

Transitioning from bachelor's to master's studies – examining study burnout, approaches to learning and experiences of the learning environment

Bachelor's to
master's
studies
transitioning

1

Received 4 July 2023
Revised 17 November 2023
6 March 2024
Accepted 10 March 2024

Amanda Sjöblom and Mikko Inkinen

Aalto University, Espoo, Finland, and

Katariina Salmela-Aro and Anna Parpala

University of Helsinki, Helsinki, Finland

Abstract

Purpose – Transitions to and within university studies can be associated with heightened distress in students. This study focusses on the less studied transition from a bachelor's to a master's degree. During a master's degree, study requirements and autonomy increase compared to bachelor's studies. The present study examines how students' experiences of study-related burnout, their approaches to learning and their experiences of the teaching and learning environment (TLE) change during this transition. Moreover, the study examines how approaches to learning and the TLE can affect study-related burnout.

Design/methodology/approach – Questionnaire data were collected from 335 university students across two timepoints (bachelor's degree graduation and the second term of their master's degree).

Findings – The results show that students' overall experience of study-related burnout increases, as does their unreflective learning, characterised by struggling with a fragmented knowledge base. Interestingly, students' experiences of the TLE seem to have an effect on study-related burnout in both master's and bachelor's degree programmes, irrespective of learning approaches. These effects are also dependent on the degree of context.

Originality/value – The study implies that students' experiences of study-related burnout could be mitigated by developing TLE factors during both bachelor's and master's degree programmes. Practical implications are considered for degree programme development, higher education learning environments and student support.

Keywords Study-related burnout, Degree transitions, Teaching and learning environment, Approaches to learning

Paper type Research paper

1. Introduction

Navigating the transitions associated with university studies can be challenging and can impact students' well-being and university experiences (Cage *et al.*, 2021). The transition processes can also affect student retention (Chester *et al.*, 2013). Most of the university transition research appears to have focussed on the transition to university and the first-year experience, although transition-related experiences have also been associated with increased stress in transitions during the degree and in the transition out of university (Cage *et al.*, 2021).

© Amanda Sjöblom, Mikko Inkinen, Katariina Salmela-Aro and Anna Parpala. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Professor Katariina Salmela-Aro's work is funded by the Research Council of Finland (No: 336138). The authors declare no competing interests.



Journal of Applied Research in
Higher Education
Vol. 17 No. 7, 2025
pp. 1-15
Emerald Publishing Limited
2050-7003
DOI 10.1108/JARHE-07-2023-0275

Some studies have identified the entire university path as a potential source of heightened distress (Bewick *et al.*, 2010). Moreover, although the transition from bachelor's to master's degree has become a common degree model in Europe, it is still rather unscrutinised (Hovdhaugen and Ulriksen, 2023).

The education environment and changes within it influence students' well-being in many ways (Hagenauer *et al.*, 2018). One example of these changes is the transition from a bachelor's degree to a master's degree: Requirements are likely to change, along with teaching formats, course structures, students' and teachers' expectations regarding necessary skills and independent learning, as well as changes in peer groups and teaching staff. In particular, the transition from a bachelor's to a master's degree is associated with increased autonomy and increased requirements in assessments (Tuononen and Parpala, 2021) and might require changes in the teaching and learning environment (TLE) and institution (Hovdhaugen and Ulriksen, 2023). Master's degrees often emphasise the role of formulating new knowledge in addition to consolidating existing knowledge, which plays a greater role during the bachelor's degree. The change in the study context necessitates an understanding of the students' experiences and how they change, in order to provide appropriate support and guidance. The same knowledge can also be applied to understanding how degree programmes can be improved. In the Finnish context in particular, most students entering a bachelor's degree programme also gain a master's degree, applying directly for both degrees (Ahola and Mesikämmen, 2003).

Student experience when entering a master's degree programme is affected by teaching methods, educational culture, degree type, curricula and peer relations (e.g. Figuera Gazo *et al.*, 2020; Filak and Nicolini, 2018; Silva *et al.*, 2019; Tinto, 2017; Cassuto, 2015; Rienties *et al.*, 2014). Transitions and retention in studying have been examined from many perspectives, such as in relation to student background variables (Meehan and Howells, 2019; O'Keeffe, 2013), socio-economic status (O'Keeffe, 2013) and motivation (Thomsen, 2022). However, learning processes for example, which are strongly related to motivation (Prat-Sala and Redford, 2010), have not been emphasised in studies concerning transitions. In general, most findings seem to focus on the beginning of the master's degree, with little evidence examining the transition from a bachelor's to a master's and how it relates to study-related burnout, learning processes and the education experience. It is important to study these associations in the transition phase as previous research shows that learning processes are strongly related to students' experiences of the learning environment (Herrmann *et al.*, 2017; Parpala *et al.*, 2013; Richardson and Price, 2003) and to study-related well-being (Asikainen *et al.*, 2020). Students' approaches to learning have also been shown to be strongly related to their self-efficacy beliefs: their own assessment of their ability performs successfully (Coutinho and Neuman, 2008; Papinczak *et al.*, 2008; Prat-Sala and Redford, 2010). These results indicate that students' ability to study and learn is a crucial component affecting experiences of the learning environment and study-related well-being. In order to provide appropriate support and guidance and develop study paths and degree structures that support student retention and success, more research on student learning processes, their study-related well-being and experiences of the learning environment should be conducted.

The key aim of this study is thus to examine students' experiences during the bachelor's to master's transition, focussing on the interplay between the education environment, individual learning processes, such as approaches to learning, students' experiences of the TLE and study-related well-being. The overarching goal is to identify factors in the TLE that can be influenced to support student well-being. A comprehensive understanding of the approaches to learning, experienced TLE and study-related well-being is important for understanding the context in which we need to support university students' learning processes and well-being during the programme and different course levels. In order to better understand the impact of the transition from a bachelor's degree to a master's degree, we will examine the changes across two timepoints.

1.1 Study-related burnout in students in higher education

Burnout in the university context has been defined through three components: study-related exhaustion, cynicism and inadequacy as a student (Salmela-Aro *et al.*, 2009; Salmela-Aro and Kunttu, 2010; Schaufeli *et al.*, 2001). Study-related exhaustion refers to feelings of being burdened or exhausted due to an overtaxing study load; cynicism to a lack of interest and meaning; and inadequacy as a student to feelings of incompetence and poor achievement in studying (Salmela-Aro *et al.*, 2009). All of these aspects affect students' engagement in and dedication to their studies (Salmela-Aro and Upadyaya, 2017).

