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Ruohoniemi, Mirja

Ruohoniemi, M, Forni, M, Mikkonen, J & Parpala, A 2017, 'Enhancing quality with a research-based student feedback instrument : a comparison of veterinary students' learning experiences in two culturally different European universities', Quality in Higher Education, vol. 23, no. 3, pp. 249-263. https://doi.org/10.1080/13538322.2017.1407401

unspecified

acceptedVersion

Enhancing quality with a research-based student feedback instrument: a comparison of veterinary students' learning experiences in two culturally different European universities

Mirja Ruohoniemi[a], Monica Forni[b], Johanna Mikkonen[c] and Anna Parpala[d]

[a] Department of Equine and Small Animal Medicine, Faculty of Veterinary Medicine, University of Helsinki, Finland;
[b] Department of Veterinary Medical Sciences, University of Bologna, Italy;
[c] Services for Teachers and Students, University of Helsinki, Finland;
[d] Centre for University Teaching and Learning, Faculty of Behavioural Sciences, University of Helsinki, Finland

Corresponding author: mirja.ruohoniemi@helsinki.fi

Abstract

This paper explores the value of a research-based student inventory from the quality assurance point of view in two culturally different European higher education institutions for veterinary education. Perceived heavy workload is a well-known problem in veterinary studies and is a challenge to the quality of learning. First- and third-year students in both institutions responded to an inventory consisting of items regarding their approaches to learning, self-efficacy, study workload and the teaching-learning environment. There were differences in students' approaches to learning and perceived workload between the two institutions. In both contexts, the strongest predictor of the workload turned out to be the surface approach to learning. Self-efficacy showed a positive correlation with the deep approach to learning and organized studying. The strengths of the teaching-learning environment varied between the institutions. Moreover, the present study discusses how the gained information could be used in improving the teaching-learning environment and students' learning.

Introduction

Quality assurance is becoming increasingly important in higher education worldwide. Universities are also forced to monitor students' study progress and promote students' graduation in the expected study timetable. Delays in graduation and student dropouts are coarse indicators of problems in the quality of education but there is a need to recognise problems at an early stage and pay more attention to the quality of students' learning. Student feedback has a major role in educational quality assurance but traditionally this feedback has mainly focused on students' evaluation of teaching and student satisfaction (Leckley & Neill, 2001; Richardson, 2005). At the same time, there is a lot of evidence that students' learning processes are related to how they perceive the academic quality (Lawless & Richardson, 2002; Kreber, 2003; Parpala *et al.*, 2013). In his article, Richardson (2005) also emphasises that many of the feedback systems are not based on empirical evidence. In modern curricula, teaching is expected to be research-based; ideally, more than it currently is, quality enhancement in education could also be based on research rather than satisfaction surveys.

The learning environment in veterinary education has been shown to be demanding; intensity of the programme, content overload and perceived heavy workload are recognised problems in veterinary studies worldwide (Parkinson *et al.*, 2006; Ruohoniemi & Lindblom-Ylänne, 2009; Gardner &

Parkinson, 2011; Siquiera Drake *et al.*, 2012). This is a challenge not only to the quality of individual student's learning, but also to the quality assurance and enhancement of education in a wider sense. In Europe, the European System of Evaluation of Veterinary Training (ESEVT) ensures the quality of veterinary institutions, graduating veterinary surgeons and their education (EAEVE, Standard Operating Procedures). There are agreed benchmarked levels that each curricula and programme must reach. In 2009, the evaluation was separated into two stages. In Stage 1 the evaluation assesses whether the training of undergraduate veterinary education conforms to the directive of the European Parliament and of the Council on the recognition of professional qualification; if so, the institution is granted the status of 'Approval'. The status of 'Accreditation' can be gained in Stage 2, where the evaluation verifies that the institution is following appropriate academic standards and provides learning opportunities of acceptable quality; its quality enhancement mechanisms conform to the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG, 2005 and 2015).

