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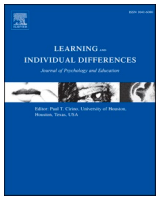

Students' motivational orientations and their study well-being across different disciplines☆

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ABSTRACT

The study aimed to analyze motivational orientation among 1st to 5th year students from different disciplines. Students were clustered according to motivation scores, and the relationships between the disciplines and the students' perceptions of their study well-being were examined. The study was conducted with two cohorts from a sample of 2347 students. Students completed a questionnaire exploring motivational orientation and study well-being, including engagement, burnout, and self-compassion. The latent profile approach facilitated examination of motivational orientation profiles and the extent to which perceived study well-being was related to motivational group identification. From the results, the students were classified into three motivation groups: mastery-oriented, moderation-oriented, and avoidance-oriented. The seven faculties showed significant differences relative to the motivational profile groups. Multinomial logistic regression analysis revealed differences between motivation group variables and study well-being factors.

Educational relevance and implication: The findings shed light on the interplay between motivational orientations, study-related well-being, and academic disciplines, highlighting variations among higher education students in these aspects. The results indicate that the academic discipline plays a significant role in determining students' motivational profiles and study-related well-being, where motivational orientation and study well-being inventories could prove to be a very useful tool for identifying students' motivation and learning processes and the extent to which such processes are related to study well-being. Another finding of this study is the need to create teaching and learning environments that support the interests of the individual, and consequently, their study-related well-being; for instance, educators may support students to develop metacognitive awareness, and coping skills that will help them to manage learning situations, or curriculum changes may reduce the study workload, refine goals and support students in developing organizing skills, enhancing their overall well-being and academic success. Additionally, improved study and career guidance will enable each student to identify their motivation and its components, as well as develop the motivation needed to meet the demands of their discipline; for example, face-to-face and web-based guidance can help students strengthen how they manage their time and effort dedicated to studying, promoting improved study skills. Students with unclear or low study-related motivation, or who experience study-related burnout, will particularly benefit from this kind of support, which should be integrated early on in study programs to help students approach course challenges.

1. Introduction

Students' motivation is both a theoretical construct and an empirical phenomenon that is useful when trying to understand the complex relationships between individual students and their academic communities. It covers multiple academic, cognitive, emotional, behavioral, and sociocultural perspectives from the viewpoint of the student's experience in the learning environment (Salonen et al., 1998). According to previous research, motivation is found to be associated with a number of factors, such as the students' planning, approaching, mastering, and persistence in relation to their learning situations (Jeno et al., 2018; Ng et al., 2016) and their general satisfaction and well-being

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in relation to their studies (Salmela-Aro & Read, 2017). It is important to explore students' motivation in higher education learning situations and to investigate more closely the possible connections between study well-being and academic success.

Previous studies have shown individual differences in students' motivational styles (e.g., Briggs et al., 2012) with variations that are dependent on the learning situation (e.g., Kyndt et al., 2011). Thus, another reason for investigating the characteristics of students' motivation is to improve higher education's ability to support students across different disciplines. This is relevant to student retention and to ensuring a meaningful learning process for all students (Leach & Zepke, 2011). A sense of inclusion also improves students' functioning (doing and being), while their ability to choose between alternatives (capability) has intrinsic value for their well-being (Dörffel & Schuhmann, 2022). Studies have shown that when higher education students are given greater flexibility, are allowed to choose their study area, and shape their degree program according to their own interests, it may lead to improved task-approach motivation (Deci & Ryan, 2004). Under such circumstances, they adapt better to new practices and environments and participate more effectively in academic communities. However, with this increased flexibility, students are increasingly responsible for their own learning and are expected to work independently, do demanding assignments, and strive to meet deadlines. For some students, these demands may prove overwhelming, thus negatively affecting their motivation (Murtonen et al., 2008). Despite the significance of positive motivation and its multiple benefits for learning, as has been shown among school-age children (Tuominen et al., 2020) and young children (e.g., Laitinen et al., 2017), surprisingly little is known about the effect of motivation on higher education students. There is a particular lack of research reviewing the connections between motivation and the other factors that contribute to overall well-being across diverse disciplines. Thus, it is important to study, in relation to the heterogeneity of disciplines, whether students in the same discipline are consistent in their motivational orientation and sense of well-being and whether these factors differ between disciplines. In the present study, we investigate motivation among university students and the factors that affect academic well-being in relation to various disciplines. To achieve this, we applied learning analytics to the self-rating data obtained from students and used the results to understand differences across learning situations.

