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Transforming physics learning via Research & Practice
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College Science Students' Scientific Reasoning in Kinematics: A Resources Framework Analysis

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College physics education aims to develop students' knowledge of fundamental and interconnected physics concepts such as kinematics. Previous research has examined students' understanding of kinematics in various studies addressing naïve beliefs, misconceptions, learning difficulties, and knowledge-in-pieces framework. This study explores students' reasoning in kinematics based on resources framework analysis. Participants were 198 college science students who solved a physics problem, and then, 40 of those students joined an interview. Phenomenographic analysis showed that students used procedural, epistemic, and argumentative resources in their solutions. The study has implications for instructional design in college physics education.

Education level

Age over 18 (excluding teacher education)

Physics topic

Other

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Innovative research strategies (Try-out) (Qualitative research)

Organizing preference criteria

Education level

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