The present study focuses on comparison of students' learning and experiences of their teaching-learning environment in two culturally different, accredited European veterinary institutions. The aim is, further, to investigate what does a research instrument developed for student feedback purposes tell us about students' learning and its academic quality and how can this information be used to enhance quality at the institutions.

Approaches to learning and study workload
Approaches to learning represent the quality of the learning processes and have been shown to be related to students' experiences of the teaching-learning environment, in other words the academic quality of the learning environment (Kreber, 2003; Sadlo & Richardson, 2003; Parpala *et al.*, 2013). The deep approach to learning refers to the student's intention to understand the big picture and underlying meanings and integrate new information to previous knowledge (Entwistle & Ramsden, 1983; Entwistle, 2009). The surface approach to learning means that the student experiences fragmented knowledge and focuses on memorisation. The third approach, organized studying, reflects effort and time management and can be considered more as an approach to studying than learning (Entwistle & McCune, 2004). The deep and surface approaches to learning should not be seen as opposites (Entwistle, 2009) and it must be noted that students may adopt different combinations of approaches to learning according to the context (Parpala *et al.*, 2010).

To apply a deep approach to learning, students should have a workload that is manageable and sufficient time to study and understand the course content (Chambers, 1992). The perceived workload, however, has been found to vary individually. A heavy workload has been found to impede the use of a deep approach to learning and may cause students to employ a surface approach to learning (Kember & Leung, 1998; Ryan *et al.*, 2004; Parkinson *et al.*, 2006). On the other hand, a surface approach to learning may also lead students to feel overloaded (Chambers, 1992; Kember *et al.*, 1996; Kember & Leung, 1998). This can lead to a vicious circle in which, the increase of workload induces a surface approach to learning, which, in turn, induces a further increase in the perception of workload.

Self-efficacy and academic performance
Academic self-efficacy has been shown to correlate with academic performance and students' approaches to learning in several studies (Richardson *et al.*, 2012; Herrmann *et al.*, 2016; Honicke & Broadbent, 2016). When students affirmatively answer the question 'Can I do this task?', they are motivated to select more challenging tasks, perform better and think they can manage in many learning situations (Eccles & Wigfield, 2002). Thus, high self-efficacy beliefs predict achievement and may decrease stress and anxiety because they help students to apply themselves and concentrate (Bandura, 1997; Zimmerman, 2000). Conversely, students with lower personal academic expectations think they are efficacious only with smaller and easier tasks. Low expectations may

lead to task avoidance and fear of failure. Further, fear of failure has been associated with rote learning (Ryan *et al.*, 2004).

These relations were explored in a longitudinal study in which veterinary students were compared according to their study success (Mikkonen & Ruohoniemi, 2011). The most successful students described themselves already at the beginning of the Bachelor's studies with more positive words than the less successful students. These differences were assumed to reflect the students' self-efficacy beliefs; the results showed that these beliefs predicted further achievement. In addition, the most successful students were very effective in their search for new study practices when necessary, whereas less successful students with negative opinions of themselves as learners were not systematic enough in dealing with the high demands and heavy workload.

Comparison of the two contexts
The Faculty of Veterinary Medicine at the University of Helsinki (later referred to as Helsinki in this paper) was the first institution to be accredited according to the ESEVT (EAEVE, 2009). One of the recently accredited institutions is the Department of Veterinary Medical Sciences at the University of Bologna (later called Bologna in this paper), which was praised for its advanced quality assurance (EAEVE, 2014). Moreover, Bologna is the first accredited institution in southern Europe and it is culturally very different from Helsinki, in particular regarding the traditions in teaching and learning methods.

The two institutions share certain similarities as well as differences (EAEVE, 2009; EAEVE, 2014). In both Bologna and Helsinki students have an entrance examination but there is no aptitude test or other assessment of students' motivation or suitability for the profession. In both institutions, the number of retakes of examinations is not limited. Structured teacher training in education and didactics is lacking in Bologna whereas Helsinki has a long tradition of offering pedagogical courses for academic staff.