1.1. Students' motivational orientations

Given the elusive nature of motivation, multiple perspectives are needed to capture its role in learning (Brunstein & Heckhausen, 2010). At its core, motivation encompasses sundry factors, such as personal goals, emotions, and agency beliefs, and it serves as the driving force that energizes, regulates, and guides students' behavior in learning situations (Reeve, 2012). The definition of students' motivation has recently been expanded to include the social dimension, which includes the influence of significant others (Vauras et al., 2019), emotional factors, and behavioral aspects (e.g., positive vs. negative valence, as explored by De Brabander & Martens, 2014). Other facets of students' motivation and behaviors have been examined through the lenses of exploration and curiosity, and these have included concepts such as mastery-related behavior (Dweck & Leggett, 1988) and goal orientation (Pintrich, 2000). In addition to achievement motivation, the most cited theories include self-determination theory (Deci & Ryan, 2000) and expectancy-value theory (Wigfield & Eccles, 2000), both of which provide insightful information regarding how students approach their study assignments and how they are influenced by different motivating elements.

Deci and Ryan's (2000) self-determination theory is a macro-theory for understanding human motivation, personality, and well-being. The theory has its roots in the early exploration of the concept of intrinsic motivation (Ryan & Deci, 2019). Self-determination is regarded as the basis for explaining intrinsically motivated behavior in which the action is experienced as autonomous and does not rely on controls and reinforcers (Deci & Ryan, 1985). Self-determination theory provides a counterweight to expectancy-value theory and social cognitive theory, in both of which external incentives, such as expected or real rewards, are evident motivators of behavior. In expectancy-value theory (Wigfield & Eccles, 2000) intrinsic and extrinsic motivation are related to constructs such as ability beliefs, expectation of success, and subjective task values. Studies have considered the relationship between students' ability-expectancy beliefs, their subjective task values, and their performance and choice of activities. For example, Wan et al. (2021) studied the role played by students' motivational beliefs in their engagement and performance in various activities and in their educational and career choices. In a meta-analytic review, Wan et al. (2021) identified the significance of students' domain-specific motivational beliefs across their childhood and adolescent years and their relative increase in the course of the school years. Lesperance et al. (2022) also used the expectancy-value framework to investigate and understand performance and career choices, especially in academic subjects.

In both our previous (Laitinen et al., 2024) and current investigation into students' motivation, motivational orientation theory serves as our theoretical background (Salonen et al., 1998). Salonen et al. (1998) introduced a triadic motivational orientation model, highlighting three fundamental adaptive goals or orientations that individuals adopt when facing the demands of learning tasks: task approach, task avoidance, and social belonging. The task approach represents the optimal state for learning, indicating the student's intrinsic motivation to approach, explore, and master learning tasks. Conversely, task avoidance signifies unfavorable motivation, potentially involving challenging emotions and/or task-irrelevant behavior. In addition, students' motivation is significantly influenced by social factors that can create prerequisites for learning. Another framework used in the conceptualization of motivation focuses on students' motivation in different learning situations or tasks (e.g., Deci & Ryan, 1985). This interprets students' motivation as being shaped by their subjective interpretation of tasks and situations, thus underscoring the importance of studying motivational differences across disciplines.

Students' motivational orientations can be broadly categorized into two qualitatively distinct profiles: mastery-oriented and avoidance-oriented (e.g., Laitinen et al., 2024; De Brabander & Martens, 2014; Salonen et al., 1998). Those adopting a task-mastery orientation focus on mastering, understanding, and solving tasks with a strong positive valence, while those aiming toward task avoidance are focused on protecting themselves from potential failure, often associated with a negative valence in learning situations. In addition to affective valences, experienced as feelings while doing an activity, De Brabander and Martens (2014) point to cognitive valences in learning situations, which refer to expectations regarding the value of the activity's consequences. A third, moderation-oriented position, emphasizing social belonging (e.g., Sameroff, 2009) and including the role of significant others, has also been identified in learning situations (Laitinen et al., 2024; Salmela-Aro, 2009; Vauras et al., 2019).

