RECOGNIZING TEXTS IN UNDERGRADUATE MATHEMATICS

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Findings from interviews investigating how Swedish first year engineering students recognize undergraduate mathematics texts as being more or less “mathematical”. The results indicate a relation between the students’ understanding of the principles for knowledge classification and their success in their mathematics studies

Introduction We aim to get insight into the students’ awareness of the type of mathematics that is institutionalised in the beginning undergraduate mathematics courses – in comparison to upper secondary school mathematics. Attempting to clarify some of the issues related to the meaning of “higher level” of mathematics, in particular the extent to which the students are aware of changes in knowledge criteria.

Theoretical background For success, students need to understand the principles for distinguishing between contexts and recognize the speciality of the discourse, thus acquire the recognition rules. (Bernstein, 1981) We are interested in the students’ recognition of what counts as legitimate mathematics texts, a necessary condition for their own capacity of producing such texts. The knowledge classification of undergraduate university mathematics creates specific subject-related recognition rules that differ from university mathematics. We investigate whether and on what grounds the students were able to distinguish between different mathematical texts that resemble weaker or stronger principles of knowledge classification and whether there are differences in relation to achievement.

Methodology The students’ were confronted with four different mathematical texts and asked which of those appear “more mathematical” to them. For the selection and description of the different texts, as well as for the analysis of the students’ responses, we employed analytical tools developed in the context of systemic-functional linguistics. (cf. Halliday & Hasan, 1989)

Findings & Discussion Whether recognition of differences between texts would be necessary for success, can be answered positively. The outcomes reflected that recognition of the knowledge classification is necessary but not sufficient for success. We observed a relation between the students’ understanding of the principles for knowledge classification (recognition rule) and their success in their examinations.

References