

A FOUR-TIER DIAGNOSTIC TEST FOR DIAGNOSING STUDENTS' MISCONCEPTIONS ABOUT CELLS

RESEARCH PAPER

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Sarjana Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan
Alam

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APPROVAL SHEET

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DECLARATION

I hereby declare that what I wrote in my thesis **entitled A FOUR-TIER DIAGNOSTIC TEST FOR DIAGNOSING STUDENTS' MISCONCEPTIONS ABOUT CELLS** is my work written independently. The use of quotations in this work has been written correctly based on all available sources. The research carried out in this thesis is original and has not been made available in any other form as a requirement for any degree, qualification or qualification. By signing this statement, I acknowledge that I have read and understand the ethical policies relating to research and have complied with relevant guidelines throughout the research process.

Bandung, Januari 14th, 2025

Declarant,

A handwritten signature in black ink is written over a portion of a 10,000 Indonesian Rupiah banknote. The banknote features the portrait of a man and the text 'SEPULUH RIBU RUPIAH' and 'SERI KECAKAPAN'.

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A FOUR-TIER DIAGNOSTIC TEST FOR DIAGNOSING STUDENTS' MISCONCEPTIONS ABOUT CELLS

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ABSTRACT

Misconception is still a problem in the field of education, so it can hinder learning objectives. The purpose of this study was to find and explain the level of students' conceptions about cells, also the most common students' misconceptions about cells. The instrument used is a validated four-level diagnosis test model using a multiple-choice questionnaire. In addition, the researcher has tested the validity of the question instrument by distributing it to students and testing the R-Table to determine whether the validity is greater than R-Count. In addition, the Aiken Test was also conducted with three experts giving scores on the question instrument. Of the 20 questions given to students, 13 questions were valid as research tools because they represented concepts related to cells. Quantitative research techniques and survey design were used to collect data statistically. The research was conducted in one of the Public Junior High Schools in Bekasi City, Indonesia with 232 students of 8th grade as the sample. Each category of students' understanding on each question item was found according to the research results. According to the data from the sample of students in this study, 35.38% showed SK category indications of having a good understanding of the subject matter. The second-highest fell into the LK category that has 24.57%, indicating that they lacked basic knowledge as well as lacked confidence. Then, 15.32% of the students' responses indicated misconceptions, while the remaining responses for FP is 18.27% and for FN is 6.47%.

Keyword: Misconception, Four-Tier Diagnostic Test, Cells

TES DIAGNOSTIK EMPAT TINGKAT UNTUK MENDIAGNOSIS MISKONSEPSI SISWA TENTANG SEL

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ABSTRAK

Miskonsepsi masih menjadi masalah pada bidang pendidikan, sehingga dapat menghambat tujuan pembelajaran. Tujuan dari penelitian ini adalah untuk menemukan dan menjelaskan tingkat konsepsi siswa tentang sel, serta miskonsepsi siswa yang paling sering terjadi pada sel. Instrumen yang digunakan adalah model tes diagnosis empat tingkat yang telah divalidasi dengan menggunakan kuesioner pilihan ganda. Selain itu, peneliti telah menguji validitas instrumen soal dengan cara menyebarkan kepada siswa dan uji R-Tabel untuk menentukan apakah validitasnya lebih besar dari R-Hitung. Selain itu, juga dilakukan Tes Aiken dengan tiga ahli memberikan nilai pada instrumen soal. Dari 20 soal yang diberikan kepada siswa, 13 soal valid sebagai alat penelitian karena mewakili konsep-konsep yang terkait dengan sel. Teknik penelitian kuantitatif dan desain survei digunakan untuk mengumpulkan data secara statistik. Penelitian dilakukan di salah satu Sekolah Menengah Pertama Negeri di Kota Bekasi, Indonesia dengan 232 siswa kelas 8 sebagai sampel. Setiap kategori pemahaman siswa pada setiap item pertanyaan ditemukan sesuai dengan hasil penelitian. Menurut data dari sampel siswa dalam penelitian ini, 35.38% menunjukkan kategori SK yang menunjukkan indikasi memiliki pemahaman yang baik tentang materi pelajaran. Tertinggi kedua jatuh pada kategori LK yaitu 24.57% yang mengindikasikan bahwa mereka memiliki pengetahuan dasar yang kurang serta kurang percaya diri. Kemudian, 15.32% dari respon siswa mengindikasikan adanya miskonsepsi, sedangkan sisanya untuk FP sebesar 18.27% dan FN sebesar 6.47%.

Keyword: Miskonsepsi, Tes Diagnostik Empat Tingkat, Sel

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