

## The design and implementation of a teacher professional development program in differentiated instruction for secondary education

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Teachers are expected to adapt their teaching to the diverse learning needs of their students, as it can lead to higher student achievement. However, many teachers struggle with implementing differentiated instruction (DI) since it is a complex task. Teachers must monitor their students' progress, offer well-suited instruction, and challenge all students at their own level. To offer all students the opportunity to benefit from the advantages of DI, teachers should be supported in developing the necessary knowledge and skills.

In this project, a teacher professional development (TPD) program was designed based on the findings of a cognitive task analysis (CTA). In this CTA, secondary school mathematics teachers who are already experts in providing DI were studied through (video) observations and interviews to analyze what they did and what their underlying decisions were when providing DI. This led to an overview of the necessary skills and knowledge for providing high-quality DI and a description of the factors that make providing DI more or less complex.

In a collaborative design team, a teacher and researcher developed a TPD program based on the 4C/ID model, taking a whole-task approach. Since in-service teachers participated in the intervention, there were ample opportunities to practice. During sessions, participants shared video recordings of themselves implementing newly learned skills, discussed approaches for the upcoming lesson(s), and jointly prepared lessons and lesson series. Participants received personal feedback from the trainer during and after classroom observations.

The participating teachers were mainly positive about the TPD program. Although some found the program quite intensive and wished for more concrete examples of how to provide DI, they were very enthusiastic about the observations by the trainer, accompanied by personal feedback. The participating teachers also found that the TPD suited their learning needs and practice well.