APPLYING CONTEMPORARY PHILOSOPHY IN MATHEMATICS AND STATISTICS EDUCATION: THE PERSPECTIVE OF INFERENTIALISM

Maike Schindler[1], Kate Mackrell[2], David Pratt[2], & Arthur Bakker[3]

[1]Örebro University, Sweden; [2]UCL, London; [3]Freudenthal Institute, Utrecht

Short description of the Discussion Group: aims and underlying ideas

The aim of this discussion group is 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 ontological and 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 addresses researchers who are interested in the role and use of inferentialism or other contemporary philosophies in mathematics and statistics education. It gives 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 provides 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.

Planned structure:

Tuesday, 16.30-18.00: Planned timeline	Topic	Material / Working format / presenter
16:30	Welcome with information about the way in which discussion will be promoted in this DG	Maike Schindler
16:35	Introduction to inferentialism	Arthur Bakker (incl. questions)
17:00	Meaning in mathematics and mathematics education: The anti-representationalist thesis	Paul Ernest (incl. questions)
17:15	Constructionism	Kate Mackrell & Dave Pratt (incl. questions)
17:30		Discussion

Friday, 16.30-18.00: Planned timeline	Topic	Material / Working format / presenter
16:30	How is inferentialism used in various research groups?	Maike Schindler (incl. questions)
16:45	An inferential perspective on exponential growth processes	Alexandra Thiel-Schneider (incl. questions)
17:00		Discussion in small groups
17:15	Discussion summary: What has inferentialism to add to existing theories?	Luis Radford
17:30		Discussion

References

Bakker, A. & Derry, J. (2011). Lessons from Inferentialism for Statistics Education. *Mathematical Thinking and Learning, 13*(1-2), 5-26.

Brandom, R. (2000). *Articulating reasons: An introduction to inferentialism.* Cambridge, MA: Harvard University Press.

Cobb, P. (2007). Putting philosophy to work: Coping with multiple theoretical perspectives. In F. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 3-38).Greenwich: Information Age.