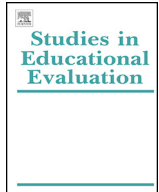




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Course evaluation for the purpose of development: What can learning styles contribute?

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ABSTRACT

The purpose was to investigate whether it would be useful for development purposes to include a survey of learning styles among student and teachers as part of the evaluation of a graduate course in statistics in a Public Health Programme, and to compare the learning styles of students and lecturers. A qualitative analysis was conducted to identify the implicit styles embedded in course descriptions. The D-SA-LSI based on Sternberg's theory of mental self-government was used to measure learning styles. The 14 learning style scales has good psychometric properties, and measure qualitatively different styles. Results showed differences between the learning styles of teachers and students, and identified two areas for course development: the design of exercises with regard to the level of abstraction and concreteness; the incompatibility of the relatively complex ways of thinking embedded in course objectives and the students' preferences for thinking at a cognitively simpler level while learning.

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1. Introduction

In the universities in Denmark and many other countries, course evaluations are routinely undertaken on a systematic basis using different, but usually in-house standardised, evaluation questionnaires (Kember, Leung & Kwan, 2013; Richardson, 2005; Wiers-Jenssen, Stensaker & Grøgaard, 2002). Such evaluations may be useful for educational administrators, since they provide an inexpensive way to keep track of students' satisfaction with teaching and to possibly expose teachers that cannot teach. However, it can be argued that they provide a poor basis for course development, since evaluation questionnaires rarely disclose problems that a conscientious teacher does not already know about.

In addition to this, there are many inherent problems with evaluation questionnaires. Students' feedback can, according to Richardson (2005), measure teaching effectiveness—useful in the administrative layer of university decision-making and Richardson (2005) also states that is becoming more common for teachers in the UK to refer to student feedback to enhance their teaching effectiveness, when they apply for funding and tenure. According to Spooen, Mortelmans and Christiaens (2014), student evaluations play two different roles that complicates matters because

they require (at least slightly, but probably quite) different information to be gathered. They are used for both evaluation and monitoring of teachers and for development of teaching/courses.

It is conceivable that student feedback can be used for administrative decision-making, if the evaluation questionnaires or other evaluation tools are properly designed relative to a set of criteria of effectiveness, but this is not the case in Denmark. Instead, untenured teaching staff are using students' evaluations of courses for promotion and tenure purposes, because this is usually required from the hiring university. On the other hand, this does not automatically mean that evaluations are designed in such a way that it provides the necessary information for course development. Also, Danish universities are required to evaluate programs and courses, but there are no general rules defining how to do it. For this reason, each university may have a set of general rules guiding evaluations, but there will also be more specific set of rules at school level. Finally, the content of the questionnaires may be decided at school level, at department level, by the course director, or by the teacher. Or, of course, by a combination of any of these levels. Across Danish universities, all models are found, resulting in very different questionnaires that are often designed by persons without any specialist knowledge of student evaluation and/or design of questionnaires.

In his review of the literature on instruments for obtaining student feedback, Richardson (2005) found that student feedback

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instruments usually takes the form of ratings of student satisfaction with and/or their attitudes towards their teachers and courses. One problem with eliciting student satisfaction, is that satisfaction is not a coherent and homogeneous construct. It is a complex and poorly articulated construct (Wiers-Jenssen et al., 2002). In a study of the evaluation practice at one school of a major Danish university, Leth Andersen and Søndergaard (2006) found that the evaluations appeared to reflect the students' opinion of two issues. First, the teacher's knowledge of the subject of the course, and second of the teachers pedagogical qualifications. Student learning and the quality of the course was not in focus.

Research has also shown that there might be some confusion as to what student evaluations actually measure? Is it the students' perception of the teacher's teaching ability, is it the degree to which the students find the teacher likeable, is it the students' self-perceived learning, or it is a mixture of these phenomena? In a study on the impact of teacher likeability and students' perception of learning on students' evaluation of teaching, Delucchi and Pelowski (2000) found that students who in evaluations gave a high likeability rating to their teachers also gave a high rating of the teachers' overall teaching. However, the high likeability ratings were not associated with students perceiving that they had learned more. Thus it appears that teacher likeability is not linked to the students' own perception of their degree of learning, while on the other hand, students' perceptions of the teachers' teaching abilities are affected – or muddled – by the students' perceptions of the teachers' degree of likeability.

