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‘Value creation’ through mathematical modeling students’ disposition and identity developed in a learning community.

Liljedahl, Peter (ed.) et al., Proceedings of the 38th conference of the International Group for the Psychology of Mathematics Education “Mathematics education at the edge”, PME 38 held jointly with the 36th conference of PME-NA, Vancouver, Canada, July 15–20, 2014, Vol. 4. [s. 1.]: International Group for the Psychology of Mathematics Education (ISBN 978-0-86491-360-9/set; 978-0-86491-364-7/v.4). 393-400 (2014).

Summary: This study examined how mathematical modeling activities within a collaborative group impact on students’ perceived ‘value’ of mathematics. With a unified framework of Makiguchi’s theory of ‘value’, mathematical disposition, and identity, the study identified the elements of the value-beauty, gains, and social good-with the observable evidences of mathematical disposition and identity. A total of 60 college students participated in ‘Lifestyle’ mathematical modeling project. Both qualitative and quantitative methods were used for data collection and analysis. The result from a paired-samples t -test showed the significant changes in students’ mathematical disposition. The results from the analysis of students’ written responses and interview data described how the context of the modeling tasks and the collaborative group interplayed with students’ perceived value.

Classification: C20 D30 M10

Keywords: modeling; students’ identity; students’ disposition; value creation