

LINK:

[HTTPS://JPPIPA.UNRAM.AC.ID/INDEX.PHP/JPPIPA/ARTICLE/VIEW/3272](https://jppipa.unram.ac.id/index.php/jppipa/article/view/3272)

Using Four-Tier Test to Identify Prospective Elementary Teacher Students' Misconception on Electricity Topic

Authors

Rahmawati , Widiasih , Dewi Hikmah Marisda , Riskawati

Abstract

The topic of electricity is one of the topics in the Advanced Physics course which has abstract dominant characteristics. The abstract nature of electrical material has the potential to be difficult to understand and has the potential for misunderstanding by students. The four-tier test is a type of test that can be used to identify student misconceptions. The research method used in this study is a quantitative descriptive research with a survey research type. The populations of this study were all first-year prospective elementary teacher students who took the advanced physics courses as many as 30 students. The sampling technique of this study used a saturated sample whose number is the same as that of the study population. The research instrument was in the form of a four-tier test related to electricity topics, totaling 20 questions and divided into the sub-topics of electric current, electromotive force and potential difference, resistance, energy and conductivity of electric current, dc electric circuits, and Kirchhoff's Laws. The characteristics of this four-tier test consist of four levels. The first level is a choice of answers by providing five choices. The second level is the level of the respondent's confidence in the answer choices. The third level is the choice of reasons for the answer chosen by the respondent. The fourth level is the level of confidence in the choice of reasons for the selected answer. Respondents' answer patterns were grouped into three categories, namely understanding the concept, not understanding, and misconceptions. The results showed that the percentage of students in the categories of not understanding concepts, understanding concepts, and misconceptions were respectively 49.65%, 29.38% and 20.97%. Overall, it can be concluded that the dominant first grade students do not understand the concept and some experience misconceptions. The findings of this study may have implications for efforts to improve debriefing in Advanced Physics lectures in the future so as to be able to reduce misconceptions and understand student concepts