

‘Doing Difference’ in mathematics education: How do mathematics teachers construct differences in learners?

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Introduction

Which differences in learners influence mathematics learning? This can be discussed from various research perspectives. Aligning differences with issues of (in)equity in mathematics education predominantly follows the categorical trias along the lines of social differences, such as race, class/ socio-economic status and gender (Atweh et al.,2011). Connections between (social) differences and mathematics learning or achievement play an outstanding role concerning the influence of teacher expectations or stereotype threat/lift effects (Gentrup et al., 2020; Hermann & Vollmeyer 2016). The research project presented in this poster alters the perspective on differences in mathematics learners and their interweavement with the socio-political realm in which mathematics teaching is stated in two major aspects: Firstly, the presented research project refrains from operationalizing categories of differences as far as possible. By doing so, the presented research project tries to account for research’s influence in reproducing and eventually ontologizing categorical differences. This also enables the emergence of categorical differences which do not align with established categories of social differences, but might be relevant specifically in the context of mathematics education. Secondly, the emergence of differences isn’t inquired from a theoretical or hypothesis testing point of view but based on mathematics teachers’ everyday experiences.

Theoretical and methodological framework

Following a cultural-sociological approach, differences in learners cannot solely be seen as given facts mathematics teachers have to adapt to, but rather as complex social constructs and subsequent products of external and ascriptive attributions in social interactions regarding individuals or groups. Teaching mathematics becomes a stage for the reality of (re)enforcing these constructed differences. ‘*Doing difference*’ provides the analytical frame to trace the process of constructing differences and to analyse them as products of constructions within social interactions and practices following a specific logic within the field of emergence (Hirschauer, 2017). This perspective takes into account that differences are (re)produced simultaneously and intersectional. Thus, the teachers’ selection of emphasized differences as relevant or irrelevant depending on the field-specific context and logic of its emergence demand for attention in research – especially within the context of teaching mathematics in primary school. Accordingly, mathematics teachers become stakeholders of the field-specific logic of teaching mathematics bearing a certain kind of shared knowledge about ir/relevant differences in mathematics learning. With situating the empirical base for research in teachers’ knowledge and their attribution of ir/relevance to various differences, the research project draws on the methodological framework of the ‘*Praxeological Sociology of Knowledge*’ (Bohnsack, 2010). Providing a methodological framework as well as a meta-theory, the ‘Praxeological Sociology of Knowledge’ comprises a distinction between two levels of knowledge. On one hand, the *reflective or*

theoretical knowledge is accessible by those under research and can be made explicit during communication. On the other hand, the *practical or incorporated knowledge* remains implicit. Since incorporated knowledge gives orientation to action, it can be assumed that shared orientations among teachers, which structure the processes of ‘doing difference’, can be identified. Thereby, the epistemological interest of the research project exceeds common sense theories which are made explicit by mathematics teachers when talking about differences in learners and aspires to reconstruct the immanent meaning documented in observed discussions.

Research questions, data collection and analysis

Aiming to understand mathematics teachers’ everyday practice, its inherent logic and its underlying orientations while constructing differences as ir/relevant, the following research questions are posed:

- *How do mathematics teachers construct differences in learners as ir/relevant for mathematics learning?*
- *Which underlying shared collective orientations (incorporated knowledge) can be identified during the process of constructing differences?*

To answer these questions, mathematics teachers, mainly from primary schools, are invited to participate in eight group discussions, in which the teachers are asked to share their experiences with teaching mathematics. Discourse among teachers was chosen as one part of social interactions which involve the processes of ‘doing difference’. Following the analytical stance of the stated methodology (mathematics) teachers share a “conjunctive space of experience” (Bohnsack, 2010, p. 105) which is documented in shared narrations and depictions. Through initiating a self-dynamic discourse among teachers, constituted and reproduced collective meaning culminates within the order of discourse and gets accessible for reconstruction. Data provided by the group discussions is analysed using the Documentary Method in order to reconstruct *how* differences are constructed and which general patterns of orientations structure these processes. By identifying (possibly diverging) types of the modus operandi of constructing differences in learners as ir/relevant, a crucial insight into the inherent logic of teaching mathematics based on teachers’ implicit everyday knowledge is expected.

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