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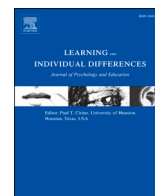
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The first-year students' motives for attending university studies and study-related burnout in relation to academic achievement[☆]

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ABSTRACT

In the present study, students' (n = 881) motives for attending university studies and study-related burnout were investigated in relation to their first-year academic achievement. The results showed that students' motives for attending university and study-related burnout at the outset of studies were connected to each other and to academic achievement at the end of the first study year. The results further showed that study-related burnout was associated with study credits. Furthermore, the results demonstrated that students' risk of study-related burnout varied. Those students who reported a lower risk for study-related burnout more often emphasised a personal-intellectual motive, and they proceeded faster and were more successful in their first study year than students with obviously increased risk for study-related burnout. This study indicates that motives for attending university and study-related burnout should be considered when supporting the transition to university studies.

1. Introduction

Transition to university studies and the first study year play a crucial role in students' academic achievement (De Clercq et al., 2021; Haarala-Muhonen et al., 2017) and in their degree completion (Baik et al., 2017; Lowe & Cook, 2003). Students have various reasons for attending university studies and these motives have been found to be essential factors in students' academic achievement and commitment to university studies (Dennis et al., 2005; Janke, 2020; Korhonen et al., 2017; Korhonen et al., 2019). Previous research has shown that students who have come to university for personal-intellectual reasons have higher grades and better confidence in the ability to accomplish degree goals than students with external motives, such as pressure from others (Côté & Levine, 1997; Janke, 2020; Phinney et al., 2006). Furthermore, some studies have shown that personal interest and goals do not relate only to academic achievement but also to the general well-being of students (Heikkilä et al., 2012; Janke, 2020; Torres Campos et al., 2009).

Previous studies have shown that many upper secondary and university students experience study-related burnout (Asikainen et al., 2020; Madigan & Curran, 2020; Rudman & Gustavsson, 2012; Salmela-

Aro & Read, 2017; Shankland et al., 2019; Tuominen-Soini et al., 2012). These findings are worrying because studies that have investigated relationship between study-related burnout and academic achievement have shown that study-related burnout may have many negative consequences for studies, for example, slow proceeding in studies (Asikainen et al., 2020; Postareff et al., 2016; Salmela-Aro et al., 2009) and dropping out from studies (Janke, 2020).

There exists a widespread understanding that first-year students' motives for attending university studies and study-related burnout are significant factors influencing student behavior and learning, and they play an important role in achievement (Côté & Levine, 2000; Janke, 2020; Madigan & Curran, 2020; Rudman & Gustavsson, 2012). Still, earlier research examining the relations between motives for studies and study-related burnout, and how these factors explain academic achievement are rare. Additionally, it has been shown that the transition phase can be very stressful for students (Dyson & Renk, 2006; Morton et al., 2014). In the Finnish higher education system, the situation can be even more stressful, since a place to study is usually obtained by participating in competitive entrance examinations and only a small number of applicants are accepted into the available study programmes

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(Isopahkala-Bouret, 2019; Kleemola & Hyytinen, 2019). In order to deepen understanding of the transition phase, the present study explores first-year students' motives for attending university studies, their risk for study-related burnout at the outset of studies, and how these are connected to academic achievement measured by grades and study credits at the end of the first study year.

2. Theoretical framework

2.1. Motives for attending university studies

First-year students differ in their motives and motivational readiness to attend university studies (Côté & Levine, 1997, 2000; Dennis et al., 2005; Korhonen et al., 2017; Korhonen et al., 2019). Students' motives are influenced by both internal and external reasons when considering their possible choices for study and future career (Al-Fattal & Ayoubi, 2013; Janke, 2020; Kennett et al., 2011). These motives have an impact on students' readiness to engage in university and later academic achievement (Côté & Levine, 2000). Motives arise from intrinsic (e.g. self-growth) or extrinsic motivation (e.g. rewards) and are one's concrete aims, will and reasons for taking action in terms of attending university studies (Deci & Ryan, 2000; Ryan & Deci, 2020). The present study focuses especially on students' motives for attending university, not on their study motivation in a broader sense.

This study is based on the work of Côté and Levine (2000) concerning motives for attending university. They conceptualised students' study paths utilising the input, environment and output (I-E-O) model. In this model, motives for attending university represent input factors, which describe students' readiness to benefit and engage in university (Côté & Levine, 2000). Côté and Levine (1997, 2000) identified five motives, showing internal, external and unclear reasons for university studies. Students with a *personal-intellectual development motive* aim to gain personal growth and develop intellectual capacity and this motive relates to intrinsic motivation. For students with a *humanitarian motive*, the main aim is to improve the world, help those less fortunate in life, and to change the existing system for the betterment of society. A *careerist-materialist motive*, also known as careerism-materialism (Korhonen et al., 2019) involves perceiving university studies as a means to achieve better status in society, high income, success in one's career and acquiring the finer things in life. With an *expectation-driven motive* students mainly attend university studies in order to get a degree and meet the expectations of their family. A careerism-materialism motive and expectation-driven motive are associated with extrinsic motivation (cf. Janke, 2020). Students with a *default motive* refers to situations in which students do not really know why they are attending higher education and they have no other option than to study at university.

