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# Profile of College Students' Critical Thinking Skills Assisted by Problem-Based Learning Models on Electromagnetic Material

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**ABSTRACT**

**Objective:** This research aims to analyze the profile of students' critical thinking abilities in physics learning, especially electromagnetic material, with the help of a problem-based learning model implemented at a university in Surabaya, Indonesia. **Method:** The research method used was included in preliminary research with a sample of 19 students. Data collection techniques use critical thinking skills tests, student response questionnaires, and lecturer interviews. Then, the data was analyzed using qualitative descriptions to represent the research results. **Results:** Analysis shows students' critical thinking skills are still relatively low. Critical thinking indicators that get an average score from high to low are interpretation, analysis, inference, and evaluation. An alternative that can be done to increase students' interest and critical thinking skills is to apply the PBL model in physics learning. **Novelty:** The novelty of this research lies in its new contribution to mapping students' initial abilities regarding their critical thinking skills with the help of the PBL model. This mapping helps lecturers evaluate physics learning, especially electromagnetic material, and determine what future steps can be taken to improve students' critical thinking skills.

## INTRODUCTION

During the COVID-19 pandemic, which occurred from 2020 to mid-2022, learning was carried out online from home. Online learning is learning without face-to-face using platforms or media in the form of mobile learning, which utilizes various applications such as Google Classroom, Zoom, WhatsApp, and Instagram (Husna, 2020; Rozi, 2021). It is not easy to do online learning. Lecturers and students need more time to learn online (Herliandry et al., 2020) because they must prepare devices that support accessing available platforms and create appropriate class designs and delivery methods to achieve learning objectives (Sari et al., 2021). Additionally, several obstacles felt by both lecturers and students during the online learning process, namely network problems and high internet quota requirements, decrease students' response and understanding of the material presented by lecturers (Loviana et al., 2021). Nadeak et al. (2020) explain that these consequences are also influenced by the demands placed on students, namely that they must be able to use their critical thinking skills well to adapt and survive in online learning, where they must be critical and skilled in using various online learning support media that they have never used before.

Good critical thinking skills can help students become independent and proficient in problem-solving the various problems they face. Critical thinking is a high-level thinking skill that focuses on logic is reflective and allows someone to make decisions and take appropriate actions (Ennis, 2013). Reflective Questioning is an active process of carefully considering all alternatives before deciding. Critical thinking skills are essential and valuable to develop (Fitriani et al.,

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