



Validation of a modified version of the Experiences of Teaching and Learning Questionnaire



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ABSTRACT

Providing teaching-learning environments that foster university students' learning is an essential task of higher education. Valid and reliable tools for assessing them are therefore needed. This study investigates the measurement properties of a modified version of the Experiences of Teaching and Learning Questionnaire (ETLQ). Two independent data-sets (N = 1637 and N = 1711) were collected from Finnish university students. Confirmatory factor analyses resulted in a modified measurement model for the ETLQ, consisting of 11 factors. The first three factors assessing the teaching-learning environment – Teaching for Understanding, Disciplinary Understanding and Supportive Teaching – were indicators of a second-order factor labeled Encouraging Learning. The remaining three environment factors were Alignment, Peer Support and Constructive Feedback. Three factors – Deep Approach, Surface Approach and Organized studying – assessed students' approaches to learning. Furthermore, items related to Critical Thinking were added to questionnaire. The measurement properties of the modified ETLQ and the practical implications are discussed.

1. Introduction

Recently in universities, much emphasis has been placed on the importance of powerful teaching-learning environments, that is, teaching practices that can be expected to cultivate and reward students' understanding (McCune & Entwistle, 2011). The effectiveness of mentioned environments has typically been examined via student perceptions with various methods. In many studies, these environments evaluated by students as providing good teaching have been found to be associated with more successful studying in higher education (e.g., Karagiannopoulou & Milienos, 2015; Lizzio, Wilson, & Simons, 2002).

The Experiences of Teaching and Learning Questionnaire (ETLQ) is one of several instruments developed for the purpose of examining students' perceptions of their learning environments (Entwistle, McCune, & Hounsell, 2003). The questionnaire was developed in UK as a part of the research project that sought to identify the elements in teaching-learning environment that supported students to engage in their studies and learning in higher education (Entwistle et al., 2003). The project resulted in longer (consisting of 77 items) and shorter (consisting of 40 items) version of ETLQ. The short version was further modified into the Finnish context, so that it shifted the focus from course level to students' degree program level (Parpala, Lindblom-Ylänne, Komulainen, & Entwistle, 2013). However, some uncertainty

persists as to how the constructs of the ETLQ are measured, as confirmation of measurement properties of the shortened ETLQ has been challenging (Parpala et al., 2013; Stes, De Maeyer, Gijbels, & Van Petegem, 2012).

Furthermore, the various versions of ETLQ include items measuring students' learning processes or student approaches to learning, besides items assessing students' perceptions of teaching-learning environment. In contrast, short or modified versions of ETLQ do not include items measuring learning outcomes, which are included in the long version of ETLQ. However, those items measuring learning outcomes do not specifically cover critical thinking, which is widely agreed to be a key learning outcome in university education (e.g., Moore, 2013; Tremblay, Lalancette, & Roseveare, 2012). The use of critical thinking is difficult for students who are applying to university (Utriainen, Marttunen, Kallio, & Tynjälä, 2017), and learning of critical thinking skills has proved to be challenging for university students (e.g., Arum & Roksa, 2011; Pascarella & Terenzini, 2005). Therefore, it is important that universities monitor how well their learning environments support the development of critical thinking. For these reasons, the present study added measures of critical thinking into the modified version of ETLQ and sought to increase the validity of it by clarifying its measurement model. Additionally, this study aimed take into account the essential learning outcome of university education by adding measures of critical

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thinking into modified version of ETLQ.

1.1. Teaching-learning environments in higher education

In this study, university students' learning is conceptualized through Biggs's (1987) 3P model of learning, comprising the factors *presage*, *process*, and *product*. First, two types of presage factors exist before engagement in learning: personal factors, which include student's prior knowledge and personal characteristics, and situational factors, which consist of institutional features, such as course structures, teaching and assessment practices. The situational presage factors pertain to the teaching-learning environment. Second, the process factors describe the cognitive and metacognitive processes of learning. Of these factors, students' approach to learning is the focus in this study. Third, the product factors measure learning process outcomes. Typical learning outcomes include student's set work and examinations, but also self-assessments such as evaluations of one's thinking skills and self-set goals.

Entwistle et al. (2003) identify four elements in the teaching-learning environment: course contexts, teaching and assessment of contents, relationship between students and staff, and students and their cultures. *Course contexts* include, among others, aims and intended learning outcomes for a specific course (Entwistle et al., 2003). Moreover, the course organization should support goal-oriented knowledge construction in authentic contexts by enabling students to make connections between their previous knowledge and the varying course materials (De Corte, 2000; McCune & Entwistle, 2011). *Teaching and assessment of contents* refer to pedagogical practices that support students' understanding of discipline-specific ways of thinking and reasoning (Entwistle, McCune, & Hounsell, 2002; McCune & Entwistle, 2011). *Relationship between students and staff* describes the affective quality of the relationships between students and teachers, such as the provision of flexible instructional support for both cognitively and affectively diverse learners (De Corte, 2000; Entwistle et al., 2002; McCune, 2009). *Students and their cultures* refers to students' abilities, learning skills and peer group relationships (Entwistle et al., 2002). Learning environments seem to increase student academic engagement and effective learning are often characterized as powerful teaching-learning environments (De Corte, 2000; Entwistle et al., 2002; Entwistle, 2009).

