

REPORT OF DISCUSSION GROUP 6: OBSERVING TEACHERS OBSERVING MATHEMATICS TEACHING: RESEARCHING THE UNOBSERVABLE (PME38)

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The goal of the discussion group was to address two interrelated methodological questions:

- How can we research the unobservable (e.g., reasoning, beliefs, etc.)?
- How can our research acknowledge and make use of the fact that “everything said is said by an observer” (Maturana, 1987)?

Participants in the discussion group offered examples from their own experience of specific research studies where these questions mattered and how they are/were addressed.

We then turned to examples from the Observing Teachers study to provoke deeper discussion of the key questions. The Observing Teachers study seeks to explore how middle school mathematics pedagogy differs across regions of Canada. “Pedagogy” is used to refer to the implicit cultural practices of teachers, including cultural beliefs about how children learn and how teachers should teach, that guide teaching practice. Because pedagogy is implicit, it is not directly observable, and so the methodology of the research programme had to address the first key question: How can we research the unobservable? The research team chose to confront this challenge by making use of the fact that “everything said is said by an observer”. Rather than attempting to observe and analyse teachers’ practice in the hopes of revealing their pedagogy, which would say as much about the researchers as observers as anything, the researchers instead observe and analyse teachers’ observations of their own teaching and others’ teaching. They recognise that their observations of the teachers’ observations are also observations, and so they compare analyses within the research team in order to observe themselves as researchers, as they observe the teachers’ observations.

Examples of two analyses from the Observing Teachers study were shared (see Manuel, Savard, & Reid, 2014, and Reid, Savard, Manuel & Lin, 2015). The participants then engaged in a comparative analysis of two short pieces of data from the study. The second day began with reports of the observations of the participants, which served to illustrate well the observer dependence of data analysis.

The second session closed with an extensive and vigorous discussion of the guiding questions.

The two sessions were attended by over twenty participants with considerable overlap in the two sessions.

Maturana, H.R. (1987). Everything said is said by an observer. In W. Thompson (Ed.), *Gaia: A way of knowing*(pp. 65-82). Hudson, NY: Lindisfarne Press.

Tobin, J., Wu, D., & Davidson, D. (1989). *Preschool in three cultures: Japan, China, and the United States*. New Haven: Yale University Press.

Manuel, D., Savard, A. & Reid, D. (2014). Observing teachers: The mathematics pedagogy of Quebec francophone and anglophone teachers. Poster. In Oesterle, S., Nicol, C., Liljedahl, P., & Allan, D. (Eds.) *Proceedings of the Joint Meeting of PME 38 and PME-NA 36*, Vol. 6, p. 360. Vancouver, Canada: PME.

Reid, D., Savard, A., Manuel, D. & Lin, T. (2015). Québec anglophone teachers' pedagogies: Observations from an auto-ethnography. Submitted to the Ninth annual conference of the European Society for Research in Mathematics Education. Prague, Czech Republic. 4-8 February 2015.