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NOTICING STUDENT GENERALIZATIONS AND JUSTIFICATIONS: DOES TASK CONTEXT MATTER?

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Building on Jacobs, Lamb, and Philipp's (2010) description of *professional noticing of students' mathematical thinking,* i.e., attending-and-interpreting students' thinking, and responding to students, our study draws attention to the nature of tasks that have the potential to support the development of professional noticing skills of pre-service teachers (PSTs) preparing to teach grades 1-8 mathematics. Focusing on PSTs' ability to notice mathematically significant aspects of student-generated justifications, we examined possible impact of tasks that engage PSTs in analysing video-records of students' work, and tasks that engage PSTs in analysing written artefacts of students' work, on PSTs' professional noticing skills. Our work contributes to the discussion about enhancing PSTs' ability to identify significant aspects of students' mathematical thinking, interpret the validity of students' reasoning, and respond to students in a way that connects to students' thinking. We engaged 15 PSTs in analysing justification and generalization strategies of elementary school students who reasoned about figural patterns. Student work was presented in form of (a) video-records of group interactions (2 tasks), and (b) written artefacts (2 tasks). Depending on the task, PST examined three or four elementary school students' responses. We thus identified and examined 60 attending-and-interpreting and 60 responding segments across PSTs' analyses of the video-tasks, and 45 attending-and-interpreting and 45 responding segments across PSTs' analyses of the written artefacts tasks. Scores on attending-and-interpreting were significantly higher at the 0.05 level for the written artefacts tasks compared to the scores on the video tasks (M = 1.444, SD = 0.559 & M = 0.95, SD = 0.484 respectively; z = 2.104). The same was true for PSTs' scores on responding (M = 0.889, SD = 0.411 & M = 0.533, SD = 0.471; z = 2.476). Our qualitative results document different characteristics of PSTs' practices of attending-and-interpreting, and responding depending on the context of the task: analysing video-records or written artefacts of student work. The results highlight the potential of different tasks to promote noticing skills. Implications for teacher education will be discussed.

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References

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