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Overview › Pedagogy › **Readiness**

Beishuizen, Jos J.; Stoutjesdijk, Evelien T. (1999)

Study strategies in a computer assisted study environment

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Review by: [Hasanbegovic, Jasmina](#) (2004-07-22)

As profiles on learning style questionnaires do not explain the causes of insufficient study results and interviews do not provide conclusive answers, the authors designed a computer assisted study environment (CASE) to provide deeper information on study strategies, complimentary to interview and questionnaire data. Together with the results of a learning style questionnaire, measured reading speed and the students' pretest on prior knowledge of the content of the study task, they correlated these data with process and product indicators collected in CASE in order to find out whether various sources of information about learning styles and study strategies provided converging evidence about potential causes of study problems.

In a first step, Beishuizen and Stoutjesdijk introduce the state of research on learning style and strategies explaining the main terms and differences between deep and surface processing and describing the study stages orientation, planning and execution. They also discuss factors which are responsible for considerable individual differences in learning outcomes like prior knowledge, reading speed, and test expectations. In the chapter on methods they explain the proceedings of the study in detail and describe all integrated materials, design and data- analysis. 364 freshmen psychology students at Leiden University with deep or surface learning styles were observed during 1 h period of preparation for a short test, covering a broad, but clearly defined, topic from a text book chapter and consisting of either short essay questions or multiple choice questions. The stages of orientation, planning, and execution within a single study session were clearly separated in the procedure of the study by allowing students to spend an unlimited part of the hour on orientation. Then they were asked to made a plan for the task and finally to execute the plan or any other form of study in the remaining time. After completing the 1 h study session, students filled out plan forms again, declaring what plan would have been ideal for the session and answered eventually both post-test questions (multiple choice and essay).

The main research question concerned observable differences between deep and surface learning students whereas differences between students with a deep or surface learning style were compared by using t- tests on

all dependent variables. Furthermore, for each phase of study (orientation, planning, execution) a multivariate covariance analysis was applied to examine main and interaction effects of learning style and test expectation as independent variables, while prior knowledge and reading speed were taken into account as control variables.

The results show that the diagnostic study task, completed in a computer assisted study environment revealed differences between deep and surface learning students in orientation and planning activities. Concerning learning outcomes, students with a deep learning style obtained better results than students with a surface learning style, even for factual learning. The contribution of learning styles to test scores appeared only in interaction with test expectations whereby the essay expectation matches deep learning and the multiple choice expectation matches surface learning.

This study illustrates the importance of learning styles in the different stages of study and especially, the relatedness of learning styles to test expectations. Implications of these findings are to reduce the expectation effects of question format by directly generating expectations about the required type of knowledge. The authors suggest to construct questions which, irrespective of their format, actually test the type of knowledge the students should gain and to prepare students on the expected level of processing. Unfortunately, the possibilities of a redevelopment or advancement of their computer assisted study environment are not discussed for these purposes.
