A teacher education course on climate change and critical mathematics education.

Magnus Ödmo, Anna Chronaki and Lisa Björklund Boistrup, Malmö University, magnus.odmo@mau.se, anna.chronaki@mau.se, lisa.bjorklund.boistrup@mau.se

Abstract:

In this study we discuss the possible controversies faced by both a teacher and student-teachers when Critical Mathematics Education (CME) and climate change are being brought into a specific teaching setting, part of a teacher education program at a large university in Sweden. Driven by core ideas of CME, mathematics has been conceived as a formatting power for articulating issues of climate change (Coles et al. 2013). Mathematics can, potentially, change how such socio-ecological problems are perceived and formatted as solvable, predictable and so forth. In the particular case of teaching statistics, the teacher has to make certain choices concerning what data to look at since the particular data might suggest certain description or, solutions at the expense of others. In parallel, the teacher wonders how all these might influence the student-teachers who come into the statistics course with diverse needs and expectations. It is with these thoughts in mind (i.e., dilemmas that can lead to irresolvable problems) that the course teacher (and the first writer of this paper) enters this study (i.e., course plan and its enactment). Latour (2005) discards an abstract definition of the social and in his well-known book “Reassembling the Social” focuses on its material understanding as relationships between actants. The notion of ‘actant’ is grounded in Active Network Theory and signifies both human and non-human participants in a complex network as being capable of producing a particular effect and, thus, having agency (Smelser & Baltes, 2001). The relationship that we as a collective iterate over time, in assemblages, is a way of thinking of how things are done and, thus, a way to map the ‘social’ as a highly controversial terrain. Taking this theory into account along with the teacher’s dilemmas (as described above), we here perform an inquiry that aims to map potential actants and their relationships, as they are core in a teacher’s experience to plan and enact a statistics course that engages the theme of climate change through CME. For this inquiry, both the teacher’s logbook (or course diary notes) and student-teachers’ interviews are analyzed. The analysis so far, locates instances where the teacher connects to different actants such as the climate change phenomenon, the curricula, the course plan, and student-teachers. In some instances, these actants suggest ways of doing, decisions to make or choices that contradict each other and hint toward controversial issues. These all become evident in signs of hesitation by the teacher at moments of planning or enactment. They, moreover, reserve to create different narratives about what mathematics should be utilized and demands reflexive choices by the teacher over which narrative to follow. Such hesitations might also be traced back to how the arguments for choosing one narrative over the other are being constructed. In short, the analysis shows that since diverse arguments can be narrated, one might be left with the feeling of missing something in just following one. It is a rather vulnerable situation the teacher is in; risking being hold accountable for not dealing with the mathematical content that has good arguments for it to be dealt with.

References
