



Mathematics Education as Mathematical and Educational

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We bring two research traditions into conversation. One engages with mathematics teaching, learning, and instructional design grounded in Hans Freudenthal's (1973) view of mathematics, where learning emerges through participation. The other is Gert Biesta's (2022) philosophical perspective, in which educational work is existential: students are invited to encounter the world, respond to it, and come to terms with it, while bringing their "I", that is, their "subject-ness", into play. We identify and examine key resonances between these traditions and elaborate on their significance for the mathematics education research community, particularly in supporting the development of clearer descriptions and stronger rationales for the kinds of school mathematics education that are needed and worth pursuing.

Biesta's work is grounded in the position that the work of education is existential rather than conceptual. For mathematics education, a field that has been so prominently concerned with conceptual change and understanding, this position might not be obvious. Biesta maintains that education should not merely be a means of equipping students to understand the world but must also be a place where they encounter the world and come to terms with it.

Biesta illustrates that education serves three parallel functions, or domains of purpose: qualification, socialisation, and subjectification, each shaped through schooling, by design or incidentally. Qualification is the most emphasized domain in our field. It is evident in curricula and even more so in assessment practices, where learning is predominantly construed as the acquisition of knowledge, skills, or proficiencies. The least familiar domain is subjectification. In our field, it entails viewing the educational value of mathematics as lying in its potential to help students recognise themselves as subjects of their mathematical activity, rather than as objects of what someone else desires them to do, be, and know.

Freudenthal viewed mathematics as a human activity in which one increasingly comes to participate. In this perspective, learning is not acquisition but participation. Mathematics is understood as an activity of organising the world, that is, mathematising it, for the purpose of being in it and acting within it. Mathematics instruction entails supporting students in becoming progressively capable of such organising, acting as subjects of their own activity in the process.

Bringing the two traditions into conversation allows us to recognise that their two main pursuits align: for classroom activity to be *mathematical*, students must be invited to encounter and respond to a mathematical world by engaging their subject-ness in mathematising. For school mathematics to be *educational*, it must call students to act as subjects of their own mathematical activity. In this sense, for school mathematics instruction to be educational, it must be mathematical, and to be mathematical, it must be educational.

References

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Freudenthal, H. (1973). *Mathematics as an educational task*. Reidel. <https://doi.org/10.1007/978-94-010-2903-2>

For more information, please refer to the following paper presented at the 48th Annual Conference of MERGA in July 2026.
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