

**ZMATH 2014d.00577**

**Browning, Christine; Edson, Alden J.; Kimani, Patrick M.; Aslan-Tutak, Fatma**

**Mathematical content knowledge for teaching elementary mathematics: a focus on geometry and measurement.**

Math. Enthus. 11, No. 2, 333-384 (2014).

Summary: This paper summarizes the extant peer-reviewed research on PTs' understanding of geometry and measurement, focusing on a wide variety of topics within these content domains. When looking across the 26 studies reviewed, findings span a variety of content topics, providing little depth in either the geometry or measurement content domain. However, collective findings do indicate PTs' overall conceptions in geometry and measurement to be limited and weak, with PTs relying on memorized procedural processes. Some evidence indicates that cognitive development, along with spatial visualization skills, plays a greater role in learning geometry than memory skills. In addition, the van Hiele levels of geometric learning provide a helpful framework to think about the development of geometric ideas. Direction of future research is elaborated to address ways to develop PTs' understanding of geometry and measurement. Gaps that still exist in the research literature regarding PTs' mathematical content knowledge in geometry and measurement are identified.

*Classification:* G29 G39 B50

*Keywords:* subject content knowledge; preservice teacher education; primary education; research; state of the art; bibliographies; geometry; measurement; cognitive development; spatial ability; teacher characteristics  
[http://www.math.unt.edu/tmme/vol11no2/6\\_TMEvol11no2\\_Browningetal\\_pp.333\\_384.pdf](http://www.math.unt.edu/tmme/vol11no2/6_TMEvol11no2_Browningetal_pp.333_384.pdf)