The expectation-driven motive and the default motive have been found to be related to a lack of interest in studies, slow progress, problems in adapting to one's study programme and in motivating oneself to study (Janke, 2020; Korhonen et al., 2019; Korhonen & Rautopuro, 2012). Additionally, careerism-materialism motive and expectation-driven motive may make studying less enjoyable and frustrating (cf. Janke, 2020). Without personal interests students might have difficulties in perceiving the relevance of theoretical studies, in making decisions concerning their studies, or finding their own career path as deficiency in their self-growth (cf. Deci & Ryan, 2000). Previous research has also shown that first-year students with unclear goals (i.e. students do not really know why they are attending university) have the highest risk of dropping out (Baik et al., 2017). A personal-intellectual motive for studying at university, in turn, is related to the lowest intention to drop out (Janke, 2020; Korhonen et al., 2019).

2.2. Study-related burnout

Study-related burnout has been shown to be an important input factor that has an influence on students' retention in university (Torres

Campos et al., 2009). Study-related burnout refers to an emotional exhaustion that is a combination of chronic fatigue in studies, a cynical and detached attitude towards higher education studies, and feelings of inadequacy as a higher education student (Madigan & Curran, 2020; Rudman & Gustavsson, 2012; Salmela-Aro & Read, 2017; Schaufeli et al., 2002). The research on study-related burnout among higher education students has increased over the last few decades (Asikainen et al., 2020; Hernesniemi et al., 2017; Kuittinen & Meriläinen, 2011; Räisänen et al., 2018; Rudman & Gustavsson, 2012; Salmela-Aro & Kunttu, 2010). Burnout was first described and analysed as a mental condition of "becoming exhausted by making excessive demands on energy, strength, or resources" in the workplace (Freudenberger, 1974, p. 159). Research by Maslach et al. (2001) identified burnout as a multidimensional phenomenon of a prolonged response to chronic emotional and interpersonal stressors at work, consisting of the three dimensions of exhaustion, cynicism, and inefficacy. In the context of school education and higher education studies, these three dimensions have been identified as exhaustion in studying, cynicism towards the meaningfulness of studying, and a sense of inadequacy as a student (Pala, 2012; Salmela-Aro & Kunttu, 2010; Salmela-Aro & Read, 2017; Schaufeli et al., 2002). Study-related burnout is considered as an outcome of high perceived study demands and a feeling of inadequacy to respond to these demands (Pala, 2012; Salmela-Aro & Read, 2017).

Exhaustion is one of the basic dimensions of study-related burnout. It refers to study-related feelings of strain, particularly chronic fatigue resulting from not meeting study demands (Rudman & Gustavsson, 2012; Salmela-Aro & Kunttu, 2010; Schaufeli et al., 2002). Another dimension, namely *cynicism*, refers to a distal attitude towards studies in general, a loss of interest in one's academic work and not seeing it as meaningful (Madigan & Curran, 2020; Schaufeli et al., 2002), and a cynical and detached attitude towards one's studies (Salmela-Aro & Kunttu, 2010). Third dimension of burnout is *inadequacy*, i.e., a lack of study-related efficacy. It refers to diminished feelings of competence as well as to less successful achievement, and to a lack of accomplishment both in one's work and in studies as a whole (Salmela-Aro & Kunttu, 2010; Schaufeli et al., 2002). Students who experienced inadequacy have been found to be associated with cynicism towards studies (Väisänen et al., 2018).

Earlier research on study-related burnout has found that higher education students display different risks for study-related burnout (Kuittinen & Meriläinen, 2011; Kunttu et al., 2017; Salmela-Aro & Read, 2017). Four risk groups have been detected, namely no risk, average, increased risk, and obviously increased risk of burnout. Over 10% of the Finnish higher education students belong to an obviously increased risk group (Kunttu et al., 2017; Salmela-Aro et al., 2009). Of these groups, students with obviously increased risk of burnout have the most alarming situation: they score very high on exhaustion, cynicism as well as a sense of inadequacy. Problems in well-being in the transition phase to higher education may turn into long-term challenges. Research has shown that study-related burnout has negative prospective consequences on students' learning and their study progress over time (Asikainen et al., 2020; Madigan & Curran, 2020; Rudman & Gustavsson, 2012). Longitudinal studies have shown that study-related burnout increases during university studies (Räisänen et al., 2020; Rudman & Gustavsson, 2012). Thus, investigation of students' risk for study-related burnout helps in understanding first-year students' needs for support.

