

# Moments of inclusion and equity in mathematics education

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## Introduction

The purpose of this poster is to contribute with knowledge on what constitutes moments of inclusion and equity in mathematics education. This can in extension shed light on how mathematics teaching can facilitate inclusion and equity. Inclusion and equity in education is a challenge in the Nordic school systems (Buchholtz et al., 2020). A decrease in equity has been identified in Sweden in the latest PISA evaluation in mathematics (Skolverket, 2019). Mathematics education has a special role in governing inclusion and equity, due to the function of labeling students as successful, intelligent, right, knowing – or not. This turns mathematics into a gatekeeper for progress and a possible threat to inclusion and equity in the future. By mathematics teaching that facilitates inclusion and equity, we imply *teaching that contributes to student empowerment, and their ability and agency to learn through striving for every student's opportunity to participate* (see Roos, 2019). In doing so, we build on the work of scholars such as Cobb and Hodge (2007). We are aware that research regarding educational equity and its questions of who has access, or possibilities to get access, are complex (e.g., Askew, 2015). Our point of departure is that it is not only what happens in the mathematics classroom that is at stake when students are counted out from further learning. Who is included in learning is also related to issues of power and democracy in society. Conversely, the learning of the individual student is influenced by structures in society and ongoing processes of in(ex)clusion (Halai et al., 2016). Therefore, there is a need to unravel, problematize, and discuss principles for equity and inclusion in mathematics teaching, and at the same time help develop these through teaching. We contribute to this by exploring teachers' experiences of how moments of inclusion in mathematics manifests in the mathematics classroom. To do so we have two research questions: 1) When and how do moments of inclusion and equity appear in the mathematics classroom according to teachers? 2) What conditions inclusion and equity in these moments?

## Methods

The selection in this study consists of primary teachers from one school in the south (8), and one school in the north of Sweden (6). Data consists of written self-reflections on inclusion and equity in relation to their teaching in mathematics to establish a baseline before the start of a joint school development and research project. A qualitative thematic content analysis (Braun & Clarke, 2006) was performed to identify ideas, assumptions, and concepts on inclusion and equity in teaching. We were inspired of Braun and Clarke (2006) and advocated their six phases in a thematic analysis: familiarizing oneself with data, generating initial codes, searching for themes, reviewing themes, defining, and naming themes, and finally producing a report (p. 84).

## Tentative outcomes and possible implications

The tentative results show that the teachers define inclusion as to *see and meet difference* in the mathematics classroom. “Different stuff for different students”. Inclusion equals *active participation* and *students’ feelings* needs to be taken into consideration. Equity concerns *same possibilities for learning* and the need to then create *equal access to mathematics*. Hence, inclusion and equity are conditioned as co-existing. Students’ empowerment, agency, ability to learn is highly intertwined in teachers’ expressions. Conditions to these values are that teaching, approaches to learning, and mathematics classrooms need to be differentiated – to both derive from, and lead to the respect of, and valuing of students’ difference. This is strongly emphasized by teachers. Important to then note is that the opportunities to differentiate in order to secure students’ opportunities to learn – is not merely up to the teacher, it is also a matter for the school organization, learning culture and the school systems intentions regarding students’ differences. This is an important implication for both further research and practice to consider, to be aware of external governing issues on valuing students’ differences when aiming for inclusion and equity in mathematics education.

## References

- Askew, M. (2015). Diversity, inclusion, and equity in mathematics classrooms: From individual problems to collective possibility. In A. Bishop, H. Tan, & T. N. Barkatsas (Eds.), *Diversity in mathematics education: Towards inclusive practices* (pp. 129–145). Springer. [https://doi.org/10.1007/978-3-319-05978-5\\_8](https://doi.org/10.1007/978-3-319-05978-5_8)
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Buchholtz, N., Stuart, A., & Frønes, S. T. (2020). Equity, equality, and diversity – Putting educational justice in the Nordic model to a test. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, Equality and Diversity in the Nordic School Model of Education* (pp. 13–41). Springer. <https://doi.org/10.1007/978-3-030-61648-9>
- Cobb, P., & Hodge, L. L. (2007). Culture, identity, and equity in the mathematics classroom. In N. S. Nasir & P. Cobb (Eds.), *Improving access to mathematics: Diversity and equity in the classroom* (pp. 159–164). Teachers College Press. [https://doi.org/10.1007/978-90-481-9729-3\\_11](https://doi.org/10.1007/978-90-481-9729-3_11)
- Halai, A., Muzaffar, I., & Valero, P. (2016). Research rationalities and the construction of the deficient multilingual mathematics learner. In R. Barwell, P. Clarkson, A. Halai, M. Kazima, J. Moschkovich, N. Planas, M. Setati Phakeng, P. Valero, & M. Villavicencio Ubillús (Eds.), *Mathematics Education and Language Diversity, the 21<sup>st</sup> ICME study* (pp. 279–295). Springer. [https://doi.org/10.1007/978-3-319-14511-2\\_16](https://doi.org/10.1007/978-3-319-14511-2_16)
- Roos, H. (2019). *The meaning(s) of inclusion in mathematics in students’ talk. Inclusion as a topic when students talk about learning and teaching in mathematics*. [Dissertation]. Linnaeus University Press.
- Skolverket (2019). *PISA 2018. 15-åringars kunskaper i läsförståelse, matematik och naturvetenskap* [15-year-olds’ proficiency in reading, maths and science]. Skolverket.