Study burnout can lead to depressive symptoms and increase the risk of dropping out (Bask and Salmela-Aro, 2013; Salmela-Aro and Upadyaya, 2014; Upadyaya and Salmela-Aro, 2015). It is multi-dimensional, consisting of behavioural, affective and cognitive components (Fredricks *et al.*, 2016; Salmela-Aro *et al.*, 2009; Upadyaya and Salmela-Aro, 2013), involving dynamic and reciprocal processes that influence and are influenced by the study environment (Wang and Degol, 2014). The study environment provides the potential conditions for burnout to occur and approaches to learning and experiences of the TLE can determine how students respond to those conditions. Study burnout has been found to increase during university studies, whereas study engagement has been found to gradually decrease (Salmela-Aro and Read, 2017). Understanding the opportunities and resources that support students' engagement and prevent stress and burnout has become a priority for educational policy and practice (Wang and Eccles, 2012). Similar results have shown that the changing and increasing demands in degree studies, and how students perceive them, are associated with study-related burnout and engagement (Alacron *et al.*, 2011). Moreover, motivational aspects have also been linked to study-related burnout, with external regulation and amotivation associated with more experiences of study-related burnout (Pisarik, 2009). Motivation is also closely associated with learning processes, such as approaches to learning (Prat-Sala and Redford, 2012), with both influencing the risk of study-related burnout (Asikainen *et al.*, 2020). Changing requirements for learning during the degree transition may also be reflected in students' approaches to learning and their motivations.

1.2 Approaches to learning, self-efficacy and experiences of the TLE

Studies have generally recognised three approaches to learning, referring to students' intentions concerning their studies and learning as well as their learning processes: a deep approach, a surface or unreflective approach and organised studying (e.g. Asikainen and Gijbels, 2017; Biggs, 2001; Entwistle, 2003; Entwistle, 2009). Students using a deep approach analyse information by focussing on underlying meanings and integrating new information with previous knowledge. When using a surface approach, students often struggle with a fragmented knowledge base, where information appears unrelated (Entwistle, 2009). Thus, it is suggested that the surface approach should be labelled unreflective, as a recent study shows that at its core, the surface approach consists of unreflective studying rather than memorisation and repetition of knowledge (Lindblom-Ylänne *et al.*, 2019), which also relates to study-related burnout (Asikainen *et al.*, 2020). Organised studying refers to students' everyday practices of managing and organising their studies and time (Entwistle and McCune, 2004). It is possible for a student to use a deep approach and an unreflective approach simultaneously, as person-oriented methods have shown that students may use both unreflective and deep approaches to learning either together or in a stepwise process (Fryer and Vermunt, 2018; Parpala *et al.*, 2021). There is also evidence that organised studying is more stable across courses than the deep and unreflective approaches (Postareff *et al.*, 2018), and hence, it may not change during the transition phase. Previous evidence has suggested that the approach to learning adopted by the student is influenced by students' self-efficacy beliefs (Coutinho and Neuman, 2008; Papinczak *et al.*, 2008; Prat-Sala and

Redford, 2010): a stronger self-efficacy, i.e. a perception of one's own ability to achieved the desired outcome is associated adopting a deep approach to learning. Self-efficacy has been shown to have an important predictive effect on students' learning and motivation (van Dinther *et al.*, 2011).

The approaches to learning operate in relation to students' experiences of the TLE (Herrmann *et al.*, 2017; Parpala *et al.*, 2013; Richardson and Price, 2003). The TLE refers to the pedagogical, social and psychological context in which learning takes place. More positive perceptions of the TLE are associated with better learning and stronger self-efficacy (Entwistle *et al.*, 2003). The TLE can be defined as students' experiences of the different elements of the TLE, such as interest in and relevance of the content, constructive feedback received during the teaching, peer support and alignment of aims and teaching methods (Entwistle *et al.*, 2003; Herrmann *et al.*, 2017). Previous research has shown that students using a deep approach tend to evaluate these elements more positively than students using an unreflective approach (e.g. Kreber, 2003; Postareff *et al.*, 2018; Richardson, 2005), as well as their self-efficacy beliefs (Coutinho and Neuman, 2008; Papinczak *et al.*, 2008; Prat-Sala and Redford, 2010).

1.3 Research aims

The present study aims to examine whether experiences of the TLE are associated with study-related burnout, whilst also considering different learning approaches and self-efficacy. Specifically, we explore whether the educational context (in this case, degree level) affects the association, with the objective of providing better support for students during the transition between degrees. The goal is to find actionable aspects of university studying and learning that could be affected by pedagogical, organisational and community interventions and changes to improve the study experiences of university students in the degree transition phase and lessen their experiences of study-related burnout. Two research questions were formulated for this purpose.

- RQ1. What changes occur in students' study-related burnout, approaches to learning, self-efficacy and experiences of the TLE when they transition from bachelor's to master's studies?
- RQ2. How are experiences of the TLE associated with study-related burnout independently of learning approaches and self-efficacy? How do the effects differ in the different educational phases when students transition from a bachelor's degree to a master's degree?

2. Methods

2.1 Participants

Data were collated from 335 university students in Finland (159 women and 177 men), who participated in both the national bachelor's degree survey in 2018–2019 and the master's degree survey in 2020. Of the participants, 33 were studying arts, 88 business, 53 sciences and 126 engineering. Data were only used from students who consented to their data being combined and used for research. The university's Research Ethics Committee approved the use of these data for this purpose.

2.2 Materials and procedure

Study-related burnout was measured with the Student Burnout Inventory (SBI-9), which was developed for measuring study-related burnout in the university context

(Salmela-Aro *et al.*, 2009; Salmela-Aro, 2009; Salmela-Aro and Read, 2017), using nine questions (e.g. “I feel overwhelmed by my study work”).

Approaches to learning and experiences of the TLE were measured with the HowULearn questionnaire, developed to examine and enhance the interaction between students’ learning and their experiences of the TLE (Parpala and Lindblom-Ylänne, 2012). Items measuring approaches to learning were developed and adapted from two questionnaires: the Approaches to Learning and Studying Inventory (ALSI) (Entwistle and McCune, 2004) and the Revised Learning Process Questionnaire (R-LPQ9; Kember *et al.*, 2004). The TLE items in HowULearn were developed and adapted from the Experiences of the Teaching Learning Questionnaire (ETLQ) (Entwistle *et al.*, 2003; Parpala *et al.*, 2013).

Students’ approaches to learning were measured with three scales in the HowULearn questionnaire: four questions on a deep approach to learning (e.g. “I look at evidence carefully to reach my own conclusions about what I’m studying”), four questions on an unreflective approach (e.g. “Much of what I have learned seems nothing more than unrelated bits and pieces”), four questions on organised studying (e.g. “I am generally systematic and organised in my studies”) and five questions on self-efficacy (e.g. “I am certain I can learn the skills required in my field”).

