

## **The Interaction between Teaching and Learning in Higher Education**

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The purpose of the research project is two-fold. Firstly, the aim is to examine the relationship and interaction between teaching and learning in higher education. The following research questions are addressed:

1. What is the effect of a teacher's approach to teaching on individual student's approaches to learning and student's perceptions of the teaching-learning environment? (Study I)
2. What is the effect of students' approaches to learning on a teacher's approach to teaching in a certain teaching-learning context? (Study II)
3. How do teachers' self-reports of their approach to teaching and of their teaching practices correspond with their actual teaching practices? (Study III)
4. What is the effect of the nature of the teaching-learning environment on students' learning outcomes and regulation of learning? (Studies I-III)

Secondly, the aim is to tackle the methodological issues related to studies on teaching and learning. During the past few decades many standardised inventories with high reliability have been developed for measuring students' approaches to studying and teachers' approaches to teaching. However, in recent years the development in learning theories, university pedagogy and instructional practices has raised the question about the need to re-test, modify and complete the inventories. For example, in some studies the reliability values of the deep approach and surface approach scales have been unusually low. Furthermore, what is totally missing in these inventories are the kinds of approaches that have emerged in recent years, such as social approaches or generic skills approaches. Therefore one aim of the present study is to further develop the inventories and test new appropriate scales.

Another methodological issue is related to the scales measuring teacher approaches to teaching. There are no studies indicating clearly what the relationship between teachers' expressed approaches to teaching and their actual teaching practices is. Therefore, the present study aims at validation of these measures by establishing the correspondence (or the lack of it) between teachers' self-reports of their teaching and their actual practice.

The third methodological issue in recent studies on learning in higher education is how to measure learning outcomes. There is an urgent need to develop inventories and other forms of measuring learning outcomes in a reliable and comparable way. In the present study the approach will be the study of conceptual change focusing especially on what are called threshold concepts, that is, the concepts the students need to understand in order to understand basic phenomena of the topic or discipline.

In sum, the methodological aims of the study are to critically analyse and validate the current measures of learning and teaching approaches, to develop new parallel and complementary measures, and to develop methodology for examination of learning outcomes in relation to teaching approaches.

The methodological development is related to all of the three sub-studies. The overview of the project is illustrated in Figure 1.

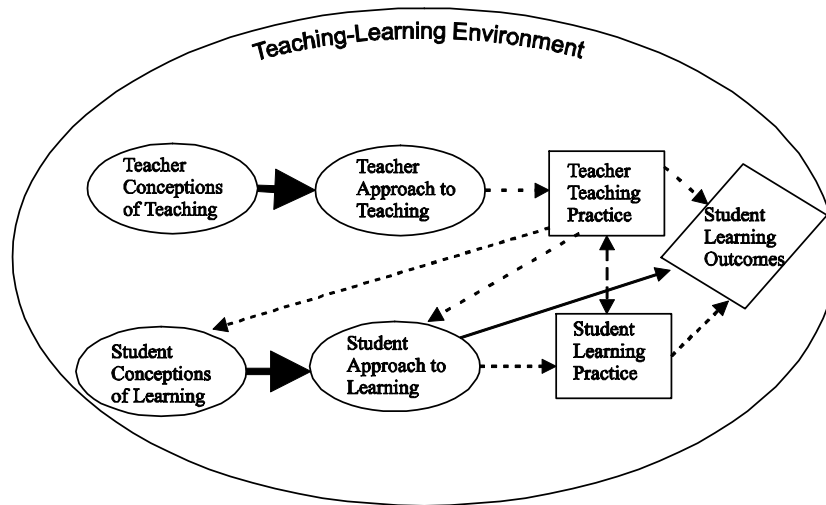


Figure 1. An overview of the research project. (Heavy solid lines = connections that are reasonably well established; Light solid lines = connections that are known in particular contexts (e.g., in physics), but may not be true more generally; Dotted lines = connections where knowledge is limited or missing.)

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