Bologna has been advised to find strategies to ensure that nearly all students complete their degrees within the average study period (EAEVE, 2014). However, in 2015, 79% of students had their degree registered as *Fuori corso*, in other words students completed their curriculum with one or more years of delay (mean length of study 7.8 years instead of the expected 5 years). Delays in graduation have also been common in Helsinki earlier, but in 2015, the mean length of study was 6.6 years which is close to the expected 6 years).

Curriculum overload was noted in Bologna (EAEVE, 2014) and this has also been a problem in Helsinki (Ruohoniemi & Lindblom-Ylänne, 2009). In Helsinki, curriculum development has been systematic; since the evaluation in 2009, research-based measures have been taken to develop the curriculum (Ruohoniemi *et al.*, 2017). In Italy, the development, monitoring and implementation of degrees is established by law and quality assurance operates through internal assessment of results, aimed to identify strengths and weaknesses and plan for improvement. This activity has been in place since 2007 and was successful in introducing a new approach to the evaluation of teaching by the institution. However, it is still inadequate to make deep changes in the curriculum and reduce students' workload.

HowULearn as a quality tool
During the last decade, the University of Helsinki has created a HowULearn questionnaire with a solid theoretical background for measuring students' perceptions of their teaching-learning environment and the quality of their study processes (Parpala & Lindblom-Ylänne, 2012). HowULearn has its basis in the 'Experiences of Teaching and Learning' research inventory (Entwistle, 2009). The main aim has been to develop a survey that could also act as a base for the university's feedback system and HowULearn has been widely used for evidence-based, quality enhancement purposes across the multidisciplinary University of Helsinki (Parpala *et al.*, 2010;

Ruohoniemi *et al.*, 2010; Haarala-Muhonen *et al.*, 2011; Parpala & Lindblom-Ylänne, 2012; Rytkönen *et al.*, 2012; Parpala *et al.*, 2013; Asikainen *et al.*, 2014). To systematically use the HowULearn questionnaire at the University of Helsinki, an online software programme was developed in 2012. At present, this online software offers personal feedback to students and data to faculties for quality enhancement.

Since 2006, the HowULearn questionnaire has been used at the Faculty of Veterinary Medicine in Helsinki; in 2007, it was included in the faculty's student feedback system. As a part of the students' Bachelor's degree portfolio course it has been obligatory for the first- and third-year students to respond to the questionnaire. Based on their answers, students have received personal feedback on their approaches to learning as well as guidance to enhance their learning skills (Parpala & Lindblom-Ylänne, 2012). Like many other veterinary institutions ~~faculties~~, Helsinki's veterinary programme has been examined for evidence of a heavy workload as that has been one of the main concerns in its curriculum development (Ruohoniemi & Lindblom-Ylänne, 2009); the HowULearn feedback system has revealed valuable information about the relationship between the quality of students' study processes and their perceived workload (Ruohoniemi *et al.*, 2010).

Thus, the use of the research based instrument, focusing on student learning (HowULearn), as a basis of quality assurance has a long history at the University of Helsinki. Since 2007, the University of Bologna has also implemented quality assurance formally in teaching activities and student feedback has been collected since 1997 but the focus in these processes has mainly been on satisfaction surveys rather than student learning processes. At present, there is an overall change in basic assumptions by law in Italian universities regarding the concept of quality and its application in higher education (Murmura *et al.*, 2016).

Aims of the study
The present study aims to demonstrate what kind of information the university could gain by using an inventory related to study processes and especially concerning workload, which is a challenge in the field of veterinary medicine.

The specific aims of the present study were:

1. To evaluate the possible differences in veterinary students' approaches to learning and in their perceptions of the teaching-learning environment, study workload and self-efficacy in two culturally different, accredited European veterinary institutions;
2. To explore which factors in the teaching-learning environment or students' perceptions are related to the perceived workload of studies in the two different contexts.

The comparison was expected to reveal strengths and areas of development in both institutions and provide useful information for student support and quality enhancement.