Students’ experiences of the TLE were measured in the HowULearn inventory on three scales: four questions on interest and relevance (e.g. “I can see the relevance of most of what we are taught”), four questions on alignment of aims and teaching methods (e.g. “It has been clear to me what I am supposed to learn on the courses”), three questions on constructive feedback (e.g. “The feedback I received from teachers has helped me with my studies”) and three questions on peer support (e.g. “Discussion with fellow students has helped me to understand things better”). The HowULearn questionnaire has proved to be a robust instrument in a range of contexts (e.g. Herrmann *et al.*, 2017; Parpala *et al.*, 2021; Postareff *et al.*, 2018). We have provided additional confirmatory factor analyses in Appendix, specific to our sample, which are in line with previous work validating these factors (e.g. Herrmann *et al.*, 2017; Parpala and Lindblom-Ylänne, 2012; Postareff *et al.*, 2018), although our samples are too small for independent confirmation.

Diverging from the original HowULearn questionnaire format, responses to the national bachelor’s feedback survey were collected on a scale from 1 to 5 (1 = cannot answer/neither agree nor disagree, 2 = totally disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = totally agree), but students were encouraged to avoid choosing the “cannot answer” option in the instructions. Responses to the master’s survey were collected on a 4-point Likert scale (4 = disagree, 3 = somewhat disagree, 2 = somewhat agree, 1 = agree). Due to the unusual structure of the bachelor’s feedback scale and the discrepancy between the two scales, originating from different survey organisers (national feedback survey for the bachelor’s timepoint and an internal well-being survey for the master’s timepoint), we opted to remove the responses from the bachelor’s feedback that contained the value “1”. They were also converted to the same scale for the analyses, so that the higher end of the scale indicated agreement.

The data used for this study were collected in 2018–2019 at the end of the bachelor’s time period and during spring 2020 (before the pandemic and the changes to teaching that resulted from it) for the master’s time period. The questionnaire was collected as a part of the Finnish Bachelor’s Graduate Survey (<https://kandipalaute.fi/en>) and as a part of the university’s internal well-being questionnaire for the master’s timepoint. The longer collection period for the bachelor’s feedback is due to the less-rigid graduation times common to Finnish university degrees.

2.3 Analyses

One-way ANOVAs were applied to investigate changes in burnout components, learning approaches and the TLE from bachelor’s degree to master’s degree.

To examine whether TLE factors can predict components of study-related burnout, hierarchical regressions were applied in four steps, separately for the bachelor's degree and master's degree timepoint. Step 0, the null model, contained only the intercept. Step 1 included the other burnout components, which were included in the model to account for their potential effects before investigating whether the factors of interest, such as approaches to learning or the TLE, affect each aspect of burnout, as the components of burnout are highly related, to avoid over-assigning effects onto the dependent variables that could be due to the other burnout components. Step 2 added learning approaches (deep approach, organised studying, unreflective learning and self-efficacy) to the model, whilst step 3 added the TLE factors (alignment, constructive feedback, interest and relevance and peer support).

3. Results

3.1 Overall changes in burnout risk, learning approaches and TLE

The first research questions examined changes in burnout, learning approaches and experience of the TLE associated with the bachelor's to master's degree transition. Results indicated significantly increased study-related burnout risk in all components and also in the unreflective approach and organised studying. A significant decrease was observed in experience of feedback and peer support, detailed in [Table 1](#). These results supported the hypothesis that an increase in study-related burnout would be associated with the degree transition. However, out of the experienced TLE, only constructive feedback and peer support were significantly reduced.

3.2 Examining the risk of study-related burnout in relation to the TLE and approaches to learning in the educational contexts of a bachelor's degree and a master's degree

The second research question focussed on how experiences of the TLE are associated with study-related burnout and whether that association depends on the educational phase. This was examined separately for each component of study-related burnout.

3.2.1 Exhaustion. When predicting exhaustion during the bachelor's degree, step 1, the simple burnout model, was a significant improvement compared to the null model; $F(2, 313) = 83.32, p < 0.001$. Step 2 added the learning approach factors to the model and improved the model further; $F(4, 309) = 7.70, p < 0.001$, but the addition of the TLE factors in step 3 did not further improve the model; $F(4, 305) = 1.32, p = 0.264$. Higher exhaustion was primarily associated with higher inadequacy, organised studying and unreflective learning. This result indicates that at the end of the bachelor's degree, before the transition to a master's degree, students with higher organised studying and unreflective learning were likely to experience more exhaustion and that these approaches to learning were associated with exhaustion even after accounting for other aspects of study-related burnout.

When predicting exhaustion during the master's degree, the step 1 model improved the model significantly compared to the null model; $F(2, 313) = 102.66, p < 0.001$. The step 2 model also further improved the model; $F(4, 309) = 10.53, p < 0.001$. Unlike the bachelor's degree results, step 3 also further improved the model here; $F(4, 305) = 3.81, p = 0.005$. Higher exhaustion was again related to higher inadequacy and unreflective learning, as well as to higher deep approach and lower alignment and peer support. This result indicates that after the transition to a master's degree, both approaches to learning and the TLE influenced exhaustion after accounting for other elements of study-related burnout. In particular, poorer experiences of the TLE were associated with a higher risk of exhaustion.

See [Table 2](#) for the regression statistics.

3.2.2 Cynicism. The step 1 model was significantly better than the null model when predicting cynicism during a bachelor's degree; $F(2, 315) = 85.29, p < 0.001$. The addition of

		Bachelor's degree (SD)	Master's degree (SD)	Difference, significance	Change
Student Burnout Inventory	Burnout risk (exhaustion)	2 (0.71)	2.36 (0.77)	0.36 $F(316) = 86.22, p < 0.001, \eta^2 = 0.054$	↗↗
	Burnout risk (cynicism)	1.56 (0.72)	1.89 (0.83)	0.33 $F(316) = 60.05, p < 0.001, \eta^2 = 0.043$	↗↗
	Burnout risk (inadequacy)	2.05 (0.88)	2.41 (0.91)	0.36 $F(316) = 53.45, p < 0.001, \eta^2 = 0.038$	↗↗
Approaches to learning	Self-efficacy	3.49 (0.52)	3.5 (0.51)	0.01 $F(317) = 0.17, p = 0.677, \eta^2 < 0.001$	ns.
	Unreflective approach	1.99 (0.62)	2.37 (0.65)	0.38 $F(316) = 132.73, p < 0.001, \eta^2 = 0.091$	↗↗
	Deep approach	3.21 (0.5)	3.32 (0.49)	0.11 $F(317) = 2.96, p = 0.086, \eta^2 = 0.002$	ns.
	Organised studying	2.9 (0.69)	3.14 (0.61)	0.23 $F(317) = 24.57, p < 0.001, \eta^2 = 0.013$	↗
Teaching and learning environment	Alignment	3.06 (0.54)	3.12 (0.56)	0.05 $F(317) = 0.48, p = 0.491, \eta^2 < 0.001$	ns.
	Interest and relevance	3.14 (0.59)	3.15 (0.61)	0.01 $F(317) = 0.32, p = 0.571, \eta^2 < 0.001$	ns.
	Feedback	2.88 (0.61)	2.68 (0.62)	-0.2 $F(317) = 4.97, p = 0.026, \eta^2 = 0.004$	↘
	Peer support	3.55 (0.56)	3.5 (0.58)	-0.05 $F(317) = 5.68, p = 0.018, \eta^2 = 0.003$	↘

