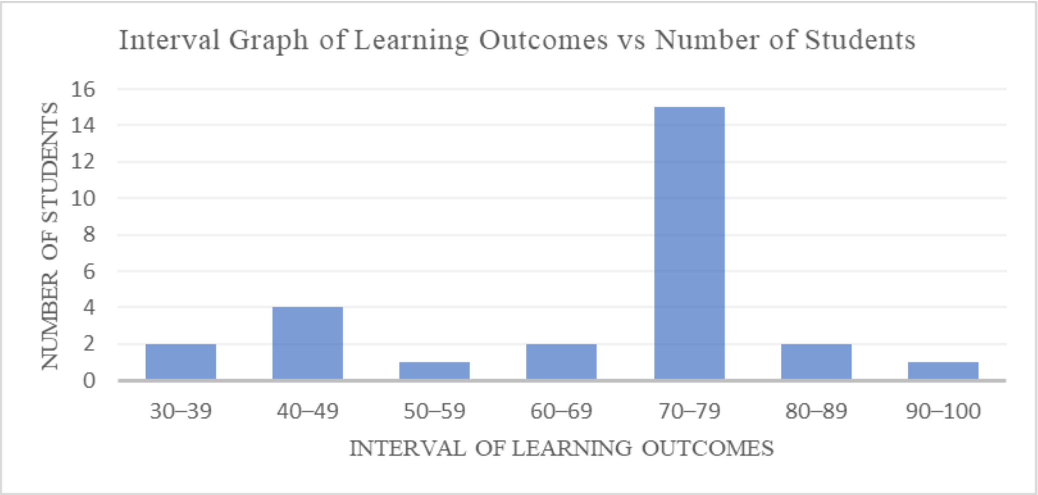


**Figure 1.** Graph of Learning Outcome Intervals versus Number of Students

The horizontal axis indicates score intervals (30–100), divided into seven categories; the vertical axis shows the number of students per interval (0–16). Analysis of the basic physics outcome distribution reveals a clear pattern of material mastery. Data show most students scored in ranges indicating adequate to good understanding. The highest frequency was in the 70-79 interval with 15 students, dominating distribution. This suggests teaching strategies and materials reached most students at expected competence levels.

The distribution also notes a significant concentration at upper intervals: 2 students reached 80-89, and 1 achieved a perfect 90-100. This highlights some students' deep mastery beyond minimum standards, so overall, academic achievement in this group tends to be positive, with most falling in "good" to "very good" categories. However, analysis also revealed a small group needing special attention: 2 scored 30-39, 4 scored 40-49, 1 scored 50-59, and 2 scored 60-69. Combined, 9 students were below 70. This pattern shows variability in learning abilities and comprehension within the group, serving as a basis for targeted interventions to assure equity and prevent future academic gaps. Further investigation into contributing factors for suboptimal results in this group is needed.

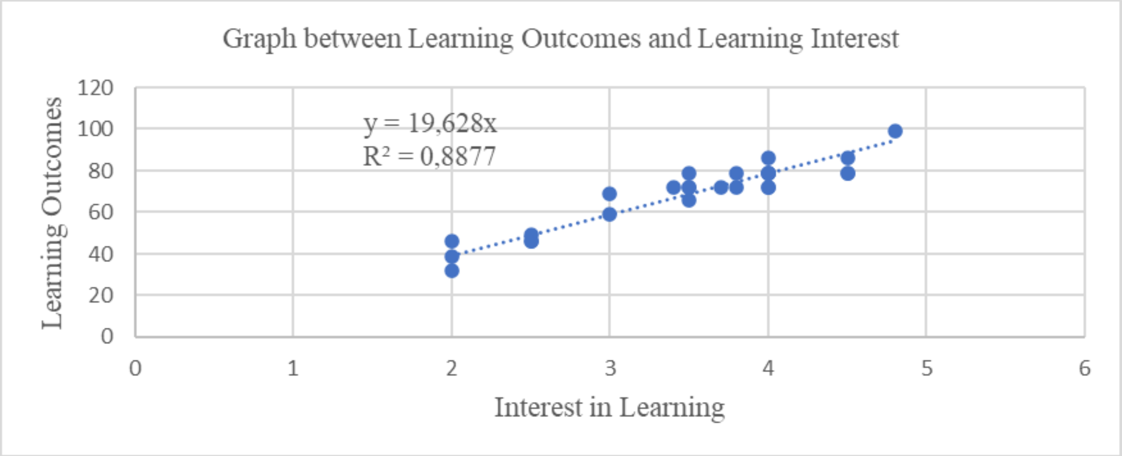


**Figure 2.** Graph of Student Interest and Learning Outcomes

Linear regression analysis yielded the equation y=19.628xwith a determination coefficient R^2=0.9944. This signals a very strong positive relationship between interest (x) and outcomes (y). The regression coefficient of 19.628 means each one-point increase in interest brings a 19.628-point increase in outcomes. As R^2=0.9944, interest explains 99.44% of learning outcome variation, with the remainder (0.56%) due to other factors.

The study confirms high interest builds optimism and helps students overcome basic physics learning challenges, while low interest fuels pessimism and poor results. So, learning interest is highly significant for outcomes. These findings are supported by Imran et al. (2024) and Wahyuningsih et al. (2021), who found a positive link between interest and physics outcomes (Rahmayani Imran et al., 2024; Wahyuningsih et al., 2021).

Visually, the graph of interest versus outcomes shows an upward-sloping straight line; data points cluster closely around the regression line, reflecting high relationship consistency. The greater the interest, the higher the outcome data points, reinforcing that increased interest directly improves results.

This almost perfect linear tendency fits the high R^2value, further validating interest as a key factor in student achievement. Most students are in the 70–79 interval, signifying high achievement. Intervals below and above have fewer students—some scoring very low and some very high. Figure 2 presents the relationship between student interest and learning outcomes. This data illustrates how the psychological drive of interest affects active engagement and impacts academic performance.

## CONCLUSIONS

This research demonstrates that student interest has a highly significant effect on basic physics learning outcomes among Mathematics Education students at FKIP Mataram University. The majority achieved good results, though there was some outcome variability and a small number scored low.

Regression analysis showed interest plays a major role in academic achievement, so fostering interest is a primary strategy for designing physics learning processes. Lecturers and institutions should pay close attention to this affective factor and provide extra intervention for low-achieving students to ensure optimal equity. The study also opens opportunities for further research into external factors affecting physics outcomes in higher education settings.

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**AUTHOR CONTRIBUTIONS**

All authors collaborated in conducting each stage of the research and manuscript writing.

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**CONFLICTS OF INTEREST**

The authors declare no conflict of interest

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