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Content and pedagogical content knowledge in argumentation and proof of future teachers: a comparative case study in Germany and Hong Kong.

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Summary: The results of a comparative case study on mathematical and pedagogical content knowledge in the area of argumentation and proof of future teachers in Germany and Hong Kong are reported in this article. The study forms part of a qualitatively oriented comparative study on future teachers in Australia, Germany, and Hong Kong. Six case studies based on interviews and written questionnaires are described. These case studies show the strengths of the Hong Kong future teachers in mathematical knowledge in the area of argumentation and proof, whereas the three German future teachers perform stronger in the related pedagogical content domain. Furthermore, regarding the German future teachers, it seems that the two domains of knowledge are more strongly connected to each other. The results are interpreted in the light of related research, such as the MT21 study.

Classification: B50 E50 C30 D20

Keywords: proof; proving; teacher education; mathematical content knowledge; pedagogical content knowledge; competencies; comparative studies; empirical research

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