Applying Contemporary Philosophy in Mathematics and Statistics Education: The Perspective of Inferentialism

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The aim of this discussion group was to put contemporary philosophy to work (cf. Cobb, 2007). Inferentialism is an example of contemporary philosophy (Brandom, 2000) that increasingly receives interest in mathematics and statistics education. It can be considered an orienting framework that provides epistemological foundations for conceptualizing and analyzing knowledge, learning, communication, and reasoning in the fields of mathematics and statistics. Inferentialism avoids a representationalist perspective on knowledge and learning by focusing on reasoning and inferences (Bakker & Derry, 2011). The Discussion Group (DG) brought together researchers who are interested in the role and use of inferentialism or other contemporary philosophies in mathematics and statistics education. It gave the attendants the opportunity to share perspectives, to question, to discuss, and to make joint efforts in answering the posed key issues. The DG format at ICME provided the opportunity to discuss the significance and the restrictions of the perspective of inferentialism and other contemporary philosophies on the learning and teaching of mathematics and statistics. The discussion was initiated by several talks: Arthur Bakker (Utrecht) introduced inferentialism as a semantic theory and Maike Schindler (Örebro) gave an overview on researchers presently working with inferentialism in mathematics and statistics education. Paul Ernest (Exeter) talked about meaning in mathematics and mathematics education and anti-representationalism, and Dave Pratt (London) gave a talk on constructionism. Alexandra Thiel-Schneider (Dortmund) presented an empirical study using inferentialism and Luis Radford (Ontario) summarized the discussion elaborating on how inferentialism relates to existing theories in our domain. The participants experienced the discussion group as a fruitful gathering of researchers interested in philosophy in mathematics education; and of various perspectives on inferentialism and its possible use. The talks were welcomed as an input and promoter of discussion among all participants.

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The discussion has helped authors of articles for a special issue to appear in Mathematics Education Research Journal (e.g., Bakker, Ben-Zvi, & Makar, 2017; Derry, 2017; Mackrell & Pratt, 2017; Noorloos, Taylor, Bakker, & Derry, 2017; Schindler, Hußmann, Nilsson, & Bakker, submitted).

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