Material and methods

Design and participants
In the spring 2015, the first- and third-year veterinary students in Helsinki and Bologna completed the HowULearn research inventory (Parpala & Lindblom-Ylänne, 2012). The Finnish version of the HowULearn questionnaire had been translated into English (Parpala *et al.*, 2013) and the English version was translated into Italian by the second author. Two academic scholars in Finland independently verified the accuracy of the Italian translation. Only a few corrections were suggested and all of them were made to the final form.

In Helsinki, responding to the HowULearn questionnaire is part of Bachelor degree students' portfolio course; thus, it is obligatory for the students to respond to the questionnaire. However,

students were asked for permission to use their responses for research purposes. The questionnaire was sent electronically to students and the system offered them not only their own scales but for comparison, the means of the whole cohort and individual feedback based on their approaches to learning. In Bologna, the responses were gathered on paper in association with certain lectures by the second author, who is also responsible for the permission to use the questionnaire. Participation in the study was voluntary and students' responses were anonymous. The ethical issues were carefully considered and the ethical rules of the universities were followed.

In Bologna, 70 (66%) first-year and 42 (44.2%) third-year veterinary students participated in the study. Three students responded but did not indicate their study year; these students' responses were included in the analyses only when calculating the factors for the whole data but were excluded from the comparisons between Bologna and Helsinki. In Helsinki, 51(76%) first-year and 58 (85%) third-year students granted permission to use their responses for research purposes and were included in the study. The number of participants varied slightly between analyses due to some incomplete questionnaires but in general, missing data was rare.

The questionnaire included 12 Likert-scale items indicating students' approaches to learning (more precisely deep, surface and organized studying), 22 Likert-scale items measuring different aspects of quality teaching (for example, constructive feedback, peer support, alignment) and 5 Likert-scale items related to self-efficacy (Table 1). Only the item on workload related directly to studies was included in this study ('The workload of my studies is too great and causes too much study-related stress'). The scale of the items was 1–5; regarding the learning processes and the teaching-learning environment 1 = totally disagree, 5 = totally agree, and regarding the study workload and self-efficacy, 1 = very low, 5 = very high.

Analyses
Factor analyses were first conducted of the two data sets, Bologna and Helsinki, separately and then to the whole sample of first- and third-year students studying in Bologna and Helsinki. The results of the analyses were highly similar; thus, the factor structure that emerged from the whole data was used. The factor analyses of the whole data were done separately for the items measuring approaches to learning, self-efficacy and students' experiences of the teaching-learning environment.

Principal axis factoring with Promax rotation revealed that the factor structure of approaches to learning and self-efficacy beliefs was like the factor structure used in the previous studies using the same instrument (Parpala *et al.*, 2013); thus, the scales used in those previous studies were also used in the present study. However, the factor structure of the items measuring the students' experiences of the teaching-learning environment showed some variation. Only five factors emerged that were labelled as 'Interest and relevance', 'Constructive feedback', 'Staff enthusiasm and support', 'Peer support' and 'Teaching for understanding'. Loadings of the scale 'Alignment', which in the previous studies had been one separate factor (Parpala *et al.*, 2013), divided to the factors 'Interest and relevance' and 'Staff enthusiasm and support' in the present study. This kind of variation is common as these items are more context specific (Parpala *et al.*, 2013; Herrmann *et al.*, 2016).

The reliabilities of altogether nine factors were calculated using Cronbach alphas and were found to be acceptable (Table 1).

[Table 1 about here]

The differences between the scores of the Bologna and Helsinki students in the scales and individual items regarding students' approaches to learning and perceptions of the teaching-learning environment, as well as in study workload and self-efficacy were analysed using a T-test for

independent samples. Pearson's correlation test was used to test the correlations between the scales of the teaching-learning environment, approaches to learning, perceived self-efficacy and workload.

