ALIGNING CLASSROOM DISCUSSIONS WITH COMPETENCY GOALS AND PROBLEM-SOLVING ACTIVITIES

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A mathematically competent person has the knowledge, strategies, and skills necessary to handle mathematical situations encountered in everyday life and work (Niss & Højgaard, 2019). Developing students' mathematical competence is a central aim in many national curricula documents, such as those in the Nordic countries. Previous research indicates that students benefit from explicit teaching practices, such as setting clear goals and addressing key aspects of activities. However, research also indicates that even when teaching and learning activities are competency-oriented, mathematical competence is rarely the explicit focus of lessons. As such, this study aims at investigating the alignment between explicit competency goals and competency-oriented activities to explore the opportunities for teachers to facilitate students' development of mathematical competence.

Video material from a Swedish lower secondary mathematics classroom was analyzed to investigate the alignment between explicit learning goals and competency-oriented activities. Goal statements and activities were analyzed using the mathematical competency research framework (MCRF; Lithner et al., 2010), which comprises six competencies: problem solving, reasoning, applying procedures, representation, connection, and communication. The lesson centered on problem solving, comprising two problem-solving tasks and whole-class discussions. Analysis revealed that the explicit learning goals stated by the teacher targeted problem-solving and communication competencies. Furthermore, the problem-solving activities provided opportunities for students to engage with all six competencies described in the MCRF framework. However, during the whole-class discussion, the teacher focused on the outcome of the problem solving instead of discussing the communication and problem-solving processes the students had engaged in. Seemingly, the focus of the discussions, as steered by the teacher, did not align with the competence orientation of the learning goals and activities, thus clouding the purpose of the lesson rather than highlighting opportunities for competence development.

References

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