

ZMATH 2016c.00120

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Studying, self-reporting, and restudying basic concepts of elementary number theory.

Tso, Tai-Yih (ed.), Proceedings of the 36th conference of the International Group for the Psychology of Mathematics Education “Opportunities to learn in mathematics education”, PME 36, Taipei, Taiwan, July 18–22, 2012, Vol. 2. Taipei: National Taiwan Normal University. 163-170 (2012).

Summary: The objective of this case study is to look in depth into personal factors affecting metacognitive monitoring and control in self-regulated study and restudy of basic concepts of elementary number theory. We incorporate a theoretical framework of embodied cognition and learning with a wide spectrum of observational methods ranging from audiovisual, keyboard and screen capture, eye-tracking, and self-report data, to psychophysiological data including electrocardiography (EKG) and respiration rate data. Our aim is to generate “learner profiles” that provide deeper insights into personal factors implicated in motivation, metacognition, and beliefs, pertaining to self-regulated learning and mathematics anxiety, which can be used to better inform assessment and tailor instructional design in mathematics education.

Classification: C20 C30 F60

Keywords: metacognitive monitoring; control; self-regulated study; learner profiles; motivation; beliefs; mathematics anxiety