DISA – Digital Self-Assessment for Large University Courses

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We introduce a model for replacing the course exam with self-assessment on a large undergraduate mathematics course. In our course model, the self-assessment method is seen as a part of new learning environment that enhances the students' reflection skills and encourages them to foster their ownership of their own learning. Self-assessment skills are trained throughout the course and the students receive feedback from multiple sources, including teachers and peers. The DISA model is an important initiative to develop large course pedagogy in the university mathematics setting.

Keywords: Self-Assessment, Reflection, Technology-Enhanced Assessment, Assessment Culture

Improving students' reflection and self-assessment skills is an important goal of university education, as these skills are vital for life-long learning and building a successful career (e.g. Boud, 2000). Self-assessment has been shown to have a positive effect on learning: It can improve reflection skills (MacDowell, 1995), emphasise learner autonomy and communication skills (Stallings & Tascione, 1996) and be a more effective learning method than studying for an exam (Friess & David 2016). However, self-assessment skills are rarely explicitly taught. In the DISA project, we have replaced the final exam with self-assessment on a large undergraduate mathematics course. At the end of the course, the students assess their own skills based on a detailed assessment rubric, which contains not only content knowledge items but also generic skills such as mathematical writing and discussion. Cheating is controlled by an automatic verification process in which the student's self-assessment is compared to their performance in various tasks during the course. Self-assessment is supported by extensive formative feedback during the course, as well as several self-assessment exercises.

The DISA method has been implemented twice on a first-year course in linear algebra. Based on quantitative and qualitative studies on the course feedback, the self-assessment and removing the course exam have encouraged deeper learning approaches in the students. They also report having "studied for themselves" instead of the course exam. They also mention having been relieved from stress and anxiety related to the final exam. The grades the students assign for themselves have been comparable to a typical grade distribution on the course, with the exception that the students are reluctant to give themselves the lowest grades 1 and 2 (on the scale 1–5).

References

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