Note(s): The difference between the time points, with direction of change (increase or decrease) and its nature (positive change in green, negative in red) indicated by the arrows for statistically significant differences. A single arrow is used to indicate smaller changes (< 0.25) and two arrows to indicate a larger change (> 0.25)

Source(s): Authors' own work

Table 1.
Burnout risk,
approaches to learning
and TLE during
bachelor's degree and
master's degree for the
whole sample

the learning approach factors in step 2 improved the model further; $F(4,309) = 2.67, p = 0.033$. In step 3, TLE factors were added to the model, again improving it further; $F(4,305) = 9.06, p < 0.001$. Higher cynicism was associated with higher inadequacy and lower interest. At the end of the bachelor's degree, risk of cynicism is linked to poorer experiences of the TLE, particularly interest and relevance, after accounting for other components of study-related burnout.

Similarly, when predicting cynicism during the master's degree, each step significantly improved the model beyond the previous step: step 1; $F(2,313) = 106.88, p < 0.001$, step 2; $F(4,309) = 8.79, p < 0.001$, step 3; $F(4,305) = 15.2, p < 0.001$. Similarly to the bachelor's timepoint, higher cynicism was associated with higher inadequacy and lower interest. The association between cynicism and the interest and relevance aspect of the TLE was maintained across the degree transition.

See Table 3 for regression statistics.

3.2.3 Inadequacy. Predicting feelings of inadequacy during the bachelor's degree, the step 1 model was significantly better than the null model; $F(2,313) = 157.92, p < 0.001$. The step 2

Variable	Bachelor's degree					Master's degree				
	β	SE	t	R^2	R^2_{adj}	β	SE	t	R^2	R^2_{adj}
Step 0										
intercept	1.99	0.04	49.83***			2.35	0.04	54.06***		
Step 1				0.33	0.32				0.36	0.36
intercept	1.01	0.09	11.14***			1.09	0.1	10.55***	1.45	
Cynicism	0.06	0.06	1.14			0.08	0.05	9.88***		
Inadequacy	0.43	0.05	9.48***			0.47	0.05			
Step 2				0.39	0.38				0.44	0.42
intercept	0.04	0.36	0.12			-0.07	0.45	-0.15		
Cynicism	0.08	0.05	1.49			0.08	0.05	1.46		
Inadequacy	0.39	0.05	8.02***			0.37	0.05	7.31***		
Organised studying	0.26	0.06	4.2***			0.1	0.06	1.54		
Deep approach	0.05	0.08	0.69			0.3	0.08	4.04***		
Unreflective learning	0.16	0.06	2.5*			0.25	0.06	3.96***		
Self-efficacy	-0.06	0.08	-0.77			-0.15	0.08	-1.61		
Step 3				0.40	0.38				0.46	0.45
intercept	0.42	0.41	1.03			0.65	0.49	1.34		
Cynicism	0.07	0.06	1.14			0.06	0.06	1.11		
Inadequacy	0.38	0.05	7.78***			0.36	0.05	7.32***		
Organised studying	0.25	0.06	4.04***			0.1	0.06	1.61		
Deep approach	0.09	0.08	1.12			0.29	0.08	3.73***		
Unreflective learning	0.16	0.06	2.5*			0.24	0.06	3.82***		
Self-efficacy	-0.04	0.08	-0.51			-0.1	0.09	-1.12		
Alignment	-0.04	0.08	-0.52			-0.18	0.08	-2.38*		
Feedback	-0.01	0.07	-0.14			0.05	0.07	0.73		
Interest	0.02	0.08	0.28			0.08	0.08	0.98		
Peer support	-0.13	0.06	-2.1*			-0.18	0.06	-2.9**		

Table 2. Hierarchical regressions predicting exhaustion, separately for bachelor's degree and master's degree

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Source(s): Authors' own work

model, with the added learning approach factors, improved the model further; $F(4,309) = 9.99$, $p < 0.001$. The addition of the TLE factors did not further improve the model; $F(4,305) = 1.18$, $p = 0.319$. Higher inadequacy was related to higher exhaustion, cynicism and unreflective learning, as well as lower self-efficacy. At the end of the bachelor's degree, approaches to learning affected feelings of inadequacy after accounting for the other components of study-related burnout. In particular, students with an unreflective approach to learning and lower self-efficacy experienced more feelings of inadequacy.

Similarly, when predicting feelings of inadequacy during the master's degree, step 1 provided significant improvement; $F(2,313) = 175.01$, $p < 0.001$, as did step 2; $F(4,309) = 11.01$, $p < 0.001$. Step 3 did not further improve the model; $F(4,305) = 0.44$, $p = 0.783$. Again, higher inadequacy was associated with higher exhaustion, cynicism, unreflective learning and lower self-efficacy, but also with lower organised studying. The association between feelings of inadequacy and approaches to learning, particularly an unreflective approach and self-efficacy, was maintained across the degree transition, but during the master's degree, lower organised studying also influenced feelings of inadequacy after accounting for the other components of study-related burnout.

See Table 4 for regression statistics.

Variable	Bachelor's degree				Master's degree					
	β	SE	<i>t</i>	R^2	R^2_{adj}	β	SE	<i>t</i>	R^2	R^2_{adj}
Step 0										
intercept	1.56	0.04	38.61***			1.89	0.05	40.33***		
Step 1				0.33	0.32				0.35	0.34
intercept	0.54	0.1	5.18***			0.5	0.13	3.94***		
Exhaustion	0.06	0.06	1.14			0.09	0.06	1.45		
Inadequacy	0.43	0.05	9.43***			0.49	0.05	9.43***		
Step 2				0.35	0.33				0.4	0.39
intercept	1.26	0.37	3.43***			2.52	0.47	5.34***		
Exhaustion	0.09	0.06	1.49			0.09	0.06	1.46		
Inadequacy	0.37	0.05	7.37***			0.35	0.06	6.12***		
Organised studying	-0.12	0.06	-1.91			-0.12	0.07	-1.77		
Deep approach	-0.01	0.08	-0.04			-0.11	0.09	-1.26		
Unreflective learning	0.05	0.07	-1.21			0.05	0.07	0.75		
Self-efficacy	-0.1	0.08	-1.21			-0.3	0.1	-3.08**		
Step 3				0.42	0.4				0.5	0.49
intercept	1.85	0.39	4.75***			2.89	0.47	6.09***		
Exhaustion	0.06	0.06	1.14			0.07	0.06	1.11		
Inadequacy	0.36	0.05	7.36***			0.31	0.05	5.79***		
Organised studying	-0.04	0.06	-0.65			-0.04	0.07	-0.56		
Deep approach	0.15	0.08	1.81			0.1	0.08	1.17		
Unreflective learning	-0.01	0.06	-0.09			0.06	0.07	0.89		
Self-efficacy	-0.07	0.08	-0.84			-0.09	0.09	-0.99		
Alignment	0.12	0.08	1.57			0.1	0.08	1.22		
Feedback	-0.04	0.06	-0.59			-0.11	0.07	-1.54		
Interest	-0.39	0.07	-5.16***			-0.51	0.08	-6.37***		
Peer support	-0.09	0.06	-1.44			-0.09	0.06	-1.43		

