

Correlation Analysis of Misconceptions on Motivation, Learning Outcomes, and Critical Thinking Skills in Physics Learning

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ABSTRACT

Several previous studies have shown that misconceptions are related to student achievement or learning outcomes and several latent variables. Therefore, the research aims to determine the relationship between misconceptions, motivation, learning outcomes, and critical thinking skills in learning physics on Newton's law material. The approach used in this study is a quantitative descriptive approach with survey methods and correlational techniques. The subjects of this study were students of grade XI high school. The data collection instruments used in this study were multiple-choice four-level diagnostic tests, descriptive test questions, and questionnaires. The results obtained from regression analysis show that the correlation is very weak and insignificant in the positive direction between misconceptions and motivation. In contrast, the correlation is robust and significant in the positive direction between misconceptions and learning outcomes and between misconceptions and critical thinking skills. That correlation is weak and important in a negative (opposite) direction. Based on this study, it can be concluded that the relationship between misconceptions with learning outcomes and critical thinking skills significantly correlates with misconceptions. Motivation does not significantly correlate with misconceptions in learning physics on Newton's law material at SMA Negeri 1 Idi Rayeuk, Aceh, Indonesia.

Keywords: misconceptions, motivation, learning, critical thinking

INTRODUCTION

Physics is a science that studies natural phenomena. Physics learning is an interaction between teachers and students through science and understanding of physics concepts. If students' understanding is wrong, misconceptions will occur.

According to Shalihah, Diah, and Fathiah (2016), a misconception is a form of delusion; namely, the correct assumption is considered wrong, and the incorrect assumption is considered proper. Student difficulties influence misconceptions, so they can be