IJORER : International Journal of Recent Educational Research
Homepage : https://journal.ia-education.com/index.php/ijorer
Email : ijorer@ia-education.com

p-ISSN : 2721-852X ; e-ISSN : 2721-7965
IJORER, Vol. 4, No. 1, January 2023
Page 1-15

Profile of Students' Misconceptions on Substance Pressure Using a Three-tier Diagnostic Test

Oktavia Damayanti Aji Putri[1*], Tjipto Prastowo[2], I Gusti Made Sanjaya[3]
[1,2,3] State University of Surabaya, Surabaya, Indonesia

Check for updates

DOI: https://doi.org/10.46245/ijorer.v4i1.267

Sections Info

Article history:
Submitted: November 23, 2022
Final Revised: January 11, 2023
Accepted: January 16, 2023
Published: January 31, 2023

Keywords:
Education
Misconception
Substance Pressure
Three-tier diagnostic test

ABSTRACT

Research aims to find out misconceptions experienced by students on the subject matter of substance pressure. This type of research is quantitative descriptive research using a survey method. The instrumental test used was a three-tier diagnostic test to determine the under-examined misconceptions. The research sample consisted of 43 junior high school students who had previously received substance-pressure learning materials in class. The data were analyzed by categorizing them into understanding the concept, needing more knowledge, error and misconception. The results of the study were as follows: (1) 9% of the students understood the concept, 51% of the students had a misconception, 34% of the students were lack of knowledge, and 6% of the students had some errors (2) misconceptions with the highest percentage were in the sub-concept of pressure gases with an average percentage of 70%, then the pressure of liquids (capillarity and osmosis in plant stems) was 52%, the pressure of solids was 51%.

INTRODUCTION

Students learn the concept of knowledge about a phenomenon around them through the formal education system or informally. Before students take part in learning at school, their minds have embedded various concepts about natural phenomena related to learning science. Students have an initial idea before students do learning at school. The initial images possessed by students can be obtained from interactions with the surrounding environment (Prodjosantoso & Hertina, 2019; Soeharto & Csapo, 2022). The initial concept possessed by students can be called preconception. Preconception can also be interpreted as students' initial concept about a phenomenon or object (Laksana, 2016; Mufidah & Budiarto, 2018). According to Rukmana (2017), preconceptions can arise due to students' limited thinking power and information. Students' preconceptions are only sometimes by the actual concept. The preconception of students is very important because it is one of the causes of misconceptions. The discrepancy between preconceptions and actual concepts can lead to misconceptions in students.

A misconception is a way of processing information in the student's brain. When students get new information/knowledge, the information is indirectly passed on to long-term memory. In long-term memory, there is a process of searching for new information and connecting it with already-owned information. Searching for information in long-term memory may not be as desired because some information may be forgotten while searching for that information. Recalling information in long-term memory serves to discover students' concepts (Palisoa et al., 2021). This can lead to misconceptions if the knowledge/information differs from the knowledge the experts have agreed upon. Misconceptions, according to (Kiray & Simsek, 2015; Saputra et al.,

1._267_Oktavia_Damayanti_Aji_Putri_et_al_1-15.doc

ORIGINALITY REPORT

20%	13%	15%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	journal.ia-education.com Internet Source	3%
2	repository.unj.ac.id Internet Source	2%
3	data.epo.org Internet Source	1%
4	Irwansyah, Sukarmin, Harjana. "Analysis Profile of Student Misconceptions on The Concept of Fluid Based Instrument Three-Tier Test", Journal of Physics: Conference Series, 2018 Publication	1%
5	jppipa.unram.ac.id Internet Source	1%
6	Maison*, M., M. Hidayat, Dwi Agus, Fauziah Yolviansyah, Rizka Octavia, Muhammad Iqbal. "How Critical Thinking Skills Influence Misconception in Electric Field", International Journal of Educational Methodology, 2022 Publication	1%