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source(s): Authors' own work

Table 3.
Hierarchical
regressions predicting
cynicism, separately
for bachelor's degree
and master's degree

4. Discussion

This study focussed on examining how to support students during their studies, particularly during the transition from a bachelor's degree to a master's degree, which has been shown to be a source of stress and a challenge to well-being and retention (Cage *et al.*, 2021; Chester *et al.*, 2013). In order to understand this, we examined changes in study-related burnout, approaches to learning and experiences of the TLE across the degree transition. We also examined how approaches to learning and experiences of the TLE are associated with study-related burnout before and after the degree transition. The goal was to identify factors that universities could support in order to mitigate experiences of study-related burnout. In particular, we examined whether providing support for students' approaches to learning, or developing the TLE, could be potential targets for development.

Regarding the first research question concerning changes occurring during the bachelor's to master's degree transition, we observed a significant increase in all three components of study-related burnout, as well as in the unreflective approach. This is in line with previous research identifying an association between university transitions and stress (e.g. Cage *et al.*, 2021). The increase was also apparent for organised studying, whilst experiences of feedback and peer support decreased. This might reflect the increased requirements of the degrees and courses and the increasing independence of studying (Tuononen and Parpala, 2021). As many master's degrees provide students with more freedom and autonomy to select and schedule their studies, more organised studying might be required. Simultaneously, the increased freedom and autonomy might also relate to knowledge fragmenting across courses.

Variable	Bachelor's degree					Master's degree				
	β	SE	t	R^2	R^2_{adj}	β	SE	t	R^2	R^2_{adj}
Step 0 intercept	2.05	0.05	41.59***			2.41	0.05	46.82***		
Step 1 intercept	0.23	0.12	2.02*	0.47	0.47	0.35	0.12	2.84**	0.5	0.49
Exhaustion	0.51	0.05	9.48***			0.51	0.05	9.88***		
Cynicism	0.51	0.05	9.43***			0.42	0.05	9.43***		
Step 2 intercept	1.23	0.38	3.23**	0.53	0.53	1.87	0.45	4.14***	0.56	0.55
Exhaustion	0.45	0.06	8.02***			0.4	0.05	7.31***		
Cynicism	0.4	0.05	7.37***			0.31	0.05	6.12***		
Organised studying	-0.08	0.07	0.23			-0.15	0.07	-2.24*		
Deep approach	-0.02	0.08	0.78			0.09	0.09	1.17		
Unreflective learning	0.24	0.07	0.361***			0.19	0.07	2.86**		
Self-efficacy	-0.24	0.09	-2.8**			-0.36	0.36	-3.96***		
Step 3 intercept	1.18	0.43	2.72**	0.54	0.53	1.58	0.51	3.11**	0.56	0.55
Exhaustion	0.44	0.06	7.78***			0.41	0.06	7.32***		
Cynicism	0.42	0.06	7.36***			0.32	0.06	5.79***		
Organised studying	-0.1	0.06	-1.53			-0.16	0.07	-2.36*		
Deep approach	-0.03	0.09	-0.31			0.08	0.09	0.95		
Unreflective learning	0.25	0.07	3.67***			0.19	0.07	2.82**		
Self-efficacy	-0.24	0.09	-2.78**			-0.38	0.1	-4.03***		
Alignment	-0.05	0.08	-0.6			0.07	0.08	0.81		
Feedback	-0.09	0.07	-1.32			-0.04	0.07	-0.57		
Interest	0.15	0.08	1.78			0.04	0.09	0.43		
Peer support	0.01	0.07	0.12			0.05	0.07	0.71		

Table 4. Hierarchical regressions predicting feelings of inadequacy, separately for bachelor's degree and master's degree

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Source(s): Authors' own work

These findings suggest that students may have increasing difficulties formulating the “big picture”, which may link to the potential for increased study-related burnout (Asikainen *et al.*, 2020). The increased unreflective approach, appearing together with a general increase in study-related burnout, highlights the relevance of unreflective learning approaches when considering how fragmented knowledge affects students' ability to cope with their studies.

Concerning the second research question, the degree context appears to have complex relations with study-related burnout, both in the way that students experience the TLE and how the transition between the degrees changes that context. These findings are in line with previous research linking higher study-related burnout risk and unreflective learning with more negative experiences of the TLE (Asikainen *et al.*, 2020). When predicting study-related exhaustion, adding TLE factors to the model significantly improved the model above other burnout components and approaches to learning during the master's degree, but not at the end of the bachelor's degree, indicating that TLE factors have an effect on exhaustion, which does not depend on approaches to learning. In particular, lower experienced alignment and peer support are related to higher exhaustion during the master's degree. For cynicism, the addition of TLE factors significantly improved the prediction model for both the bachelor's degree and the master's degree, with particularly lower interest and relevance associated with

higher cynicism. However, when predicting experiences of inadequacy, the TLE factors did not significantly improve the predictive model at either timepoint. For predicting feelings of inadequacy, higher unreflective learning and lower self-efficacy were associated with higher inadequacy for both timepoints. Taken together, these results indicate that TLE factors are associated with study-related burnout, particularly exhaustion and cynicism, independent of approaches to learning, and these effects are also dependent on the degree context. The TLE factors offer potential avenues for educational interventions to prevent and reduce students' experiences of study-related burnout.

As a limitation of the study, we would point out that our current timepoints are situated very close to the degree transition and that it would be beneficial to apply a longitudinal approach over a longer time period with multiple measurement points during university studies. We also expect that the study areas and degree topics could have significant roles in explaining study-related burnout risk, approaches to learning, and particularly the experienced TLE, which we did not explore here and would require further work.