To explore the strongest predictor of perceived workload, the linear regression analysis (forward) was used to examine the interrelations between the perceptions of the teaching-learning environment, approaches to learning, study year and perceived workload in the two contexts. Before conducting the regression analysis, the Pearson correlations between the variables were calculated; only variables with a statistically significant correlation with the perceived workload were selected for the regression analysis. These variables in both contexts were: 'Interest and relevance', 'Constructive feedback', 'Staff enthusiasm and support', 'Surface approach to learning', 'Self-efficacy beliefs' and 'Study year'. Additionally, 'Organized studying' was included in the regression analysis in Bologna and 'Peer support' in Helsinki. These selected variables were treated as dependent variables and perceived workload as independent variable.

Results

Approaches to learning, self-efficacy and perceived study workload in Bologna and Helsinki
Students in Bologna scored statistically significantly higher in the deep approach to learning and organized studying than students in Helsinki (Table 2). Students in both institutions scored relatively low in the surface approach and there was no statistically significant difference between Bologna and Helsinki in this respect.

[Table 2]

Students' perceived workload was significantly higher ($p<0.001$) in Bologna (3.76 ± 1.01) compared to Helsinki (3.00 ± 1.05); the standard deviation was high among students in both institutions. There was no statistically significant difference in students' self-efficacy beliefs between Bologna (3.88 ± 0.58) and Helsinki (3.93 ± 0.71).

In both Bologna and Helsinki, the correlation between the study workload and self-efficacy was negative and statistically significant, and the correlation between the study workload and the surface approach to learning was positive and statistically significant (Tables 3 and 4). There was a positive and statistically significant correlation between self-efficacy and the deep approach to learning and between self-efficacy and organized studying in both Bologna and Helsinki. There was a negative and statistically significant correlation between self-efficacy and the surface approach to learning in Helsinki but this correlation was not statistically significant in Bologna.

[Tables 3 and 4]

In general, the results concerning the quality of the study processes, that is the correlations between approaches to learning, self-efficacy and workload, are in line with previous studies. The fact that students in Bologna scored statistically significantly higher in the deep approach to learning and organized studying than students in Helsinki may suggest that students in Bologna see the deep approach as a more favourable way of learning and this affects their scores as well but they also need to put effort into and be systematic in their studying at the same time. The positive correlations between self-efficacy and the deep approach to learning and between self-efficacy and organized studying in both Bologna and Helsinki follow the research in which self-efficacy has been shown to correlate with high academic performance and help the students to cope and be flexible to the changes in the learning contexts (Mikkonen & Ruohoniemi, 2011; Richardson *et al.*, 2012; Herrmann *et al.*, 2016; Honicke & Broadbent, 2016).

Students' perception of workload correlated with the surface approach which is in line with previous research (Chambers, 1992; Kember *et al.*, 1996; Kember & Leung, 1998; Ryan *et al.*,

2004; Parkinson *et al.*, 2006). In Helsinki, the perceived workload of each study year has been systematically monitored annually for more than ten years; systematic measures have been taken regarding curriculum development and student support (Ruohoniemi & Lindblom-Ylänne, 2009; Ruohoniemi *et al.*, 2010; Ruohoniemi *et al.*, 2017). Thus, it was no surprise that students' perceived workload was significantly greater in Bologna compared to Helsinki. The perception of workload of the same courses has been shown to vary individually (Ruohoniemi *et al.*, 2010) and was shown as a high standard deviation of the mean in the present study.

Interestingly, there was a negative and statistically significant correlation between self-efficacy and the surface approach in Helsinki but no correlation in Bologna. If this difference is not based on the above-mentioned administration of the questionnaire, it may be linked to the differences in the teaching-learning environments of the two universities. The oral exam is the principal, if not only, form utilised in Italy. During the examination sessions, which can last more than one hour, teachers ask questions and usually explain to the students the aspects of their answers that were not correct. In addition, the difference may reflect some cultural differences. This difference might be worth studying further by qualitative methods.

Students' perceptions of the teaching-learning environment in Bologna and Helsinki
Students in Helsinki scored statistically significantly higher on 'Interest and relevance' and 'Teaching for understanding', whereas students in Bologna scored significantly higher on 'Constructive feedback' (Table 5). There was no significant difference between Bologna and Helsinki in 'Peer support' or 'Staff support and enthusiasm'.

