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Systematic Review of Misconceptions: Tools for Diagnostics and Remediation Models for Misconceptions in Physics

Authors : Muhammad Iqbal, Edi Istiyono

Abstract : Misconceptions are one of the problems in physics learning where students' understanding is not in line with scientific theory. The aim of this research is to find diagnostic tools to identify misconceptions and how to remediate physics misconceptions. In this research, the articles that will be reviewed come from the Scopus database related to physics misconceptions from 2013-2023. The articles obtained from the Scopus database were then selected according to the Prisma model, so 29 articles were obtained that focused on discussing physics misconceptions, especially regarding diagnostic tools and remediation methods. Currently, the most widely used diagnostic tool is the four-tier test, which is able to measure students' misconceptions in depth by knowing whether students are guessing or not and from then on, there is also a trend toward five-tier diagnostic tests with additional sources of information obtained. So that the origin of students' misconceptions is known. There are several ways to remediate student misconceptions, namely 11 ways and one of the methods used is digital practicum so that abstract things can be visualized into real ones. This research is limited to knowing what tools are used to diagnose and remediate misconceptions, so it is not yet known how big the effect of remediation methods is on misconceptions. The researcher recommends that in the future further research can be carried out to find out the most appropriate remediation method for remediating student misconceptions.

Keywords : misconception, remediation, systematic review, tools
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