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A processes lens on a beginning teacher's personal and classroom mathematics.

Lo, Jane-Jane (ed.) et al., Research trends in mathematics teacher education. Selected papers based on the presentations at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, PME-NA, Kalamazoo, MI, USA, November 1–4, 2012. Cham: Springer (ISBN 978-3-319-02561-2/hbk; 978-3-319-02562-9/ebook). Research in Mathematics Education, 67-82 (2014).

Summary: This study examines the relationship between mathematical knowledge – evidenced by a teacher's engagement in mathematical processes and actions on the products of those processes – displayed by a beginning secondary mathematics teacher (Fiona) in her personal mathematical problem solving and in her classroom instruction. This process and action approach involved analysis of Fiona's use of four mathematical process/product pairs (representing/representation, justifying/justification, generalizing/generalization, and defining/definition). Two themes arose in the analysis of interview and classroom observation data: (a) Despite demonstrating the ability to do so, Fiona did not regularly engage in processes in her personal mathematics or classroom mathematics, and (b) Fiona focused on selected features of a product or mathematical object rather than attending to a sufficient set of relevant features. These themes suggest a treatment of mathematics as not entirely connected that limited both Fiona's own problem solving and her students' mathematical opportunities.

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