



GIREP-EPEC

Transforming physics learning via Research & Practice
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Towards a theory of thinking and reasoning in physics education: the connection between dual processing theories and mental models

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Dual processing theories (DPT) are increasingly considered in physics education research. However, whilst DPT is an important aspect of thinking and reasoning, there is an impressive body of research suggesting that the primary mechanism of reasoning is via the formation of mental models. Though traditionally viewed as separate topics within cognitive psychology, it might be expected that a connection exists between the two. Recent research on dual processing and mental modelling is cited in support of a strong connection. Drawing on examples from the author's own teaching and research over the years, the relevance to physics education will be shown.

Education level

All ages

Physics topic

Other

Research focus

Metacognition

Research method

Other

Organizing preference criteria

Author: SANDS, David

Presenter: SANDS, David

Session Classification: Parallel oral presentations

Track Classification: Cognitive science research (COGN)