Finally, several authors have argued that the main purpose of student evaluations have shifted towards the administrative monitoring and policy-making (Chen & Hoshower, 2003; Douglas & Douglas, 2006; Penny & Coe, 2004). A shift, which must necessarily make student evaluations less useful with regard to course development. Kember et al. (2013), in a large longitudinal evaluation study spanning 25 departments in the same university over a 4 year period, found no evidence that the use of a standardized evaluations questionnaire eliciting student satisfaction on different dimensions contributed to improvement in the quality of teaching (as perceived by the students), as only four significant changes in the evaluation results, and of these three were declines. They proposed that since the standardized evaluation system in the university was focused on appraisal of teaching staff, this might not have been appropriate to document shifts in innovative forms of teaching. Accordingly, by asking students to rate the teaching (and maybe the teacher) as is done in the many course evaluations in Danish universities through standardised questionnaire-based evaluations, we are effectively employing an over-simplified model of association between the teaching and the fulfilment of course objectives, as depicted in Fig. 1, where a factor such as teacher likeability plays an invisible and unrecognized role in the students' ratings.

1.1. The current study

Having had experience with student evaluations at four different departments within three different schools at three different Danish universities, as well as the evaluations across an

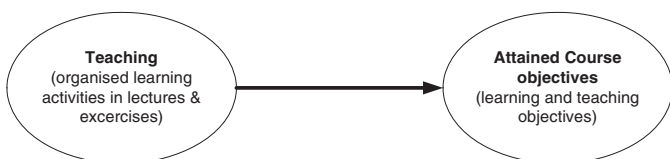


Fig. 1. An Over-simplified Model of the Association between Teaching and Attainment of Course Objectives.

additional entire Danish university, it is the authors' impression that the problems outlined above are the rule rather than the exception (duly noted that other efforts are also being made). For instance, the program in Public Health at the Faculty of Health Sciences at the University of Copenhagen has since the start in 1999 evaluated all courses have been by means of standardised questionnaires. To our knowledge – one of the authors of this paper has been responsible for the statistics courses since 1999 – nothing useful has ever come out of these exercises because (1) evaluations are generally positive, (2) no trend has ever been demonstrated suggesting that the quality of courses has been improving or deteriorating, and (3) no teacher has ever claimed that she has learned anything from them that she could use to develop the course.

Since it had become evident that the usual standardised course evaluations employed in the Master of Public Health Programme would not provide us with information on which to base the further development of the course in Advanced Statistics. Instead other methods for course evaluation, based on more sophisticated models of the association between teaching and fulfilment of course objectives, must be devised if the aim of the evaluation is to obtain knowledge to be used for the purpose of course development. Accordingly, the purpose of this paper is to describe a methodical application of measurement of learning styles during evaluation and development of university courses. We present a framework for such applications and illustrate it with data from a Graduate Course on Statistics for Public Health students.

1.1.1. Evaluation and course development model

Delucchi and Pelowski (2000) recommend that evaluation questions posed to students should be focused on the degree to which teachers and the teaching help them to learn. They also recommend that course evaluation should include assessment of teacher style and elicitation of the students' and the teacher's expectations of teaching and learning and as well as differences and similarities in these expectations. One theoretical framework, which can contain both teacher and student expectations, teacher style and student learning, as well as aspects of the teacher's pedagogical and didactical thinking and planning, is that of mental self-government and learning styles (Boysen & Nielsen, 2009; Nielsen, 2005, 2006a; Sternberg, 1988, 1997).

Within the framework of mental self-government (Sternberg, 1988, 1997), Nielsen and colleagues have adapted the concept of thinking styles into learning styles (Nielsen & Kreiner, 2005, 2011; Nielsen, 2005, 2006a; Nielsen, Kreiner & Styles, 2007). In this Danish adaptation, learning style is defined as a profile of styles describing the individual's preferred ways of thinking in learning situations in a specific context (for details on the single learning styles, see Appendix A). As such, learning style is simply a more concrete concept than thinking style, but with the same core definition. Therefore research on thinking styles as well as learning styles could provide useful information towards the expansion of the model in Fig. 1.

Research on thinking styles and performance has shown that thinking styles are associated with achievement in a number of ways and that this association can be mediated by the task at hand, the teachers' styles, the students' styles and the relationship between the teacher and the students' styles.

Studies have shown thinking styles to be related to academic achievement in various ways (Cano-Garcia & Hughes, 2000; Zhang, 2001a, 2001b, 2002c, 2004, 2007). The reasons for the variations in the relationships between thinking styles and achievement are as yet undisclosed. However, the studies include participants from a variety of cultures, academic disciplines and at various levels of study, and most probably these factors cause the variation.

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