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Type: **Talk**

Contributed talk: Developing reasoning and metacognitive skills through reflective lab reports

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In physics labs learning objectives tend to include ability for students to evaluate any difference between experimental data and theoretical models, then critique what those differences mean in terms of data collection and analysis method used, therefore developing students' reasoning and metacognitive skills. However, due to the assessment structure of a typical lab report, students tend to focus on completing the lab tasks and provide mainly superficial responses when asked to make inference from their experiment.

I will present an approach to re-designing an assessment for a physics laboratory that is aligned with a student-centred teaching approach. The new assessment includes a two-step submission process, with the second step asking students to explicitly reflect on how their answers compare to answers of an expert, given via an exemplar. This new approach motivated students to engage deeper in their learning process and work on improving their reasoning skills in their lab reports, increasing awareness of the thought process (metacognition) involved. Furthermore, the students appreciated the fact that assessment focused on asking them to demonstrate that they are in the process of learning, rather than focusing just on how much they know.

Region

Other part of world

Key words

assessment, laboratory work, reasoning skills, metacognition, reflective practice

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