2.3. The relationship between motives for attending university, study-related burnout and academic achievement

There is a degree of uncertainty around the terminology in academic achievement. In the previous research on higher education, grade point average (GPA), the number of passed exams and study credits have been commonly used to indicate academic achievement (e.g. Asikainen et al., 2020; Haarala-Muhonen et al., 2017; Herrmann et al., 2017; Schaufeli et al., 2002; van der Zanden et al., 2019). Earlier research has shown

that trying to capture academic achievement at university based on one factor, such as grades, is problematic (De Clercq et al., 2021; Kleemola & Hyytinen, 2019; Williams & Kemp, 2019). For example, grades as a subjective measure do not necessarily reflect the quality of students' achievement very well (Räisänen et al., 2016). Therefore, grades should not be used alone as a measure of academic achievement. In addition, in the Finnish higher education context, students did not drop out from studies, as in many other countries, and continuation of studies is not prevented by poor study success or low study progress (Tuononen, 2019). Thus, in this study, we use both students' study credits (how many study credits a student has gained during the first study year) and grade point average (GPA) as measures of academic achievement. Study credits are important to investigate, because low study progress during the first study year seems to remain low during further studies in the Finnish higher education context (Haarala-Muhonen et al., 2017; Hailikari et al., 2020; Korhonen et al., 2017).

Academic achievement can be characterised as an output factor (Côté & Levine, 2000). It is understood to be associated with several input factors, such as motives for attending university and study-related burnout (Côté & Levine, 2000; Torres Campos et al., 2009). Earlier research has shown that students with personal-intellectual motives for attending higher education achieved higher grades than those with other types of motives such as pressure from others (Côté & Levine, 1997, see also De Clercq et al., 2021). Motives for attending university have also been shown to affect accumulation of study credits: personal-intellectual and careerism-materialism motives have been found to be positively associated with study credits (Dennis et al., 2005; Korhonen et al., 2017; Korhonen et al., 2019) as well as confidence and interest in accomplishing degree goals (Janke, 2020; Phinney et al., 2006).

Furthermore, previous studies have shown that study-related burnout is negatively related to academic achievement (e.g. Asikainen et al., 2020; Madigan & Curran, 2020; Salmela-Aro et al., 2009). Increased risk and obviously increased risk of study-related burnout have been found to indicate poor commitment to studies and difficulties in study progress (Salmela-Aro & Read, 2017; Schaufeli et al., 2002). A previous study of first-year students showed that personal interest and goals are related not only to academic achievement but also to the general well-being of students (Deci & Ryan, 2000; Heikkilä et al., 2012; Janke, 2020; Ryan & Deci, 2020). External motives may lead to diminished well-being and study satisfaction and risk of dropping out (see Janke, 2020). However, only a few studies have investigated motives for attending university, study-related burnout, and academic achievement together. As the first year forms a crucial foundation for academic achievement in subsequent studies, more knowledge is needed about these phenomena. Fig. 1 presents a summary of the key concepts in this study.

3. Aim and research questions

This study aims to investigate how motives for attending university studies and study-related burnout at the outset of studies relate to academic achievement at the end of the first study year, and which of these factors have the strongest relation to academic achievement among first-year students. The aim is also to gain information about the students' level of risk for study-related burnout when they enter university. More precisely, this study sets out to examine the extent to which students represent different study-related burnout risk groups (Kuittinen & Meriläinen, 2011; Kunttu et al., 2017; Salmela-Aro et al., 2009) and how these groups differ in terms of motives for attending university studies, accumulation of study credits and grades. The specific research questions are:

- 1) How are motives for attending university, study-related burnout, study credits and grades related to each other among first-year students?
- 2) How do motives for attending university studies and study-related burnout together explain study credits and grades?
- 3) How are first-year students represented in different burnout risk groups? What kind of differences in motives for attending university studies, study credits and grades can be found between the groups?

4. Materials and methods

4.1. Participants

The participants in the present study were 881 first-year students. The data were collected at two time points. First, the data for motives for attending university and study-related burnout were collected by an electronic questionnaire during their first study period at the university. The academic year consists of four study periods, and each of them lasts about seven weeks. Second, students' academic achievement (i.e. study credits and grade point average) were obtained retrospectively after the first study year. The students were from the Faculty of Arts (n = 493), Social Sciences (n = 283) and Theology (n = 105). The data of two academic years were combined: 2017–18 (283 respondents) and 2018–19 (598 respondents). The target population consisted of all first-year students in these particular faculties. The total response rate was 46% and the response rate varied from 35% to 49% between the three faculties. In the Faculty of Arts the response rate was 47%, in Social Sciences 49% and in Theology 35%. The mean age of the participants was 24.78 years (SD = 7.65; min/max 18/68 years). Of the respondents 78% were female (n = 691) and 22% were male (n = 190). The majority of the participants were female, which reflects the overall proportion of female students in the three faculties. Students' educational

Input factors →	Output factors
Students' motives for attending university <ul style="list-style-type: none"> • Personal-intellectual development • Humanitarian • Careerist-materialist • Expectation-driven • Default Study-related burnout <ul style="list-style-type: none"> • Exhaustion • Cynicism • Inadequacy 	Academic achievement of the first study-year <ul style="list-style-type: none"> • Study credits • GPA

Modified from Côté & Levine (2000)

Fig. 1. The key concepts of the study.

backgrounds varied from general upper secondary education to higher education. 90% of the respondents ($n = 789$) had completed general upper secondary education. The rest of the respondents reported that they had already completed a higher education degree. Of the respondents 86.9% ($n = 766$) reported that they had received admission to the study programme they had applied to as their first choice.

