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Impact Sheet

Helenius, O. (2021). A stakeholder analysis of the development of a large-scale professional development project. *Implementation and Replication Studies in Mathematics Education*, *1*(2), 227–256. DOI: 10.1163/26670127-01010009

Problem Addressed

While many small-scale implementation projects in mathematics education are productively explored by focusing on teachers and researchers as the main stakeholders, national-level projects require attention to the complex relationships among the extended set of the groups of stakeholders, including teachers, researchers and policymakers. In-depth understanding of the dynamic roles that these stakeholders play or can play in large-scale implementation projects has recently been recognized as one of the most pressing problems in implementation-related research in mathematics education (Koichu et al., 2021; Krainer, 2021). Another pressing problem (e.g., Artigue, 2021) is to showcase which theoretical recourses and methodological approaches can be instrumental for making sense of the complexity of the multi-stakeholder projects in ways that would be instructive for other projects.

Helenius's (2021) paper addresses these problems by analyzing the evolution of design recommendations for mathematics teacher professional development (PD) in the context of the Boost for Mathematics (BfM) project conducted in Sweden since 2010s. As to the first problem, he characterizes phenomena related to the effects that a multi-stakeholder scenario of BfM has on the design and implementation of an innovative PD. In his words, he shows "how research-based principles appearing early in the process gradually change to become something different in the end, without the reasons for this shift ever being explicitly discussed in stakeholders' documentations". As to the second problem, Helenius displays how a methodology for characterization of the shifts in the BfM by conceptual tools adapted from the Chevallard's Anthropological Theory of Didactics can be used.

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What is Implemented?

Helenius (2021) argues that the above question does not have an unequivocal answer. Speaking pragmatically, a set of specially designed mathematics moduli for the use in classroom and a supporting PD were successfully implemented in the BfM. However, the stated intention for BfM was to implement research-based recommendation for effective PD, such as providing teachers with tools for helping students to develop mathematical competencies, building a strong material component for teaching and developing the teacher autonomy. In practice, the analysis shows that BfM breaks in several ways with research it is said to build on. In particular, the role of the external experts in the PD was unsettled at different stages of the project. Moreover, there were various inconsistencies as to the roles of the teachers in the PD effort.

For theoretical the part, Helenius' (2021) study implements a conceptual apparatus of the Anthropological Theory of Didactics and elements of codetermination theory for analyzing a set of documents written at different stages of the BfM.

How was the Implementation Conducted?

The implementation in BfM was conducted by means of organization of a large-scale PD for mathematics teachers and by development of a set of mathematics moduli for the use in the PD and in classrooms. The implementation was followed up by systematic research at four levels: (1) the effect at the student level; (2) the effect at the level of teachers and teaching; (3) the content of the PD modules; and (4) at the level of a project as a particular case by which aspects of the theory of change in teachers' behaviors can be studied.

Implications and Significance

The BfM is remarkably well documented and studied, and therefore it provides a solid base for reflections on causes of its achievements and shortcomings. Helenius's (2021) study is particularly informative for policymakers and mathematics education researchers. This is because the study shows how societal changes, systemic constraints and not-fully-articulated agendas and expectations of different stakeholders can distort the initial intentions for the project and its outcomes. The study calls for the development of greater awareness of the project's underlying forces. In this way, the history of the BfM is a good

source of learning for organizers additional projects having similar configurations of stakeholders and similar aspirations to improve mathematics education at the level of the whole country.

References

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