

2014

Negative Numbers: Bridging Contexts and Symbols

Laura Bofferding
Purdue University

Nicole Enzinger
George Fox University, nenzinger@georgefox.edu

Aurora Gallardo
Cinvestav

Graciela Salinas
Cinvestav

Irit Peled
University of Haifa

Follow this and additional works at: http://digitalcommons.georgefox.edu/soe_faculty



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

Published in Liljedahl, P., Nicol, C., Oesterle, S., & Allan, D. (Eds.), 2014, Proceedings of the Joint Meeting of PME 38 and PME-NA 36, Vol. 1, p. 240. Vancouver, Canada: PME.

This Conference Proceeding is brought to you for free and open access by the School of Education at Digital Commons @ George Fox University. It has been accepted for inclusion in Faculty Publications - School of Education by an authorized administrator of Digital Commons @ George Fox University. For more information, please contact arolfe@georgefox.edu.

NEGATIVE NUMBERS: BRIDGING CONTEXTS AND SYMBOLS

Laura Bofferding¹, Nicole Wessman-Enzinger², Aurora Gallardo³,
Graciela Salinas³, Irit Peled⁴

¹Purdue University, ²Illinois State University, ³Cinvestav, ⁴University of Haifa

At the latest PME-NA (35), a working group met on the topic of negative numbers. Groups presented on their research within one or more categories related to negative integers: role of contexts, models, historical development, algebra, student understanding, and teacher knowledge (Lamb et al., 2013). We began a productive discussion on issues related to each of these categories and would like to broaden the discussion with the inclusion of members from the international community. Further we aim to develop research collaborations around mutual areas of interest.

SESSION 1

During session 1, after introductions, Dr. Laura Bofferding and Nicole Wessman-Enzinger will present a summary of negative number research from past PME and PME-NA proceedings, highlighting common themes, any areas of discrepancy, and theoretical frameworks that underlie the different research paradigms. Participants will discuss additional frameworks that support their research around negative numbers to add to a research categorization document that was started during an initial working group at PME-NA 35. Participants will explore the intersection of the categories, in particular how research on contexts versus symbolic-only problems can inform each other, and identify gaps in the research.

SESSION 2

During session 2, we will present a summary of the discussion from the previous day. We will have two presentations focused on the different uses and conceptions of negatives from Dr. Irit Peled and Dr. Aurora Gallardo, followed by discussion. Then we will break up into groups (depending on the interests of the group) to discuss future research directions and begin preliminary plans for collaboration. Potential foci could be on exploring the use of the difference meaning of subtraction, symbolic understanding, RME models, and contexts to support negative number understanding. Groups will share out their areas of interest and initial research ideas to allow others in the group to have the opportunity to join the collaborations.

Reference

Lamb, L., Bishop, J., Philipp, R., Whitacre, I., Stephan, M., Bofferding, L., ...Schappelle, B. (2013). Building on the emerging knowledge base for teaching and learning in relation to integers. In M. Martinez & A. Castro Superfine (Eds.), *Proc. of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1362-1366). Chicago, IL: University of Illinois at Chicago.