Voluntary participation, informed consents, and the confidentiality of the participants were ensured in the research process. The study did not involve intervention in the physical integrity of the participants. It did not cause any exposure to exceptionally strong stimuli, which could have caused long-term mental harm beyond the risks of daily life. Furthermore, it did not involve deviation from informed consent, participants under the age of 15 without parental consent, or risking participants' security. Following these principles of the [Finnish Advisory Board on Research Integrity \(2019\)](#), this study did not require separate ethical review or approval in Finland. Only necessary personal data (i.e. student number) for the purpose of study register data were collected as a part of the questionnaire. Access to identification data was limited and all personal information was removed before the analysis phase. Results are reported in a way that single participants cannot be identified.

4.2. Context

This study was carried out in a research-intensive Finnish university in the faculties of Arts, Social Sciences and Theology. Although these faculties have their own research and teaching areas, they all focus on diverse issues of human sciences. In the Faculty of Arts, students can study, for example, languages, cultures, arts research, philosophy, and history. The Faculty of Social Sciences include disciplines such as economic and social history, media and communication studies, political science, sociology, social psychology and social work. In the Faculty of Theology, students can study theology and religious studies. In Finland, faculties set their own admission requirements for students wishing to enter university. The highly selective Finnish university admission procedures have been based on discipline-specific entrance examinations, in which the aim of testing is whether an applicant possesses sufficient discipline-specific content knowledge and the necessary skills to undertake university studies ([Kleemola & Hyytinen, 2019](#)) as well as has the motivation to study the discipline in question. At the time of data collection of the current study, half of the students were admitted according to their entrance examinations scores alone, the rest were selected using a combination of examination scores and the National Matriculation Examination scores (see [Kleemola & Hyytinen, 2019](#)). The National Matriculation Examination is taken at the end of the upper secondary school. In the Faculty of Social Sciences, a yearly intake is about 8% of all applicants. In the Faculty of Arts approximately 13% of applicants and in the Faculty of Theology 21% of applicants are admitted to the faculty ([Vipunen, 2019](#)).

Finnish higher education institutions use the European Credit Transfer and Accumulation System (ECTS) in measuring a student's workload. Bachelor-level studies consist of discipline-specific studies, elective studies, and studies supporting employability. In the Faculties of Arts, Social Sciences and Theology, students can choose the majority of the contents of their studies and plan their studies relatively independently. The generalist degree programme curricula are not regulated by any professional qualification requirements set in the law. Universities are autonomous in deciding the curricula of the study programmes, and the study programmes are not accredited externally. The teaching and learning methods vary from lectures and seminars to web-based teaching as well as to group work and independent written work in the form of essays. The assessment of coursework and assignments in these programmes is based on similar assessment criteria and the assessment cultures of these faculties are similar. Although students are expected to complete a bachelor's degree (180 ECTS) in three years and a master's degree (120 ECTS) in two years, uncompleted courses, low grades or a small number of study credits will not be penalised by students having to

forfeit their right to remain enrolled at the university. Students are not dropped out from university studies due to their poor academic achievement. Therefore, dropout rates are relatively low in Finnish universities (5.9% in the 2017–2018 academic year) ([Official Statistics of Finland, 2020](#)). For these reasons, it is necessary to take into account both study credits and grades when investigating academic achievement in the Finnish higher education context.

4.3. Instruments

Students' motives for attending university studies were measured by the instrument modified from the Students Motivations for Attending University questionnaire (SMAU, [Côté & Levine, 1997, 2000](#)). The original SMAU consists of 23 items ([Côté & Levine, 1997](#)) comprising five subscales. The original questionnaire has been shortened and translated into Finnish ([Korhonen & Rautopuro, 2012](#)). In this study, this shortened 19-item version was used to measure five motives for university level studies: personal-intellectual development (four items), humanitarian (four items), careerism-materialism (three items), expectation-driven (four items), and a default (four items) ([Korhonen et al., 2019](#); [Korhonen & Rautopuro, 2012](#)). All items were rated on a 5-point Likert scale (1 = completely disagree; 5 = strongly agree).

Exploratory factor analysis was conducted in order to determine the number of factors for the SMAU questionnaire, because theoretically inconsistent loadings of the items have been reported in previous studies ([Korhonen & Rautopuro, 2012](#); [Phinney et al., 2006](#)). For extraction and rotation, principal axis factoring and promax rotation were used. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the variables were factorable ($KMO = 0.83$). Kaiser's criterion ([Fabrigar et al., 1999](#)) indicated a five-factor solution as expected on the basis of previous studies ([Côté & Levine, 1997](#); [Korhonen et al., 2017](#)). The factor loadings were mainly from moderate to high and all items passed the desired 0.32 level ([Tabachnick & Fidell, 2014](#); see Appendix A). We further tested the five-factor solution with confirmatory factor analysis (CFA; [Hu & Bentler, 1999](#); [Schreiber et al., 2006](#); [Schumacker & Lomax, 2016](#)). The Comparative Fit Index (CFI), the Standardised Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA) were used to assess the overall quality of the models. The fit indices were 0.850 for the CFI, 0.084 for the SRMR, and 0.086 for the RMSEA. The values of the RMSEA and the SRMR indicated an acceptable fit between the model and the observed data. However, the value of the CFI remained modest ([Hu & Bentler, 1999](#); [Schumacker & Lomax, 2016](#)). Cronbach's Alphas were 0.742 for a personal-intellectual scale, 0.848 for a humanitarian scale, 0.705 for a careerism-materialism scale, 0.797 for an expectation-driven scale, and 0.671 for a default scale.