[Table 5]

In both Bologna and Helsinki, all correlations between the deep approach to learning and the teaching-learning environment scales were systematically positive and all correlations between the surface approach to learning and the teaching-learning environment scales were systematically negative.

To illuminate the strengths of both institutions, students' responses to the individual items were examined. Comparison at the item level revealed that the strengths of Bologna were related to student-teacher relationship and feedback, whereas those of Helsinki were related to organisation, structure, teaching and learning (See Table 6).

[Table 6]

The comparison revealed strengths and areas of development in both institutions and gave useful information for student support and quality enhancement. The higher scores in 'Interest and relevance' and 'Teaching for understanding' in Helsinki compared to Bologna may indicate that the systematic development of the curriculum and teachers' active participation in pedagogical training plays a role and may also contribute to students' perception of workload. On the contrary, students' perceived lack of constructive feedback has presented a challenge in Helsinki. Teachers feel that they have given students plenty of written feedback, organized feedback sessions and opportunities to ask questions but apparently, there is a mismatch between students' expectations and current practices, indicating a need for further teacher-student dialogue sessions (Perera *et al.*, 2008). The oral examinations in Bologna offer a good benchmark to teachers in Helsinki as they present an opportunity to engage in direct dialogue with students. However, there may also be a need to confirm that teaching in Bologna, including the examinations, directs students towards a deep approach to learning and gives them an opportunity to conduct organized study. The staff-student relationships in Bologna turned out to be strong but they are mainly based on the personal attitudes and traditions and are not explicitly built into the culture.

Strongest predictors of perceived workload in the two contexts

The regression analysis revealed that in the Bologna data the variables that were related to the perceived workload were the surface approach to learning ($\beta = .34$, $p < .001$); organized studying ($\beta = ,24$, $p < .01$); staff support ($\beta = -.21$, $p < .05$); self-efficacy beliefs ($\beta = -.20$, $p < .05$) and study year ($\beta = .18$, $p < .05$) ($F(5,106) = 11.350$, $p < .001$) with an R^2 of .35. In the Helsinki context the variables that were the strongest predictors of the perceived workload were the surface approach to learning ($\beta = .38$, $p<0.001$) and Staff support ($\beta = -.0.27$, $p < .01$) ($F(2,104) = 20.566$, $p < .001$), with an R^2 of .28.

In both institutions, the surface approach to learning and perceived lack of staff support were strong predictors of the perceived workload. Additionally, in the Bologna data there were also other predictors such as organized studying, low self-efficacy beliefs and higher study year. The third-year students entering the lectures in Bologna were more likely to be the highly performing ones that were able to follow the study programme. In Italy, the preparatory examinations are mandatory for sitting a professional examination but not for following the class. Bologna students can choose the best moment to take each examination and are free to wait until they feel themselves to be ready. This, even in presence of good self-efficacy, requires a good ability to organise study time. Additionally, Bologna students have a full schedule with a very limited number of personal choices and limited activities based on self-directed study. This makes it difficult for the students to study in the way they would prefer.

Summary and future implications

The present article clearly demonstrates that the use of a research-based instrument developed for student feedback purposes gives in-depth information for institutions. The benefit of using HowULearn is described in the light of two different cultures and the perspectives can be utilised in various institutions and contexts. Students' perceptions of the teaching-learning environment are slanted by their approaches to learning. Thus, in order to enhance the quality of education, the quality of students' learning needs to be taken seriously and development should not be based on satisfaction surveys only.

The HowULearn questionnaire was found to be applicable not only in the Finnish but also in the Italian context. Inevitably, including students' perceptions on factors affecting their learning into the student feedback system also in Bologna would be beneficial. Curriculum overload has been identified to be a problem in veterinary curricula and thus, the perceived workload of students is worth monitoring, as it is may not be equal to the measured actual workload (Kember & Leung, 1998). It would be beneficial to explicitly make students aware of their approaches to learning and to support the development of their study practices using systems like HowULearn and systematic pedagogical training for teachers. This may necessitate a cultural change in organisation and structure, which is a longer process.

