2 - Learning Science: Cognitive, Affective, and Social Aspects | Empirical

SP - (15672) - EXPERIENCED TEACHERS' AND NOVICE STUDENTS' METAVISUAL COMPETENCE IN SCIENTIFIC MODELING

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Short Abstract

This study investigated eight experienced science teachers' and eight senior high school students' metavisual competence in the context of scientific modeling on the topic of carbon cycling. Qualitative data collection techniques including think-aloud tasks and follow-up retrospective interviews were employed. Levels of metavisual competence were proposed based on the participants' performances in four aspects of metavisualization, including use of metavisualization knowledge, demonstration of metacognition in visualization, use of judgement criteria, and use of metavisual strategies. The comparison between the teachers' and students' levels of metavisual competence indicates that the experienced teachers demonstrated distinctive metacognition and metavisual strategies that helped them achieve the goal of fluent visualization. The findings provide insights into how to support individuals' development of metavisual competence for successful scientific modeling.