

The Impact of a Teacher Professional Development Program in Formative Assessment on Mathematics Teachers' Classroom Practice

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This study is a sub study in a project about a comprehensive professional development program (PDP) for mathematics teachers in formative assessment (FA). My aim is to investigate in which ways the participating teachers' classroom practice change, due to the delivered PDP, and also to identify reasons for the changes and the variation in changes. Fourteen randomly chosen mathematics teachers in secondary school participated in the PDP. The teachers were interviewed and their classroom practice observed before and after the PDP. They have also answered two questionnaires. Preliminary results show that all teachers were motivated to change and did change their practice, but to varying degrees. Factors that were important for the change to take place have been identified.

Background

According to a large amount of research, the use of formative assessment (FA) in classroom practice is one of the most educationally effective ways of increasing student achievement (e.g. Black & Wiliam, 1998; Hattie, 2009). But Wiliam (2010) also highlights that very little is known about how to help teachers implementation of a formative classroom practice, and that designing ways of supporting teachers to develop their FA practice is an important issue.

This study is a sub study in a project about a comprehensive professional development program (PDP) for mathematics teachers in FA. The overall aim in the project is to contribute to the understanding of factors that are significant in the support of teachers' implementation of a FA practice. For this study more specifically the aim is to investigate in which ways teachers' classroom practice change, due to the delivered PDP, and to identify reasons for the changes and the variation in changes.

In this project, with FA we mean a classroom practice that is formative, and use the definition proposed by Wiliam and his colleagues. They suggest that effective FA can be conceptualized as practice based on an adherence to the

“fundamental idea” of using evidence about student learning to adjust instruction to better meet student needs, and a competent use of the following five key strategies: (KS1) clarifying, sharing and understanding learning intentions and criteria for success, (KS2) engineering effective classroom discussions, questions, and tasks that elicit evidence of learning, (KS3) providing feedback that moves learners forward, (KS4) activating students as instructional resources for one another, (KS5) activating students as the owners of their own learning (Wiliam, 2010).

Method

Fourteen randomly chosen mathematics teachers, out of all teachers in a municipality teaching mathematics in grade seven the coming academic year, participated in the PDP. The participating teachers were interviewed and their classroom practices were unannounced observed, before and after the PDP. They answered two questionnaires as an evaluation of the PDP. An analytical tool based on the framework of FA, see above, were used for the analysis of the teachers' changed classroom practice.

The PDP was process oriented and focused on the fundamental idea and the five key strategies of FA. The design of the program included a large amount of time given to the participating teachers (24 full days over 4,5 month). This gave them time for reading course literature, time for reflection and discussion, time for cooperation with other teachers and possibilities to try new ideas in their classrooms.

Preliminary results and conclusions

After the PDP all teachers were motivated to change and did change their classroom practice, but to varying degrees. The most common and frequent change was that they diagnose and engage their students more, using formative techniques, with the purpose of modifying their teaching. This change was connected to key strategy 2 (KS2). Some changes connected to KS1 and small changes connected to KS3, KS4 and KS5 were made. Factors that were important for the change to take place have been identified.

References

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- Wiliam, D. (2010). An integrative summary of the research literature and implications for a new theory of formative assessment. In H.L Andrade & G.J. Cizek (Eds.), *Handbook of formative assessment* (pp. 18-40). New York, NY: Routledge.

