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Engaging in problem posing activities in a dynamic geometry setting and the development of prospective teachers' mathematical knowledge.

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Summary: In the present study we explore changes in perceptions of our class of prospective mathematics teachers (PTs) regarding their mathematical knowledge. The PTs engaged in problem posing activities in geometry, using the "What If Not?" (WIN) strategy, as part of their work on computerized inquiry-based activities. Data received from the PTs' portfolios reveals that they believe that engaging in the inquiry-based activity enhanced both their mathematical and meta-mathematical knowledge. As to the mathematical knowledge, they deepened their knowledge regarding the geometrical concepts and shapes involved, and during the process of creating the problem and checking its validity and its solution, they deepened their understanding of the interconnections among the concepts and shapes involved. As to meta-mathematical knowledge, the PTs refer to aspects such as the meaning of the givens and their relations, validity of an argument, the importance and usefulness of the definitions of concepts and objects, and the importance of providing a formal proof.

Classification: B50 C29
Keywords: problem posing; the "what if not?" strategy; dynamic geometry software; preservice teacher education; portfolios; inquiry-based activities; self-concept; professional development; educational research
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