From the perspective of practical implications, it should be noted that as these results indicate that both the degree context and the TLE are associated with the components of study-related burnout, they also provide avenues for interventions aimed at reducing such burnout. We might also expect that actions aimed at improving students' approaches to learning can also impact their experiences of the TLE, as well as their well-being. The increase in unreflective learning in particular suggests that developing teaching and study programmes to support the connections between information, the formulation of larger connected bodies of knowledge and a deep approach to learning might support students' study well-being and learning. These should have practical implications for how study programmes are constructed and how teaching should support students in formulating connections between the knowledge and skills they develop during their master's degree. Teachers need more guidance on how to cultivate students' prior knowledge, for example, but curricula should be developed to form clear connections between the courses and clear aims to support alignment in teaching. Students' own ability to reflect on their learning and skills should be fostered by using tools to support planning and goal-setting, as well as tools for assessing and monitoring their own learning (e.g. *de Bruin et al., 2017; Liborius et al., 2019*). The learning environments, feedback culture and curricula could offer opportunities for improving students' experiences of the alignment of teaching and relevance of topics across courses and experiences of peer support. This could be done by increasing learning activities that bring students together, such as study groups and different group work activities. In addition, the present study highlights the need to foster alignment in teaching. Previous research suggests that in constructively aligned teaching, the teaching should encourage higher levels of understanding, whilst lack of challenge may result in the adoption of unreflective approaches (*Hailikari et al., 2021*).

In summary, the study provides new insights into the effects of approaches to learning and the TLE on study-related burnout across the degree transition, which appears to be particularly challenging for students. The findings are in line with previous research on the influence of learning approaches and self-efficacy on study outcomes, highlighting the need to support students who are struggling with their approaches to learning (*Parpala et al., 2021*). The results suggest that the transition might increase the risk of study-related burnout and an unreflective approach to learning. However, other factors, particularly higher self-efficacy and a deep approach to learning, could provide students with a protective effect against study-related burnout. By helping students develop their own deep approach to learning, educators can promote the development of coherent entities in their learning and avoid fragmented knowledge. The TLE can be developed to support the students' deep approach by developing the alignment of teaching, feedback and structures for peer support. Thus, the skills to achieve the increased goals of the master's degree and emphasis on more independent

studying should be supported in the new study context by developing services to help students cultivate their own approaches to learning. Identifying and improving elements in the educational environment that contribute to students' experiences of alignment, interest and relevance regarding their studies, as well as the support they receive, could also enhance their well-being. Better alignment of studies and clearer interest and relevance support the availability and clarity of the "bigger picture". Evaluating and aligning these aspects across the degree levels could aid students during the transition between degrees.

References

- Ahola, S. and Mesikämmen, J. (2003), "Finnish higher education policy and the ongoing Bologna process", *Higher Education in Europe*, Vol. 28 No. 2, pp. 217-227, doi: [10.1080/03797720304103](https://doi.org/10.1080/03797720304103).
- Alarcon, G.M., Edwards, J.M. and Menke, L.E. (2011), "Student burnout and engagement: a test of the conservation of resources theory", *The Journal of Psychology*, Vol. 145 No. 3, pp. 211-227, doi: [10.1080/00223980.2011.555432](https://doi.org/10.1080/00223980.2011.555432).
- Asikainen, H. and Gijbels, D. (2017), "Do students develop towards more deep approaches to learning during studies? A systematic review on the development of students' deep and surface approaches to learning in higher education", *Educational Psychology Review*, Vol. 29 No. 2, pp. 205-234, doi: [10.1007/s10648-017-9406-6](https://doi.org/10.1007/s10648-017-9406-6).
- Asikainen, H., Salmela-Aro, K., Parpala, A. and Katajavuori, N. (2020), "Learning profiles and their relation to study-related burnout and academic achievement among university students", *Learning and Individual Differences*, Vol. 78, 101781, doi: [10.1016/j.lindif.2019.101781](https://doi.org/10.1016/j.lindif.2019.101781).
- Bask, M. and Salmela-Aro, K. (2013), "Burned out to drop out: exploring the relationship between school burnout and school dropout", *European Journal of Psychology of Education*, Vol. 28 No. 2, pp. 511-528, doi: [10.1007/s10212-012-0126-5](https://doi.org/10.1007/s10212-012-0126-5).
- Bewick, B., Koutsopoulou, G., Miles, J., Slaa, E. and Barkham, M. (2010), "Changes in undergraduate students' psychological well-being as they progress through university", *Studies in Higher Education*, Vol. 35 No. 6, pp. 633-645, doi: [10.1080/03075070903216643](https://doi.org/10.1080/03075070903216643).
- Biggs, J. (2001), *Enhancing Learning: A Matter of Style or Approach?*, Lawrence Erlbaum Associates, Mahwah, New Jersey.
- Cage, E., Jones, E., Ryan, G., Hughes, G. and Spanner, L. (2021), "Student mental health and transitions into, through and out of university: student and staff perspectives", *Journal of Further and Higher Education*, Vol. 45 No. 8, pp. 1-14, doi: [10.1080/0309877X.2021.1875203](https://doi.org/10.1080/0309877X.2021.1875203).
- Cassuto, L. (2015), *The Graduate School Mess: What Caused it and How We Can Fix it*, EE.UU, Harvard University Press, Cambridge, Massachusetts.
- Chester, A., Burton, L.J., Xenos, S. and Elgar, K. (2013), "Peer mentoring: supporting successful transition for first year undergraduate psychology students", *Australian Journal of Psychology*, Vol. 65 No. 1, pp. 30-37, doi: [10.1111/ajpy.12006](https://doi.org/10.1111/ajpy.12006).
- Coutinho, S. and Neuman, G. (2008), "A model of metacognition, achievement goal orientation, learning style and self-efficacy", *Learning Environment Research*, Vol. 11 No. 2, pp. 131-151, doi: [10.1007/s10984-008-9042-7](https://doi.org/10.1007/s10984-008-9042-7).
- de Bruin, A.B., Kok, E.M., Lobbstaal, J. and de Grip, A. (2017), "The impact of an online tool for monitoring and regulating learning at university: overconfidence, learning strategy, and personality", *Metacognition and Learning*, Vol. 12 No. 1, pp. 21-43, doi: [10.1007/s11409-016-9159-5](https://doi.org/10.1007/s11409-016-9159-5).
- Entwistle, N. (2003), "University teaching-learning environments and their influence on student learning: an introduction to the ETL project", *EARLI conference, Padova*, pp. 26-30.
- Entwistle, N. (2009), *Teaching for Understanding at University: Deep Approaches and Distinctive Ways of Thinking*, Palgrave Macmillan, London.
- Entwistle, N. and McCune, V. (2004), "The conceptual bases of study strategy inventories", *Educational Psychology Review*, Vol. 16 No. 4, pp. 325-345, doi: [10.1007/s10648-004-0003-0](https://doi.org/10.1007/s10648-004-0003-0).