Linnenbrink-Garcia et al. (2018) investigated motivational profiles and academic adjustment among upper elementary and college students. Using latent profile analysis, they found that students' self-rated motivation was characterized by three profiles. These were achievement goals, task value, and perceived competence, and they were used to differentiate between approaches associated with academic engagement and achievement. These authors highlighted that it is crucial to integrate motivational theories when creating motivational profiles and studying the role of motivation in academic outcomes (Linnenbrink-Garcia et al., 2018). Greene et al. (2010) used a combined approach by applying both dimensional and positional aspects when modeling students' beliefs about knowledge and knowing in specific domains (e.g., in math and history) from middle school through graduate school. By employing a factor-mixture model, Greene et al. (2010) found differences in students' epistemic cognition factors across academic domains,

which related to both personal experience and authority.

In exploring the motivation of higher education students, Breen and Lindsay (2002) used factor analysis and determined that three motivational dimensions, learning goals, sources of enjoyment, and general motivation, explained variations in students' learning behaviors across different disciplines (Breen & Lindsay, 2002). According to these authors, sources of enjoyment refer to process incentives and describe behavior that is directed by positive affect; for example, a computing student might express the feelings of enjoyment she gets out of pursuing the "right answer." However, learning goals refer to outcome incentives and describe goal-directed behavior; for example, the computing student may instead focus on obtaining the outcome itself rather than on the process of searching for the right answer. The dimension of general motivation includes, for instance, students' self-efficacy and orientation toward the discipline, their level of interest in the chosen subject, and their concern about performing well in an assessment or in mastering the subject content itself.

Salmela-Aro and Read (2017) prompted the emergence of a multidimensional construct of study engagement, and they describe the affective, cognitive, and behavioral dimensions of motivation. They describe how study engagement first comprises energy, which can be defined as having a positive approach to studying and is characterized by high levels of vigor and mental resilience when studying, with a willingness to apply oneself. Second, dedication is manifested through a positive cognitive attitude toward studying in general, interest in one's academic work, seeing it as meaningful, being intimately involved in one's studies, and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Finally, absorption refers to feelings of competence and success and behavioral accomplishment. Study engagement was found to be negatively associated with study burnout. It was during the early stages of their studies that the largest proportion of higher education students were found to be engaged, while over time, it was evident that study burnout increased and study engagement decreased (Salmela-Aro & Read, 2017).

In an ideal learning situation, the various motivational factors coalesce to create a cohesive whole, with the different elements complementing each other. However, previous research has demonstrated that particular combinations of motivational orientations may lean more toward the task-focused or the task-avoidant approach in particular learning situations. For example, university students who strive to grasp the significance of a course for their future careers tend to adopt a task-oriented position and encounter fewer challenges with the course content. Conversely, students driven by task-avoidance may struggle to understand and acknowledge the relevance of the subject matter. These findings have been attributed to the alignment between students' personal intentions and their expectations regarding future endeavors (Murtonen et al., 2008). The present study aimed to examine whether different motivational profiles can be identified in higher education students and the extent to which these profiles relate to their various disciplines. Motivational orientation theory offers a unique perspective compared to other motivation theories by focusing on the specific orientations or mindsets that individuals adopt toward their goals and tasks in the learning situation. It integrates various motivational constructs from other theories, thus providing a more holistic view of motivation and making it possible to understand how different motivational factors interact and influence behavior.

1.2. Motivational orientations and discipline variations

In the context of education, motivation revolves primarily around fostering students' confidence, their desire for learning, and their appreciation of education as a whole (e.g., Murphy & Alexander, 2000). Motivational orientation has been shown to have a significant impact on educational outcomes across various age groups, ranging from early childhood to higher education students. Applying the perspective of expectancy-value theory, researchers such as Pintrich and De Groot (1990) linked intrinsic value and autonomous forms of motivation with positive academic performance. Griffin et al. (2013) underscored that students' intrinsic motivation, encompassing attributes such as diligence, self-direction, and willingness to exert effort, is the most influential factor in promoting positive academic performance. Students' motivation has been shown to be a predictor of positive performance in several academic areas, including course attendance (Moore et al., 2008), course grades (Wilson & Wilson, 2007), and persistence in a chosen academic path (Dodge et al., 2009). As argued by Young (2010), disciplines are the primary communities shaping individual academic identities, and they provide insight into the stability at the core of academia with its academic values and purposes. This all suggests that an examination of students' motivational orientations is crucial to a prediction of their performance in different higher education learning situations.

