GIREP-EPEC
Transforming physics learning via Research & Practice
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Visual attention and prior knowledge in identifying thermodynamic processes

Friday 4 July 2025 13:00 (20 minutes)

This study examines how domain-specific prior knowledge influences visual attention and the interpretation of graphs. Prior knowledge of functional equations enhances focus on value areas and graphs, enabling more efficient processing. In contrast, the influence of prior knowledge about state changes on efficient processing is weaker, possibly because students struggle to transfer conceptual understanding to graph interpretation. The findings highlight the importance of cognitive factors in directing attention and, as a result, the efficient processing.

Education level

Age 15-18 (Secondary education)

Physics topic

Thermodynamics and Energy

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Analytic Physics Education Research (Quantitative research)

Organizing preference criteria

Research focus

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Session Classification: Parallel oral presentations

Track Classification: Cognitive science research (COGN)