



Exploration of Multiple Intelligences of High School Students in Physics Subjects as A Basis for Developing Learning Methods

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ABSTRACT

Objective: This study aims to describe the profile of multiple intelligences among high school students in physics learning. The goal is to provide a basis for designing more adaptive and personalized instructional strategies that align with students' cognitive strengths. **Method:** A quantitative descriptive method with a survey approach was employed, involving 101 students from three different classes. Data were collected using a Likert-scale-based multiple intelligences questionnaire encompassing eight intelligence domains: verbal-linguistic, logical-mathematical, visual-spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalist. The data were analyzed using descriptive statistics, exploratory factor analysis (EFA), and reliability testing. **Results:** The findings revealed that intrapersonal (78.320%), interpersonal (77.030%), kinesthetic (76.780%), and naturalist (76.440%) intelligence were the most dominant among students. Verbal-linguistic (70.050%), musical (71.830%), visual-spatial (69.110%), and logical-mathematical (64.500%) also showed notable representation. EFA identified ten principal components that explained 65.040% of the total Variance. Reliability analysis showed that most factors had adequate Cronbach's Alpha values (> 0.700), although some required refinement. **Novelty:** This study provides updated empirical insights into high school students' multiple intelligences in physics learning, with a focus on the emerging dominance of kinesthetic, intrapersonal, and naturalist intelligence. It also incorporates recent psychometric validation using EFA, underscoring the need for intelligence-based instructional design. The novelty lies in combining psychological profiling with physics-specific pedagogy in a Merdeka Belajar framework.

INTRODUCTION

Indonesian education, which gave rise to the Merdeka Belajar Curriculum, is characterized by an emphasis on a more relevant, flexible, and student-centered education system. For decades, our education system has tended to focus on a uniform approach, emphasizing the memorization and quantitative mastery of material (Fitri, 2019). This often ignores the potential and interests of individual students. The Merdeka Belajar Curriculum is presented as a response to these challenges, with a vision to create a more inclusive education system that allows each student to develop according to their potential and talents. This curriculum also aims to equip students with 21st-century skills that are relevant to the changing world of work, such as critical, creative, collaborative, and communication thinking skills (Prahani et al., 2022; Iham et al., 2025;

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