Recognizing the pivotal role of student motivation in achieving success in higher education, faculties place significant emphasis on motivation and approaches to learning. Students rate enthusiasm and a deep understanding of the subject matter as vital for their own learning (Lammers & Smith, 2008). Additionally, prior research has acknowledged that motivational factors are individual- and discipline-specific, meaning that what fosters success for one student in one field may not necessarily yield the same results for him or her in another. For example, using a motivation questionnaire, Breen and Lindsay (2002) investigated the academic achievement of students in various disciplines, including biology, history, computing, planning, anthropology, geology, food science and nutrition, and education. They discovered that motivating factors are unique to each discipline and do not apply uniformly across all disciplines. Their study revealed that in five out of the eight disciplines (computing, biology, geology, education, and food science and nutrition), confidence in one's ability to succeed is crucial for success. In contrast, in history, an interest in the subject and a focus on knowledge rather than on preparing for a future career were of greater importance. In some disciplines, a focus on extrinsic rewards appeared to be linked with underperformance. Furthermore, learning goals and sources of enjoyment consistently played significant roles in explaining variations in students' motivation (Breen & Lindsay, 2002).

Moreover, the evidence reveals disciplinary variations in the self-regulated learning of higher education students in the humanities, social science, and science courses (Vanderstoep et al., 1996). For instance, studies such as that by Parpala et al. (2010) have shown that students in the sciences tend to adopt a surface approach to learning (akin to "task avoidance"), while those in the behavioral sciences and social sciences are more inclined to embrace a deep learning approach (similar to "task approach"). Furthermore, students of medicine and law tend to adopt an organized approach, which means that these students rate their own study of course units relative to "intention to understand" and "surface approach," to be at an average level, while they rate their "deep approach" to learning as being at a low level (Parpala et al., 2010). This suggests that the production of knowledge and the influence of social factors differ between disciplines. During their university years, students acquire an understanding of the norms and values specific to their own disciplinary culture (e.g., Parpala et al., 2010; Ylijoki, 2000). Individual disciplines have their own distinct categories of thought, providing members of their academic community with shared concepts, theories, methods, techniques, and challenges (Ylijoki, 2000). In light of these considerations, the aim of the present study was to investigate whether the motivational orientation profiles of higher education students showed consistency within a particular discipline while varying between disciplines. Motivational orientation theory is particularly adept at explaining how individuals' motivations can shift based on contextual factors. For instance, a person might adopt a mastery orientation in a learning environment but a performance orientation in a competitive setting.

1.3. Motivational orientation and study-related well-being

In addition to examining motivation across different disciplines, it is crucial to consider how students' approaches to the demands of learning may influence their study-related well-being. From this perspective, certain aspects of achievement motivation, such as studying ability, study success, and appreciation of study, have been found to exert significant impact on students' well-being (Kuittinen & Meriläinen, 2011). Furthermore, having a meaningful and valued primary subject of study has been shown to play a pivotal role in increasing motivation, facilitating academic progress, and reducing study-related burnout (Yang, 2004).

Previous research has also highlighted the significance of self-efficacy beliefs in relation to students' well-being (Soysa & Wilcomb, 2015) and academic success (Honicke & Broadbent, 2016). These beliefs appear to impact academic success through the regulation of effort, goal setting, avoidance of procrastination, and the adoption of strategies for deep learning. In essence, self-efficacy beliefs are integral to students' academic journeys and are profoundly influenced by both successes and failures. It is possible that a decrease in self-efficacy belief may be associated with an increase in study-related burnout (Salmela-Aro, 2009).