Study-related burnout was measured by the Study Burnout Inventory (SBI) in Higher Education ([Salmela-Aro & Kunttu, 2010](#); [Salmela-Aro & Read, 2017](#)), which consists of 9 items measuring three components of study-related burnout in higher education: exhaustion in higher education (four items), cynicism towards meaningfulness of studying (three items), and a sense of inadequacy as a student in higher education (two items). All items measuring study-related burnout were rated on a 6-point scale (1 = completely disagree; 6 = strongly agree). The results of previous studies indicate the strong robustness of the SBI questionnaire and three components of study burnout among Finnish higher education students (e.g. [Asikainen et al., 2020](#); [Salmela-Aro & Kunttu, 2010](#); [Salmela-Aro & Read, 2017](#)). The questionnaire is also tested to be a reliable instrument to measure students' risk of study burnout across different fields of study ([Salmela-Aro et al., 2009](#)). Therefore, three scales measuring study-related burnout were explored with the CFA. The fit model with these scales was good (CFI = 0.960, SRMR = 0.040, RMSEA 0.071). Cronbach's alphas were 0.795 for exhaustion, 0.822 for cynicism, and 0.667 for inadequacy. The CFA was performed in R version 3.6.1 and SPSS Amos 25. The scales and items are presented in Appendix B.

Academic achievement was operationalised as study credits (ECTS) and grade point average (GPA). The grading system in Finnish university context ranges from zero (fail) to five (excellent). Study credits and grades were gathered from the study register at the end of the first study year.

4.4. Data analyses

In order to capture a nuanced picture of the relationships between the variables and to avoid overrunning variation in the data (cf. Lindblom-Ylänne et al., 2013), the data were analysed both at the group level and at the individual level. At the group level, the relationships between the motives for attending university studies, study-related burnout, study credits, and grades (GPA) were explored by Pearson's correlations and linear regression analysis (stepwise method). All the scales, except cynicism and personal-intellectual motive, were normally distributed. In order to ensure the reliability of the findings, we conducted both parametric and nonparametric tests. These tests yielded similar results. Standardised variables were used in order to explore the relations between motives for attending university, study-related burnout and grades (GPA).

After that, the analyses focused on the relationship between the variables at the individual level. With the intention of exploring in a more detailed way new students' levels of a risk of study-related burnout, we examined the extent to which students represent different burnout risk groups based on students' study-related burnout scores. Using the SBI, the national Finnish Student Health Service has defined three critically meaningful cut points to distinguish none to average, increased and obviously increased risk of study-related burnout among higher education students (Salmela-Aro et al., 2009, pp. 41, 46–47; see also Kuntu et al., 2017). Establishing thresholds for risk of study-related burnout has helped clinicians and researchers to reliably interpret SBI scores, prompt discussion and intervention for those with unmet needs, and enable the effectiveness of interventions to be evaluated. Based on this classification with gender-specific cut points, students were placed into four groups depending on their summed score of study-related burnout items: *No risk* (summed score of female ≤15; summed score of male ≤17), *Average risk* (summed score of female 16–23; summed score of male 18–26), *Increased risk* (summed score of female 24–30; summed score of male 27–32), and *Obviously increased risk of burnout* (summed score of female ≥31; summed score of male ≥33). Utilising these threshold values allowed us to evaluate the level and seriousness of students' experienced burnout, and take it into account in the analyses.

Next, we conducted One-way ANOVAs with Bonferroni's test to examine the differences between the burnout subgroups in terms of motives for attending university studies, study success, and study progress. A chi-square test was performed to examine the relationship

between distributions of risk for burnout groups. Correlational and regression analyses as well as ANOVA and a chi-square test were conducted using SPSS 25.

5. Results

5.1. Motives for attending university studies and study-related burnout in relation to academic achievement

The results of the present study showed that first-year students scored highest on the personal-intellectual scale and humanitarian scale, relatively high on careerism-materialism and lowest on scales of expectation-driven and default scales measured at the outset of studies. Furthermore, students scored relatively high on exhaustion and inadequacy and low on cynicism (see Table 1).

The correlational analysis showed that these early-phase motives for attending university were not related to study credits after the first study-year. However, motives for attending university had weak statistically significant associations to grade point average at the end of the first study year (GPA). More precisely, the default motive correlated negatively and the personal-intellectual motive positively to GPA. Furthermore, the correlations showed that all dimensions (exhaustion, cynicism and inadequacy) of study-related burnout had negative statistically significant correlations to study credits and GPA. Motives for attending university correlated to the dimensions of study-related burnout. More precisely, personal-intellectual motive had significant negative correlations to exhaustion, cynicism and inadequacy. Humanitarian motive correlated positively to exhaustion. Careerism-materialism and default motives correlated significantly and positively to exhaustion, cynicism and inadequacy. The means, standard deviations and correlations between motives for attending university, study related-burnout, study credits and GPA are presented in Table 1.

