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SP - (16463) - WHICH NOSI VIEWS AND EPISTEMIC BELIEFS ARE THE BEST PREDICTORS OF SCIENTIFIC REASONING COMPETENCIES?

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Short Abstract

In science education, learners' views on the nature of scientific inquiry (NOSI views) are assumed to be significant factors for successful science learning and acting. From a more psychological perspective, learners' epistemic beliefs (EB) about the structure, development, and acquisition of knowledge are conceptualized to impact the success of learning and performing in a domain. Views on the nature of scientific inquiry and epistemic beliefs share conceptual overlap and are both assumed to affect learners' acquisition of competencies in science education. In the present study, we examine and compare the predictive value of students' NOSI views and EB for their scientific reasoning competencies. N = 802 eight to twelfth graders worked on assessments with ten NOSI views, four epistemic beliefs, and scientific reasoning competencies in Biology and Chemistry. Structural equation models indicate that students' epistemic beliefs, although seemingly less closely related to scientific reasoning competencies than NOSI views, have strong predictive value for students' scientific reasoning competencies in both domains. Altogether, we ascertained that two NOSI views and two EB show the strongest predictive value for students' scientific reasoning competencies. These findings provide valuable implications for educational theory and science education, e.g., when designing interventions to enhance students' reasoning competencies in science.