In addressing the issue of study well-being, it has been suggested that higher education institutions should equip students with tools to cope effectively with the various challenges they will encounter (Salmela-Aro & Read, 2017). One such tool is study engagement, in which students are supported by having more resources and fewer study demands (Salmela-Aro & Read, 2017). Another such tool is self-compassion, which involves cultivating a compassionate attitude toward oneself (Neff & Germer, 2017). In this study, therefore, drew on the demands-resources model (Salmela-Aro et al., 2021) for a better understanding of the extent to which motivational orientation can lead to an increase in resources, such as study engagement and self-compassion, or to an increase in the demands that promote study burnout.

Self-compassion has gained prominence in recent years as a highly recommended way of relating to oneself and navigating the adversities in life. In the context of higher education, stronger self-compassion has been linked to reduced study-related anxiety and less procrastination, among other benefits (Williams et al., 2008). Extensive research has explored the relationship between self-compassion and feelings of exhaustion, both among students (e.g., Martínez-Rubio et al., 2021) and in the workplace (e.g., Eriksson et al., 2018). The consistent finding across these studies is that stronger self-compassion is associated with lower levels of exhaustion. Additionally, there is a positive connection between self-efficacy beliefs and self-compassion (Liao et al., 2021). In fact, it has been suggested that, for higher education students, these two factors may complement each other as sources of strength (Wasylkiw et al., 2020). In summary, when examining the interplay between motivation and well-being, it becomes evident that fostering self-efficacy beliefs and self-compassion are integral to promoting positive student experiences and protecting study-related well-being. Moreover, previous studies have shown that personal goals and the willingness to solve and understand tasks and learn more are related to the well-being of students (Janke, 2020; Ryan & Deci, 2020). In contrast, when lacking personal interest (Deci & Ryan, 2000) or when goals are unclear (Baik et al., 2017), students may have difficulty in perceiving the relevance of their theoretical studies, or they may find their own career path to be deficient in terms of self-growth, thus making their studies less enjoyable and more frustrating.

2. Aims and research questions

In light of these findings, it is necessary to explore examples of motivational orientation and study well-being in the academic literature (e.g., Salmela-Aro & Read, 2017; Vauras et al., 2019). While such studies have been conducted among higher education students, few person-oriented studies have examined both within and between disciplines (Neumann et al., 2002). Saqr (2023) emphasizes the need for in-depth investigation into individual students' motivation. Within this context, the current study has the potential to introduce a more heterogeneous approach that combines a discipline-specific view with an understanding of students' motivation and well-being, especially in light of the shift toward independent and online learning (e.g., Parpala et al., 2022). Similarly, Salmela-Aro et al. (2021) advocated for research to increase understanding of the extent to which motivation and subject identification enhance students' learning and well-being across different learning situations.

The intrinsic nature of learning may differ between disciplines, raising questions about the applicability of findings across different disciplines (e.g., Breen & Lindsay, 2002). This distinction raises the question of whether students' motivation and study well-being, influenced as they are by unique curriculums and the complexity of their subject matter, will differ fundamentally between academic disciplines. The current study focused on analyzing different combinations of motivational orientations and study well-being, perceived as study engagement, study burnout, and self-compassion, among students from the 1st to the 5th year of study in different disciplines (for similar study designs, see Laitinen et al., 2024); Salmela-Aro & Read, 2017).

The first objective of this study was to examine whether the data supported the hypothesis that different motivational orientation profiles can be identified, and that these profiles adequately describe the perceived motivation of higher education students across a range of disciplines. In particular, based on previous theoretical assumptions and research findings (e.g., De Brabander & Martens, 2014; Salonen et al., 1998; Vauras et al., 2019), it seemed important to examine whether different motivational profiles can be identified in learning situations and then used, for instance, to distinguish between mastery- and avoidance-oriented motivation (*H1*). The second objective focused on investigating how the students' motivational orientation profiles related to their disciplines, together with their propensity to adopt mastery-oriented or avoidance-oriented motivation. It is assumed that softer disciplines (e.g., Social sciences, Education) have higher task-approach and lower the task-avoidance motivation, while harder disciplines (e.g., Science, Engineering) exhibit the opposite (for a categorization of disciplines, see, for example, Neumann et al., 2002; Parpala et al., 2010; Vauras et al., 2019) (*H2*). The third objective examined how the profile groups differed in terms of study well-being, perceived as study engagement, study burnout, and self-compassion, across disciplines. Previous research suggests that problem-focused coping strategies, emotional intelligence, social factors (Vauras et al., 2019), and high levels of self-efficacy (Parpala et al., 2022) positively relate to study well-being across different learning situations (*H3*). This study explored whether these patterns were consistent or varied between disciplines, addressing a crucial gap in the academic literature:

1) What motivational orientation profiles can be identified in higher education students across disciplines?
2) To what extent do these profiles relate to the disciplines?
3) To what extent do these profiles differ in terms of study well-being (study engagement, study burnout, and self-compassion) across disciplines?