5.2. Motives for attending university studies and study-related burnout explaining academic achievement

The aim was to explore how students' motives for attending university and study-related burnout at the outset of studies explained academic achievement (i.e. study credits and GPA) after the first study year. The results of the linear regression analysis showed that inadequacy and cynicism were significantly negatively related to study credits. Regarding GPA, the standardised regression coefficient β showed that cynicism, personal-intellectual motive and careerism-materialism were significantly related. Summary of the regression analyses are presented in Table 2.

Table 1
Pearson's correlations between motives for attending university studies, dimensions of study-related burnout and academic achievement.

Scales	M	SD	1	2	3	4	5	6	7	8	9	10
Motives for attending university studies (scale 1–5)												
1. Personal-intellectual	4.43	0.52	1									
2. Humanitarian	4.00	0.76	0.392**	1								
3. Careerism-materialism	3.46	0.83	0.352**	0.127**	1							
4. Expectation-driven	2.08	0.91	-0.134**	0.018	0.156**	1						
5. Default	1.98	0.86	-0.432**	-0.233**	0.023	0.394**	1					
Study-related burnout (scale 1–6)												
6. Exhaustion	2.74	1.03	-0.149**	0.090**	0.067*	0.197**	0.229**	1				
7. Cynicism	1.87	0.95	-0.442**	-0.111	-0.066	0.266**	0.550**	0.402**	1			
8. Inadequacy	2.88	1.23	-0.266**	0.025	-0.028	0.237**	0.365**	0.651**	0.580**	1		
Academic achievement												
9. Study credits	51.90	13.92	0.052	0.034	0.009	-0.045	-0.045	-0.086*	-0.160**	-0.178**	1	
10. GPA	3.78	0.58	0.171**	0.052	-0.027	-0.020	-0.112**	-0.087*	-0.176**	-0.157**	0.282**	1

*p<.05, ** p<.001.

Table 2

The summary of the regression analyses on the statistically significant relationships between motives for attending university studies and dimensions of study-related burnout to academic achievement.

Motives and dimensions of study-related burnout	Study credits ^a β	Grade point average GPA ^b β
Personal-intellectual	–	0.152**
Humanitarian	–	–
Expectation-driven	–	–
Careerism-materialism	–	–0.088*
Default	–	–
Exhaustion	–	–
Cynicism	–0.086*	–0.115*
Inadequacy	–0.128*	–

* p < 0.05.

** p < 0.001.

^a R = 0.192, adjusted R² = 0.035, (F(2, 8780) = 16.73, p < 0.001).

^b R = 0.220, adjusted R² = 0.045 (F(3, 877) = 14.93, p < 0.001).

5.3. Burnout risk groups in relation to motives for attending university studies

In order to explore students' levels of the risk of study-related burnout, first-year students were divided into burnout risk groups based on the summed study-related burnout scores (for a more detailed description of creating the groups, see the Data analyses section). The mean of the summed study-related burnout score of all students was 22.34 (SD = 7.88) and varied from 9 to 54 (min 9; max 54). The largest number of students belonged to *No risk* (n = 245, 27.8%) and *Average risk* (n = 372, 42.2%) groups. Altogether 17.5% of students (n = 154) belonged to the *Increased risk of burnout* group. Moreover, 12.5% of students (n = 110) exceeded the risk level of *obviously increased risk of burnout*.

Next, we examined the differences in motives for attending university between the different risks for study-related burnout groups. The One-way ANOVA showed that there were statistically significant differences in motives for attending university between the groups (see Table 3). Bonferroni's post hoc test revealed that students in the *No risk* group scored highest on the personal-intellectual scale than the students in other groups (p ≤ 0.000). In addition, the students who belonged to the *Obviously increased risk of burnout* group scored significantly lower on the personal-intellectual scale than the students in the other three groups (p ≤ 0.044). Furthermore, the students who belonged to the *No risk* or to the *Average risk* groups scored statistically significantly lower on expectation-driven scales than the students in the other two groups (p < 0.016). Bonferroni's test also revealed that all the groups statistically differed from each other according to scores on the default scale (p ≤ 0.002), so that the student representing the *Obviously increased risk* group scored highest on the scale.

Table 3

Differences in motives for attending university between the risk of study burnout groups among first-year students.

Motives (scale 1–5)	No risk ¹	Average risk ²	Increased risk ³	Obviously increased risk ⁴	F	p
	M (SD)	M (SD)	M (SD)	M (SD)		
Personal-Intellectual	4.67 (0.40)	4.47 (0.52)	4.35 (0.47)	4.18 (0.58)	28.61	0.000
Humanitarian	3.98 (0.81)	4.04 (0.73)	3.94 (0.76)	4.00 (0.74)	0.77	0.509
Careerism-Materialism	3.50 (0.89)	3.42 (0.83)	3.48 (0.75)	3.45 (0.83)	0.40	0.756
Expectation-driven	1.74 (0.80)	2.08 (0.89)	2.33 (0.85)	2.52 (1.02)	26.07	0.000
Default	1.53 (0.60)	1.86 (0.69)	2.23 (0.70)	2.55 (0.9)	66.34	0.000

Personal-intellectual: No risk¹ > groups^{2,3,4}***, Average risk² > Obviously increased risk⁴***, Increased risk³ > Obviously increased risk⁴*

Expectation-driven: No risk¹ < groups^{2,3,4}***, Average risk² < Increased risk³*, Obviously increased risk⁴4***.