- Entwistle, N.J., McCune, V. and Hounsell, J. (2003), "Investigating ways of enhancing university teaching-learning environments: measuring students' approaches to studying and perceptions of teaching", in De Corte, E., Verschaffel, L., Entwistle, N.J. and van Merriënboer, J. (Eds), *Unravelling Basic Components and Dimensions of Powerful Learning Environments*, Elsevier Science, Oxford, pp. 89-107.
- Figuera Gazo, P., Llanes Ordóñez, J., Torrado Fonseca, M., Valls Figuera, R.G. and Buxarrais Estrada, M.R. (2020), "Reasons for course selection and academic satisfaction among Master's degree students", *Journal of Hispanic Higher Education*, Vol. 21 No. 3, doi: [10.1177/1538192720954573](https://doi.org/10.1177/1538192720954573).
- Filak, V.F. and Nicolini, K.M. (2018), "Differentiations in motivation and need satisfaction based on course modality: a self-determination theory perspective", *Educational Psychology*, Vol. 38 No. 6, pp. 772-784, doi: [10.1080/01443410.2018.1457776](https://doi.org/10.1080/01443410.2018.1457776).
- Fredricks, J.A., Filsecker, M. and Lawson, M.A. (2016), "Student engagement, context, and adjustment: addressing definitional, measurement, and methodological issues", *Learning and Instruction*, Vol. 43, pp. 1-4, doi: [10.1016/j.learninstruc.2016.02.002](https://doi.org/10.1016/j.learninstruc.2016.02.002).
- Fryer, L.K. and Vermunt, J.D. (2018), "Regulating approaches to learning: testing learning strategy convergences across a year at university", *British Journal of Educational Psychology*, Vol. 88 No. 1, pp. 21-41, doi: [10.1111/bjep.12169](https://doi.org/10.1111/bjep.12169).
- Hagenauer, G., Gläser-Zikuda, M. and Moschner, B. (2018), "University students' emotions, life-satisfaction and study commitment: a self-determination theoretical perspective", *Journal of Further and Higher Education*, Vol. 42 No. 6, pp. 808-826, doi: [10.1080/0309877X.2017.1323189](https://doi.org/10.1080/0309877X.2017.1323189).
- Hailikari, T., Virtanen, V., Vesalainen, M. and Postareff, L. (2021), "Student perspectives on how different elements of constructive alignment support active learning", *Active Learning in Higher Education*, Vol. 23 No. 3, 1469787421989160.
- Herrmann, K.J., Bager-Elsborg, A. and Parpala, A. (2017), "Measuring perceptions of the learning environment and approaches to learning: validation of the learn questionnaire", *Scandinavian Journal of Educational Research*, Vol. 61 No. 5, pp. 526-539, doi: [10.1080/00313831.2016.1172497](https://doi.org/10.1080/00313831.2016.1172497).
- Hovdhaugen, E. and Ulriksen, L. (2023), "The historic importance of degree structure: a comparison of bachelor to master transitions in Norway and Denmark", *European Educational Research Journal*, Vol. 22 No. 2, pp. 198-215, doi: [10.1177/14749041211041230](https://doi.org/10.1177/14749041211041230).
- Kember, D., Biggs, J. and Leung, D.Y. (2004), "Examining the multidimensionality of approaches to learning through the development of a revised version of the learning process questionnaire", *British Journal of Educational Psychology*, Vol. 74 No. 2, pp. 261-279, doi: [10.1348/000709904773839879](https://doi.org/10.1348/000709904773839879).
- Kreber, C. (2003), "The relationship between students' course perception and their approaches to studying in undergraduate science courses: a Canadian experience", *Higher Education Research and Development*, Vol. 22 No. 1, pp. 57-75, doi: [10.1080/0729436032000058623](https://doi.org/10.1080/0729436032000058623).
- Liborius, P., Bellhäuser, H. and Schmitz, B. (2019), "What makes a good study day? An intraindividual study on university students' time investment by means of time-series analyses", *Learning and Instruction*, Vol. 60, pp. 310-321, doi: [10.1016/j.learninstruc.2017.10.006](https://doi.org/10.1016/j.learninstruc.2017.10.006).
- Lindblom-Ylänne, S., Parpala, A. and Postareff, L. (2019), "What constitutes the surface approach to learning in the light of new empirical evidence?", *Studies in Higher Education*, Vol. 44 No. 12, pp. 2183-2195, doi: [10.1080/03075079.2018.1482267](https://doi.org/10.1080/03075079.2018.1482267).
- Meehan, C. and Howells, K. (2019), "In search of the feeling of 'belonging' in higher education: undergraduate students transition into higher education", *Journal of Further and Higher Education*, Vol. 43 No. 10, pp. 1376-1390, doi: [10.1080/0309877X.2018.1490702](https://doi.org/10.1080/0309877X.2018.1490702).
- O'Keeffe, P. (2013), "A sense of belonging: improving student retention", *College Student Journal*, Vol. 47 No. 4, pp. 605-613.
- Papinczak, T., Young, L., Groves, M. and Haynes, M. (2008), "Effects of a metacognitive intervention on students' approaches to learning and self-efficacy in a first year medical course", *Advances in Health Sciences Education*, Vol. 13 No. 2, pp. 213-232, doi: [10.1007/s10459-006-9036-0](https://doi.org/10.1007/s10459-006-9036-0).