3. Materials and methods

3.1. Participants and context

A total of 2347 students participated in the study, of whom 1533 were from the cohort for the year 2019 and 814 from the year 2022. Of the total sample, 75 % were females, 22 % were males, and 3 % did not disclose their gender. The mean age of the participants was 25.8 years (SD = 6.9). The sample was collected using a convenience sampling method in seven faculties of a southern university in Finland. The

faculties represented in the first cohort were as follows: Education 13.7 %, Humanities 17.4 %, Law 5.9 %, Medicine 14.9 %, Science 20.9 %, Social Sciences 14.5 %, and School of Economics 12.7 %. In the second cohort, they were as follows: Education 15.8 %, Humanities 18.9 %, Law 6.3 %, Medicine 17.6 %, Science 12.3 %, Social Sciences 17.1 %, and School of Economics 12.0 %. The sample was fairly representative of Finland's university student population, although women were overrepresented.

Voluntary participation, informed consent, and participant confidentiality were ensured in the research process. Students were asked to complete a questionnaire, and the survey was conducted electronically in spring 2019 for the first cohort and in spring 2022 for the second cohort. The instructions on human subjects and the principles of scientific research provided by the Academy of Finland were followed. Similarly, all guidelines of the Finnish Advisory Board on Research Integrity (2019; 2022) in accordance with the Ethics Committee of the university were followed at every phase of the study.

The study year was determined by asking the students to write down their start study year. We coded the study years as follows: 1 = 1st year (beginning), 2 = 2nd year, 3 = 3rd year (bachelor's level), 4 = 4th year, and 5 = 5th year (master's level). Of the 2347 students who responded, 26.6 % were first-year students, 24.4 % were second-year, 19.7 % were third-year, 15.9 % were fourth-year, and 13.4 % were fifth-year students.

3.2. Measures

Students' *motivational orientations* were measured by a validated scale (for more detail, see Laitinen et al., 2024), which consists of 25 items comprising six subscales: task approach (seven items), self-efficacy beliefs (four items), social belonging (three items), task-irrelevant behavior (four items), activation of challenging emotions (four items), and minimal effort (three items). All items were rated on a five-point Likert scale (1 = never, 5 = very often). Cronbach's alphas for the subscales were 0.82 for task approach, 0.84 for self-efficacy beliefs, 0.90 for social belonging, 0.83 for task-irrelevant behavior, 0.81 for activation of challenging emotions, and 0.78 for minimal effort.

Study engagement was measured by the Schoolwork Engagement Scale (Salmela-Aro & Read, 2017), which consists of nine items measuring three components of study engagement in higher education: vigor, dedication, and absorption in relation to studying. All items measuring study engagement were rated on a six-point scale (1 = completely disagree; 6 = strongly agree). Cronbach's alpha was 0.96 for the study engagement scale.

Study burnout was measured by the School Burnout Inventory (Salmela-Aro & Read, 2017), which consists of nine items measuring three components of study burnout in higher education: exhaustion, cynicism toward the meaningfulness of studying, and sense of inadequacy as a student. All items measuring study burnout were rated on a six-point scale (1 = completely disagree; 6 = strongly agree). Cronbach's alpha was 0.89 for the study burnout scale.

Self-compassion was measured using an instrument modified from the Self-Compassion Scale (Neff, 2003). The original self-compassion scale consists of 26 items. The shortened 19-item version (Raes et al., 2011) was used in this study to measure the higher education students' self-compassion. Students were asked to indicate how often they acted in a particular manner (e.g., *When things are going badly for me, I see the difficulties as part of life that everyone goes through*; *When something upsets me, I try to keep my emotions in balance*). Each item was rated on a five-point scale (1 = almost never, 5 = almost always). To estimate higher education students' self-compassion, a composite self-compassion score was created by calculating the mean of the 19 items involving self-compassion in the higher education context. Cronbach's alpha was 0.86 for the self-compassion scale. Means and standard deviations for the motivational orientation and study well-being of the higher education students in the two cohorts and in different disciplines are presented in Table 1.

