RETRIEVAL PRACTICE
AND INDIVIDUAL
DIFFERENCES

Exploring Factors Relevant to the
Benefit and Use of Retrieval
Practice

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Akademisk avhandling

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Title
Retrieval practice and individual differences: Exploring factors relevant to the benefit and use of retrieval practice

Abstract
When students are studying outside of the classroom, they tend to use learning strategies that research has found to be relatively ineffective. This is problematic as a relatively large proportion of students do not finish compulsory school and/or upper-secondary school with sufficient grades. Although these problems stem from many different factors, one factor can be assumed to be shortcomings in students’ acquisition of knowledge.

Retrieval practice is a highly effective learning strategy that has been shown to enhance retention, compared to other more commonly used strategies such as repeated study. Retrieval practice involves repeated retrieval of information from long-term memory to enhance recall of that information. This learning strategy has often been described as repeated testing of a material, and consequently, the enhanced retention observed after retrieval practice is called the testing effect. While research has found substantial evidence for the testing effect, less is known about the potent impact of individual differences on the testing effect as well as use of the strategy.

Therefore, the overall aim of this thesis was to explore the relationship between retrieval practice and individual differences, both in terms of the testing effect and the optional use of the strategy in an authentic school environment. This was done in a series of studies. Study I and II evaluated the relationship between individual differences in cognitive (i.e., working memory capacity) and non-cognitive factors (i.e., personality characteristics) and the testing effect using quasi-experimental designs. This was studied using a task where participants learned Swedish – Swahili word pairs through retrieval practice or repeated study. The results indicated that retrieval practice led to enhanced recall irrespective of individual differences in cognitive or non-cognitive factors. In Study III, retrieval practice (i.e., repeated online quizzes) was implemented as a learning strategy in an upper-secondary school. Over eight quizzes, students’ use of retrieval practice was measured, and they completed tests of their cognitive abilities and self-report measures of non-cognitive factors, such as personality. It was found that retrieval practice was used to a low extent, and that individual differences in non-cognitive factors was related to the amount of quiz use. Quiz use also differed between female and male students.

To conclude, the results indicate that retrieval practice is an effective strategy regardless of individual differences in cognitive and non-cognitive factors for learning, which makes it a useful strategy in a broad sense. However, regarding the use of retrieval practice as an optional learning strategy in a school context, the results showed that students use retrieval practice to a limited extent, and the use seems to vary among students with different characteristics, such as degree of conscientiousness. Based on these findings, it is important to support students in using retrieval practice to ensure that all students benefit.

Keywords
retrieval practice, testing effect, individual differences, cognition, personality, learning