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Determining your own grade – Student perceptions on self-assessment in a large mathematics course

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In our poster, we report on students' perceptions on self-assessment in large undergraduate course context taught with the DISA model (Digital Self-Assessment) in which the final exam is replaced by self-assessment. The students found that practising self-assessment skills was valuable and encouraged them to study for themselves. At the same time, self-assessment was considered unfamiliar and therefore difficult. We argue that the DISA model encouraged students to take more responsibility on their own learning.

Keywords: Assessment practices in university mathematics education, Novel approaches to teaching, Self-assessment, Student perceptions, Ownership of learning.

INTRODUCTION AND THEORETICAL BACKGROUND

Self-assessment skills are often mentioned as an important ingredient in becoming an effective life-long learner (Boud, 2000). Good self-assessment skills are vital also during studies, as they form a key part of self-regulation (Zimmerman, 2002). In university mathematics, self-assessment practices have been shown to promote learner autonomy and mathematical communication skills (Stallings & Tascione, 1996). In a study for engineering students, self-assessment was linked to better time management and more effective learning (Friess and Davis, 2016). In earlier studies, the use of self-assessment is usually limited to low-stakes training exercises or controlled self-grading of the final exam. We, however, do not want merely to introduce a reflection tool, but instead question thoroughly the traditional concept of external assessment in mathematics. The aim of our study is to develop the theory of self-assessment in the specific field of mathematics.

In the DISA model, the traditional end exam is removed, and final course grades are awarded by students' self-assessment based on a learning objectives matrix. We use Yan and Brown's (2017) model of cyclical self-assessment process as our theoretical framework. In the DISA model, the development of self-assessment skills is supported with various feedback methods throughout the course. The students' reflective skills are formatively practised with several self- and peer-assessment exercises. In an earlier study (Nieminen, Rämö, Häsä, & Tuohilampi, 2017), we found that mathematics students connected the self-assessment training and the lack of exam with deep learning approach. The purpose of this poster is to present students' perceptions on self-assessment in the DISA model.

DATA COLLECTION AND ANALYSIS

The participants of the study were students of a linear algebra course taught with the DISA model in a Finnish university in autumn 2017. Data was collected after the

course with a questionnaire with open ended questions (n=113). A qualitative content analysis was conducted to study the student perceptions on self-assessment.

RESULTS

Data analysis of qualitative survey data resulted in two main categories. One category was “Ownership of learning”, containing a theme of positive perceptions on the self-assessment method and another theme concerning developing one’s own reflection skills. The other category was “New kind of learning culture”. Students’ comments in this category were either “micro level“ comments concerning the course arrangements or “macro level” comments concerning self-assessment as part of a new kind of learning culture. Our results indicate that the theory of cyclical self-assessment can be applied to the field of mathematics. Furthermore, we argue that digital learning environments can be used in large mathematics courses to practice self-assessment skills.

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