SYMPAB - (16178) - THE EFFECTS OF FEEDBACK ON PRE-SERVICE TEACHERS' KNOWLEDGE AND BELIEFS ABOUT REPRESENTATIONS

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Short Abstract

Designing instructional material that contains external representations is part of science teachers' daily work and requires high representational competences. Depending on their concrete design and deployment, representations can be a facilitation or an obstacle to learning. As previous research indicates, working with representations is a substantial challenge for pre-service teachers (PSTs). Especially teaching and illustrating different levels of representations (in chemistry: macro, sub-microscopic and symbolic level) is challenging for PSTs. In this study, we use the high potential of internally and externally provided feedback aiming to improve PSTs' representational competences. An intervention study with pre-post test design is realized as a digital self-learning-module (N = 90). The study is conducted in Germany with graduated PSTs who attend their in-service teacher training. Participating PSTs take part in three sessions providing information about external representations in science education. Afterwards, PSTs design a total of three worksheets for chemistry lessons containing different types of representations. After that, either internal and/or external feedback is provided for every worksheet. Dependent variables are PSTs' content knowledge (CK), pedagogical content knowledge (PCK), and beliefs regarding representations. The development of test instruments took place during a pilot study and is described in the results section. Since the intervention is currently still ongoing, results from the main study will be presented at the conference.