In order to close the feedback loop, it is important to make reflection explicit in the feedback system, both at the level of the student and the institution (Biggs, 2001; Watson, 2003; Quinton & Smallbone, 2010). At present, the HowULearn online software used in Helsinki offers data to faculties for quality enhancement and personal feedback to students. The group-level information is useful as such for educational planning committees in the development of teaching and curriculum. However, assignments that engage students in reflection may be needed to help them to get full benefit of their personal feedback to improve studying and learning.

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Table 1: The construction of the factors and their reliabilities for first- and third-year veterinary students in Bologna and Helsinki

	Cronbach's alpha
Approaches to learning:	
Deep approach to learning (4 items)	0.75
Surface approach to learning (4 items)	0.68
Organized studying (4 items)	0.72
Self-efficacy beliefs (5 items)	0.86
Perceptions of the teaching-learning environment:	
Interest and relevance (5 items)	0.76
Constructive feedback (3 items)	0.75
Staff enthusiasm and support (5 items)	0.69
Peer support (3 items)	0.70
Teaching for understanding (4 items)	0.75

Table 2: First- and third-year students' approaches to learning in Bologna and Helsinki (mean ± standard deviation)

Approach to learning	Bologna (n=112)	Helsinki (n=109)
Deep*	3.66 ± 0.66	3.44 ± 0.64
Surface	2.76 ± 0.79	2.75 ± 0.67
Organized**	3.66 ± 0.73	3.39 ± 0.72

*p<0.05, **p<0.01

Table 3: Correlations between the approaches to learning, self-efficacy and study workload of the first- and third-year students in Bologna

	Deep	Surface	Organized	Study workload	Self-efficacy
Deep	1.000				
Surface	-.166	1.000			
Organized	.434***	-.105	1.000		
Study Workload	-.124	.416***	.162	1.000	
Self-efficacy	.382***	-.024	.215*	-.201*	1.000

*p<0.05, **p<0.01, ***p<0.001

Table 4. Correlations between the approaches to learning, self-efficacy and study workload of the first- and third-year students in Helsinki

	Deep	Surface	Organized	Study workload	Self-efficacy
Deep	1.000				
Surface	-.327**	1.000			
Organized	.147	-.289**	1.000		
Study workload	-.184	.464***	.122	1.000	
Self-efficacy	.324**	-.603***	.355***	-.268**	1.000

*p<0.05, **p<0.01, ***p<0.001

Table 5: First- and third-year students' perceptions of their teaching-learning environment in Bologna and Helsinki (mean ± standard deviation)

Factor	Bologna	Helsinki
Interest and relevance**	3.83 ± 0.54	4.04 ± 0.56
Constructive feedback**	3.65 ± 0.74	3.29 ± 0.77
Staff support and enthusiasm	3.69 ± 0.54	3.64 ± 0.55
Peer support	4.17 ± 0.66	4.31 ± 0.70
Teaching for understanding**	3.71 ± 0.59	3.93 ± 0.61

**p<0.01

Table 6: Strengths of the teaching-learning environment in Bologna and Helsinki (items scored statistically significantly higher by the students of the institution)

Strengths of Bologna	*Strengths of Helsinki*
Staff are patient in explaining things that seemed difficult to grasp. (Item 12) **	It is clear to me what we are expected to learn. (Item 1) *
I enjoyed participating in courses. (Item 13) *	We are allowed some choice over what aspects of the subject to concentrate on in courses. (Item 2) ***
I receive enough feedback about my learning. (Item 17) ***	I can see the relevance of most of what we are taught. (Item 4) ***
The feedback given on my work helps me to improve my ways of learning and studying. (Item 20) **	The teaching helps me to think about the evidence underpinning different views. (Item 6) ***
The feedback given on my set work helps to clarify things I hadn't fully understood. (Item 22) ***	Teaching encourages me to relate what I learned to issues in a wider context. (Item 7) *
	I found most of what I learned in courses really interesting. (Item 9) ***

*p<0.05, **p<0.01, ***p<0.001