Several studies conducted among university students have found associations between the teaching-learning environment and learning outcomes. For example, students' perceptions of good teaching have shown positive associations with their academic achievement (Karagiannopoulou & Christodoulides, 2005), and learning of generic skills (Kember & Leung, 2009; Pascarella, Wang, Trolan, & Blaich, 2013). Generic skills include attributes such as the ability to think critically and solve problems, communication skills and so forth (Bath, Smith, Stein, & Swann, 2004). Likewise, a supportive relationship with peers and academic staff has proved to have a positive association with university students' academic achievement and progression (Rytkönen, Parpala, Lindblom-Ylänne, Virtanen, & Postareff, 2012).

1.2. Students' approaches to learning and critical thinking

Marton and Säljö (1976) proposed two contrasting levels in the learning process, the surface level, where the student focuses on rote-learning and reproducing the learning material, and the deep-level, where the student focuses on understanding the content and meaning of the material. These two levels have since been re-labeled as student approaches to learning, hence the names *surface* approach and *deep* approach. *Organized effort* has been recognized as a third approach to studying and it is defined as well-organized studying making good use of time and effort (Entwistle, 2009).

Empirical studies have found support for connections between process factors and both the presage and product factors. First, student

approaches to learning have been associated with their perceptions of the learning environment bi-directionally, as students' perceptions of the teaching-learning environment have been found to have an effect on their approaches to learning, and vice versa (Karagiannopoulou & Milienos, 2015; Richardson, 2006). Second, students' approaches to learning are argued to be intertwined with other cognitive skills (Heikkilä & Lonka, 2006). For example, both a deep approach to learning and organized effort are positively associated with university students' learning of generic skills, whereas a surface approach to learning have a negative effect (Kreber, 2003; Rahman & Mokhtar, 2012). Similarly, the adoption of a deep approach has often been associated with higher academic achievement (Karagiannopoulou & Christodoulides, 2005; Trigwell, Ellis, & Han, 2012). However, it has been argued that the associations between student approaches to learning and academic achievement tend to be weak (Richardson, Abraham, & Bond, 2012).

In this study, academic achievement is focused particularly on critical thinking skills. Critical thinking has been argued to consist of three key dimensions, specifically the skill to think rationally and reasonably, the skill to recognize alternative viewpoints, and the readiness to reflect on one's own thoughts and their quality (Flores, Matkin, Burbach, Quinn, & Harding, 2012; Niu, Behar-Horenstein, & Garvan, 2013). To be more specific, skills in applying information and producing explanations for one's reasoning (Facione, 1990; Halonen, 1995), and creativity and innovation (e.g., Binkley et al., 2012), have been seen as important thinking skills in the literature. Therefore, applying theoretical knowledge to practice and developing new ideas were included into the critical thinking skills. Furthermore, argumentation is at the core of critical thinking (Kuhn, 2016), and the ability to produce arguments is regarded as essential in university education across disciplines (Lea & Street, 1998). As argumentation requires students to analyze and evaluate information (Wu, 2006), the operationalization of critical thinking in the present study focuses on the analysis and evaluation of information, arguments and viewpoints (e.g., Cosgrove, 2011; Ennis, 1993), alongside with the development of new ideas. We see the inclusion of these skills in ETLQ as important, as complementing the measures of the product factors in the 3P model.

1.3. The development of the Experiences of Teaching and Learning Questionnaire (ETLQ)

ETLQ was introduced in 2003 (Entwistle et al., 2003), and its recent development contains 40 items measuring students' perceptions of their learning environment (comprising the scales Teaching for Understanding, Alignment, Staff Enthusiasm and Support, Interest and Relevance, Constructive Feedback and Support from Other Students) and 18 items measuring student approaches to studying (comprising the scales Deep Approach, Surface Approach, Intention to Understand and Organized Studying) (Parpala et al., 2013). In their study, Parpala et al. (2013) specified the Intention to Understand scale, which consists of items measuring more specifically students' strategy for understanding learnt material, that is one aspect of the construct deep approach. In addition, the survey has undergone several modifications.

For example, Stes et al. (2012) shortened the ETLQ, after which their measurement model showed acceptable fit to the data. They used items measuring teaching-learning environment and the model included eight scales (consisting of 25 items): Aims and congruence, Teaching for understanding, Set work and feedback, Assessing understanding, Staff enthusiasm and support, Student support, Interest and enjoyment and Student Choice (Stes et al., 2012). However, because they did not report the factor loadings of their measurement model, it was not further examined in this paper. Similarly, Rytkönen et al. (2012) shortened their questionnaire, measuring perceptions of the teaching-learning environment with four scales (consisting of 21 items), namely Relevance and Evoking Interest, Constructive Feedback, Peer Support and Alignment. Student approaches to learning was measured

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