- Parpala, A. and Lindblom-Ylänne, S. (2012), "Using a research instrument for developing quality at the university", *Quality in Higher Education*, Vol. 18 No. 3, pp. 313-328, doi: [10.1080/13538322.2012.733493](https://doi.org/10.1080/13538322.2012.733493).
- Parpala, A., Lindblom-Ylänne, S., Komulainen, E. and Entwistle, N. (2013), "Assessing students' experiences of teaching-learning environments and approaches to learning: validation of a questionnaire in different countries and varying contexts", *Learning Environments Research*, Vol. 16 No. 2, pp. 201-215, doi: [10.1007/s10984-013-9128-8](https://doi.org/10.1007/s10984-013-9128-8).
- Parpala, A., Mattsson, M., Herrmann, K.J., Bager-Elsborg, A. and Hailikari, T. (2021), "Detecting the variability in student learning in different disciplines—a person-oriented approach", *Scandinavian Journal of Educational Research*, Vol. 66 No. 6, pp. 1-18, doi: [10.1080/00313831.2021.1958256](https://doi.org/10.1080/00313831.2021.1958256).
- Pisarik, C.T. (2009), "Motivational orientation and burnout among undergraduate college students", *College Student Journal*, Vol. 43, p. 1238.
- Postareff, L., Mattsson, M. and Parpala, A. (2018), "The effect of perceptions of the teaching-learning environment on the variation in approaches to learning – between-student differences and within-student variation", *Learning and Individual Differences*, Vol. 68, pp. 96-107, doi: [10.1016/j.lindif.2018.10.006](https://doi.org/10.1016/j.lindif.2018.10.006).
- Prat-Sala, M. and Redford, P. (2010), "The interplay between motivation, self-efficacy, and approaches to studying", *British Journal of Educational Psychology*, Vol. 80 No. 2, pp. 283-305, doi: [10.1348/000709909X480563](https://doi.org/10.1348/000709909X480563).
- Prat-Sala, M. and Redford, P. (2012), "Writing essays: does self-efficacy matter? The relationship between self-efficacy in reading and in writing and undergraduate students' performance in essay writing", *Educational Psychology*, Vol. 32 No. 1, pp. 9-20.
- Richardson, J.T. (2005), "Students' approaches to learning and teachers' approaches to teaching in higher education", *Educational Psychology*, Vol. 25 No. 6, pp. 673-680, doi: [10.1080/01443410500344720](https://doi.org/10.1080/01443410500344720).
- Richardson, J.T. and Price, L. (2003), "Approaches to studying and perceptions of academic quality in electronically delivered courses", *British Journal of Educational Technology*, Vol. 34 No. 1, pp. 45-56, doi: [10.1111/1467-8535.00303](https://doi.org/10.1111/1467-8535.00303).
- Rienties, B., Luchoomun, D. and Tempelaar, D. (2014), "Academic and social integration of Master students: a cross-institutional comparison between Dutch and international students", *Innovations in Education and Teaching International*, Vol. 51 No. 2, pp. 130-141, doi: [10.1080/14703297.2013.771973](https://doi.org/10.1080/14703297.2013.771973).
- Salmela-Aro, K. (2009), "School-related burnout during educational tracks", in Schoon, I. and Silbereisen, R.K. (Eds), *Transitions from School to Work: Globalization, Individualization, and Patterns of Diversity*, Cambridge University Press, Cambridge.
- Salmela-Aro, K. and Kunttu, K. (2010), "Study burnout and engagement in higher education", *Unterrichtswissenschaft: Zeitschrift für Lernforschung.*, Vol. 38 No. 4, pp. 322-337.
- Salmela-Aro, K. and Read, S. (2017), "Study engagement and burnout profiles among Finnish higher education students", *Burnout Research*, Vol. 7, pp. 21-28, doi: [10.1016/j.burn.2017.11.001](https://doi.org/10.1016/j.burn.2017.11.001).
- Salmela-Aro, K. and Upadyaya, K. (2014), "School burnout and engagement in the context of demands-resources model", *British Journal of Educational Psychology*, Vol. 84 No. 1, pp. 137-151.
- Salmela-Aro, K. and Upadyaya, K. (2017), "Co-development of educational aspirations and academic burnout from adolescence to adulthood in Finland", *Research in Human Development*, Vol. 14 No. 2, pp. 106-121, doi: [10.1080/15427609.2017.1305809](https://doi.org/10.1080/15427609.2017.1305809).
- Salmela-Aro, K., Tolvanen, A. and Nurmi, J.E. (2009), "Achievement strategies during university studies predict early career burnout and engagement", *Journal of Vocational Behavior*, Vol. 75 No. 2, pp. 162-172, doi: [10.1016/j.jvb.2009.03.009](https://doi.org/10.1016/j.jvb.2009.03.009).

- Schaufeli, W.B., Bakker, A.B., Hoogduin, K., Schaap, C. and Kladler, A. (2001), "On the clinical validity of the maslach burnout inventory and the burnout measure", *Psychology and Health*, Vol. 16 No. 5, pp. 565-582, doi: [10.1080/08870440108405527](https://doi.org/10.1080/08870440108405527).
- Silva, J., Mendes, G., Ganga, G., Mergulhão, R. and Lizarelli, F. (2019), "Antecedents and consequents of student satisfaction in higher technical-vocational education: evidence from Brazil", *International Journal for Educational and Vocational Guidance*, Vol. 20 No. 2, pp. 351-373, doi: [10.1007/s10775-019-09407-1](https://doi.org/10.1007/s10775-019-09407-1).
- Thomsen, J.P. (2022), "The social class gap in bachelor's and master's completion: university dropout in times of educational expansion", *Higher Education*, Vol. 83 No. 5, pp. 1021-1038, doi: [10.1007/s10734-021-00726-3](https://doi.org/10.1007/s10734-021-00726-3).
- Tinto, V. (2017), "Through the eyes of students", *Journal of College Student Retention: Research, Theory and Practice*, Vol. 19 No. 3, pp. 254-269, doi: [10.1177/1521025115621917](https://doi.org/10.1177/1521025115621917).
- Tuononen, T. and Parpala, A. (2021), "The role of academic competences and learning processes in predicting Bachelor's and Master's thesis grades", *Studies in Educational Evaluation*, Vol. 70, 101001, doi: [10.1016/j.stueduc.2021.101001](https://doi.org/10.1016/j.stueduc.2021.101001).
- Upadyaya, K. and Salmela-Aro, K. (2013), "Development of school engagement in association with academic success and well-being in varying social contexts", *European Psychologist*, Vol. 18 No. 2, pp. 136-147, doi: [10.1027/1016-9040/a000143](https://doi.org/10.1027/1016-9040/a000143).
- Upadyaya, K. and Salmela-Aro, K. (2015), "Development of early vocational behavior: parallel associations between career engagement and satisfaction", *Journal of Vocational Behavior*, Vol. 90, pp. 66-74, doi: [10.1016/j.jvb.2015.07.008](https://doi.org/10.1016/j.jvb.2015.07.008).
- Van Dinther, M., Dochy, F. and Segers, M. (2011), "Factors affecting students' self-efficacy in higher education", *Educational Research Review*, Vol. 6 No. 2, pp. 95-108, doi: [10.1016/j.edurev.2010.10.003](https://doi.org/10.1016/j.edurev.2010.10.003).
- Wang, M.T. and Degol, J. (2014), "Staying engaged: knowledge and research needs in student engagement", *Child Development Perspectives*, Vol. 8 No. 3, pp. 137-143, doi: [10.1111/cdep.12073](https://doi.org/10.1111/cdep.12073).
- Wang, M. and Eccles, J.S. (2012), "Adolescent behavioural, emotional, and cognitive engagement trajectories in school and their differential relations to educational success", *Journal of Research on Adolescence*, Vol. 22 No. 1, pp. 31-39, doi: [10.1111/j.1532-7795.2011.00753.x](https://doi.org/10.1111/j.1532-7795.2011.00753.x).

Appendix

Sample timepoint	χ^2	df	CFI	TLI	RMSEA	RMSEA CI	SRMR	RMR
Bachelor's degree	2995.7***	685	0.89	0.875	0.052	0.05–0.054	0.057	0.038
Master's degree	2369.32***	685	0.891	0.876	0.051	0.049–0.053	0.057	0.037

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Source(s): Authors' own work

Table A1.
Confirmatory factor analysis for each of the data samples, fitting the questions to the previously identified factors

Corresponding author

Amanda Sjöblom can be contacted at: amanda.sjoblom@aalto.fi

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com