Default: No risk¹ < groups^{2,3,4}***, Average risk² < Increased risk³***, Obviously increased risk⁴4***.

Increased risk³ < Obviously increased risk⁴*

5.4. The risk of study-related burnout groups in relation to academic achievement

The results of One-way ANOVA showed that there were statistically significant differences in study credits and GPA between the study-related burnout groups (Table 4). Bonferroni's post hoc test revealed that the students who belonged to the *Obviously increased risk of burnout* group proceeded statistically significantly slowest in their studies during the first study year compared with the students representing the *No risk* (p = 0.021) or the *Average* group (p = 0.021). In addition, the *Increased risk* group proceeded statistically significantly slower than the *No risk* group (p = 0.002). Furthermore, concerning GPA, the students representing *No risk of study-related burnout* succeeded statistically significantly better in their studies during the first study year than the students belonging to the *Increased* (p = 0.016) or *Obviously increased* (p = 0.000) risk of burnout groups. In addition, the *Average risk* group succeeded better than the *Obviously increased risk burnout* group (p = 0.029).

6. Discussion

This study contributes to the existing knowledge of the importance of the first study year and research on it by providing new insights into relations between motives for attending university studies, study-related burnout and academic achievement. This study revealed that first-year students' motives for attending university and study-related burnout measured at the outset of studies were related to academic achievement at the end of the first study year. As for students' motives to attend university, the personal-intellectual motive correlated positively, and conversely, the default motive correlated negatively to GPA. This finding is in line with previous research on motives for attending university (Dennis et al., 2005; Korhonen et al., 2017) and supports the importance of intrinsic motivation for succeeding in studies (cf. Deci & Ryan, 2000; Janke, 2020; Ryan & Deci, 2020). Our findings further indicate that motives for attending university and study-related burnout are associated with each other, similar to Janke's (2020) earlier findings. More precisely, the results demonstrated that all dimensions of study-related burnout correlated negatively to the personal-intellectual motive, study credits and GPA and positively to the default motive.

Regression analyses provide new understanding of how motives for attending university and study-related burnout together explain academic achievement. Furthermore, our results support the model of Côté and Levine (2000) showing that motives for attending university and study-related burnout are input factors that influence students' academic achievement. The results showed that cynicism and inadequacy had negative relations to study credits. Furthermore, the personal-intellectual motive had positive and careerism-materialism and cynicism negative relations to GPA. However, in contrast to earlier findings (Côté & Levine, 1997, 2000), the results of the present study showed that motives for attending university at the outset of studies were not related to study credits among first-year students. This difference can be

Table 4
Differences in study credits and GPA between the risk of study-related burnout groups among first-year students.

	No risk ¹ (n = 245)	Average risk ² (n = 372)	Increased risk ³ (n = 154)	Obviously increased risk ⁴ (n = 110)	F	p
	M (SD)	M (SD)	M (SD)	M(SD)		
Study credits	0.20 (1.0)	0.02 (0.95)	-0.16 (1.01)	-0.29 (1.06)	8.02	<0.001
GPA	0.20 (0.90)	0.00 (0.99)	-0.11 (1.07)	-0.30 (1.06)	7.25	<0.001

Study progress: No risk¹ > Increased risk^{3*}, Obviously increased risk^{4**}, Average risk 2 > Obviously increased risk 4*

Study success: No risk¹ > Increased risk^{3*}, Obviously increased risk^{4**}, Average risk² > Obviously increased risk^{4*}.

*p < 0.05, **p < 0.000.

explained in part by the uniqueness of the Finnish context where students need to progress in their studies in order to get financial aid (Ministry of Education and Culture, 2021). In addition, students do not drop out from studies because of poor academic achievement. Taken together, our findings indicate that internal motives support students' learning and better grades, whereas experienced study-related burnout had more influence on accumulation of study credits.

This study supports evidence from previous studies that study-related burnout is quite common among higher education students (Asikainen et al., 2020; Madigan & Curran, 2020; Pala, 2012; Räisänen et al., 2018; Salmela-Aro & Read, 2017; Shankland et al., 2019). Regarding the different dimensions of study-related burnout, inadequacy and exhaustion were experienced more, whereas cynicism was experienced less among the first-year students. Similar results have been found among Turkish university students (Pala, 2012). Additionally, it has been found that students' study-related burnout tends to become more common in the later stage of studies (Räisänen et al., 2020; Rudman & Gustavsson, 2012; Salmela-Aro & Read, 2017). Thereby, it is important to pay attention to new students' study-related burnout so that their situation will not get even worse in the university context.

