



GIREP-EPEC

Transforming physics learning via Research & Practice
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Type: **Oral presentation**

Fluid Mechanics and the Ways Pupils Think

Monday 30 June 2025 13:30 (20 minutes)

The design of physics education and learning materials in Slovakia is mostly based on constructivist theory, which emphasises pupils' experiences and prior knowledge as important parts of their learning. However, newer approaches are currently used globally. We applied selected principles from cognitive neuroscience to designing learning materials concerning fluid mechanics. Within this article, we present research on how the use of these materials affects pupils' ideas. Results showed that pupils' ideas significantly shifted towards the normative state, and overall, the results of summative assessment in research groups were better or the same as those in the control group.

Education level

Age 15-18 (Secondary education)

Physics topic

Full curriculum

Research focus

Innovative instructional strategies and pathways

Research method

Mixed method (qualitative & quantitative)

Organizing preference criteria

Research focus

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