

**ZMATH 2008c.00097**

**Hsu, Hui-Yu**

**Geometric calculations are more than just the application of procedural knowledge.**

Woo, Jeong-Ho (ed.) et al., Proceedings of the 31st annual conference of the International Group for the Psychology of Mathematics Education, PME, Seoul, Korea, July 8–13, 2007. Vol. 1-4. Seoul: The Korea Society of Educational Studies in Mathematics. Part 3, 57-64 (2007).

Summary: Calculations are often viewed as the application of procedural knowledge or algorithms. In this paper, the author argues that geometric calculations can be more than that. To prove this assumption, firstly he analyzes a geometric calculation using the theoretical framework of proof schemes proposed by Harel and Sowder (1998). The theoretical analysis shows that solving a geometric calculation can provide the opportunities to learn transformational observations just as geometric proofs do. Secondly, by analyzing instruction data, the author reports how a teacher conveys the opportunities to learn transformational observations in terms of scaffolding students in recognizing the geometric properties the diagram possesses and in inferring new measurements inside the diagram. In doing so, the teacher expects students to see the need for using transformational observations to form a solution.

*Classification:* C30 G40 E50 A60

*Keywords:* geometric thinking; proving