The current study found that 30% of the students reported increased or obviously increased risk of study-related burnout (cf. Kunttu et al., 2017). Our specific concern is related to the findings showing that students with an obviously increased risk of study-related burnout groups most often reported expectation-driven and default motives for university studies and they proceeded statistically significantly slower and their GPA were weaker during the first study year compared to the students with no or average burnout risk. Taken together, the findings of this study show that both study-related burnout and motives for attending university have consequences on students' academic achievement. These findings support the work of other studies in this area (Janke, 2020; Korhonen et al., 2019; Madigan & Curran, 2020; Rudman & Gustavsson, 2012). As the first study year determines the academic achievement in the later phases of studies (Haarala-Muhonen et al., 2017; Korhonen et al., 2017; van der Zanden et al., 2019), motives for attending university and study-related burnout need to be taken into account already at the beginning of the studies.

6.1. Limitations and methodological reflections

The generalisability of these results is subject to certain limitations. Over a third of the cohort in 2017 and over a half of the cohort in 2018 consented to participating in the study, which can be considered a relatively high percentage. However, the situation of those students who either declined to participate or those who did not give their consent remains unknown.

Most of the participants in the present study were first-year students from faculties representing humanities and social sciences. In the future, it would be important to explore disciplinary differences in motives for attending university and study-related burnout as well as the role of the teaching and learning environment. Therefore, the findings of this study cannot be directly generalised to study motives of students in other disciplines, such as science and medicine. In addition, the results indicate students' experiences at the beginning of their studies and they cannot be

generalised to a later phase of studies or to students who have progressed further in their studies (cf. Kennett et al., 2011). For example, students' risk of study-related burnout concerns their situation when they have just come to university. Thus, longitudinal research is needed in order to explore changes in motives and their relation to study-related burnout and academic achievement at a later stage of studies.

Another limitation relates to methodological perspectives. The factor analysis indicated some problematic issues with the SMAU questionnaire. In the CFA, the value of the CFI index reflected a modest model fit, while the rest of the values (i.e. the SRMR and the RMSEA) indicated an acceptable fit (Schumacker & Lomax, 2016; Wang et al., 2013). This may indicate some problems between the hypothesised theoretical five-factor model and the observed data. Previous studies have also identified some problems in the factor structure of the SMAU questionnaire. For example, cross loadings, theoretically inconsistent loadings, and modest reliability have been reported (see Korhonen & Rautopuro, 2012; Phinney et al., 2006). Therefore, further studies in the multidisciplinary higher education context regarding the development of the SMAU would be worthwhile. In spite of these limitations, the SMAU questionnaire is widely used in the Finnish and international higher education contexts (e.g., Côté & Levine, 1997; Korhonen et al., 2019; Phinney et al., 2006). Thus, this questionnaire was considered an appropriate instrument for measuring students' motives for attending university in the present study.

6.2. Practical implications

These findings have several significant practical implications. Firstly, the findings indicate that students' motives for attending university plays a key role in their studies. Thus, they should be taken into account already in university admission and throughout the studies, as they interlink with academic achievement and study-related burnout. Secondly, students' well-being and self-growth should be supported in a variety of ways during studies. For example, course curricula in which students' learning goals, activating teaching methods, different assignments and a variety of assessment methods are constructively aligned (cf. Biggs & Tang, 2011) are beneficial for students' well-being and support their autonomy in learning (cf. Deci & Ryan, 2000; Ryan & Deci, 2020). In addition, varied opportunities for reflection and for sharing feelings with peers support engagement and commitment to university studies (see Korhonen et al., 2019; van der Zanden et al., 2019) buffer against burnout. Thirdly, it is important to support students' metacognition and reflection about their own interest and motives throughout their studies and take into account their holistic growth as academic experts and general well-being (cf. Deci & Ryan, 2000; Ryan & Deci, 2020). It may be challenging for students to identify whether their motives are internal and their own, or to what extent they are applying to university on account of social pressure and expectations. Evidence shows that students who reported having unclear career goals also had difficulties in reflecting on their competences (Tuononen et al., 2019). Supporting both student learning of academic knowledge and skills as well as strategies for maintaining one's own well-being and self-growth (cf. Deci & Ryan, 2000; Ryan & Deci, 2020) is sustainable for students learning at the university and later in working life (cf. Väisänen et al., 2018).

6.3. Conclusions

The findings shed light into the interplay between motives for attending university, study-related burnout and academic achievement and variation within these aspects among first-year students. According to the results, it can be suggested that internal motive is an important input factor in academic achievement and promoting students' well-being. Additionally, study-related burnout, especially cynicism and inadequacy, is associated with a smaller number of study credits. Consequently, creating teaching and learning environments that support personal interest is beneficial in offsetting the effects of study-related burnout for achievement. Study and career guidance and support is needed to respond to the varying needs of students. Especially students who have unclear or external motives for university studies or experience study-related burnout would benefit from this kind of support. This study also raises a question of how students' motives for attending university studies and study-related burnout are taken into account at the lower educational level.

Declaration of competing interest

None.

Appendices. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.lindif.2022.102165>.

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