3.3. Data analysis

The statistical analyses proceeded in two phases and were conducted using Mplus software version 8.4 (Muthén & Muthén, 1998–2019). First, we performed latent profile analysis (LPA) to identify students with similar motivational profiles (i.e., combinations of task approach, self-efficacy beliefs, social belonging, task-irrelevant behavior, activation of challenging emotions, and minimal effort). To determine the best solution for the motivational orientation profile groups, possible model solutions were compared using the model fit information. In addition to the model fit, the theoretical interpretability of the latent profiles was used to infer the most appropriate number of motivational profile groups. The model fit was evaluated using the log-likelihood (Log L) value (where a higher number indicates a better fit), the Akaike information criterion (AIC), and the Bayesian information criterion (BIC) (a smaller value indicates a better, i.e., parsimonious model; Geiser, 2013), entropy value, and probability estimates of students' belonging to each profile group (values close to 1 or at least 0.8, indicating high precision and reliability of classification; Rost, 2006), the Vuong-Lo-Mendel-Rubin (VLMR), and the parametric bootstrapped likelihood test (BLRT) (a significant result supports the G-group solution in comparison with the G – 1 group solution).

Second, the DCAT procedure for Mplus was used to examine whether higher education students with different motivational orientation profiles differed from each other in terms of their discipline. The DCAT method was chosen because it implements an overall test in which a categorial latent variable (latent class variable) serves as a predictor of categorial outcomes (i.e., different disciplines) (Asparouhov & Muthén, 2014). Finally, BCH as an auxiliary variable option in Mplus (e.g., Bakk et al., 2013) was chosen to test the overall and multiple comparisons made for the profile group differences so that the posterior probabilities for group membership were considered. In the BCH procedure, associations between motivational orientation profiles (i.e., motivational orientations as independent variables) and study well-being (i.e., study engagement, study burnout, and self-compassion as dependent variables) were examined, and, as in the DCAT method, chi square (χ^2) tests were utilized.

For the items measuring self-compassion, even if there were differences between faculties in motivational and study well-being factors, we used the latent profile as a person-oriented approach to examine distinctive motivational orientation profiles and to explore students' perceptions of their study well-being in relation to their motivational group membership.

4. Results

4.1. Identifying higher education students' motivational orientation profiles

The first aim of the present study was to identify different motivational orientation groups among students. LPAs were conducted on standardized sum scores for motivational orientations. The fit indices (e.g., Log L., AIC, BIC, aBIC), entropy values, group proportions, and group posterior probabilities for consecutive numbers of groups are presented in Table 2. To choose the smallest number of profile groups, we used criteria that could be guided by the fit of the model, the distinguishability of the latent profile groups, the latent profile group sizes, and the theoretical justification and interpretability of the profile groups (e.g., Geiser, 2013).

Concerning LPA models with up to five latent profiles, VLMR, and BLRT were statistically significant for the two- and three-group solutions. Even if Log L., AIC, BIC, and aBIC values did not clearly support one motivational orientation group model as being superior to any other model, the differences in those values diminished during a series of LPAs

Table 1
Means and standard deviations for higher education students' motivational orientations and study well-being.

Variable (range)	Task approach	Self-efficacy beliefs	Social belonging	Task-irrelevant behavior	Activation of challenging emotions	Minimal effort	Study engagement	Study burnout	Self-compassion
	(1–5)	(1–5)	(1–5)	(1–5)	(1–5)	(1–5)	(1–6)	(1–6)	(1–5)
Faculty	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)
Cohort 1									
All faculties (n = 1533)	3.56(0.59)	3.61(0.68)	3.59(1.03)	3.00(0.80)	3.01(0.89)	3.06(0.80)	4.83(1.25)	2.89(1.06)	3.08(0.62)
Humanities (n = 266, 17.4 %)	3.55(0.61)	3.53(0.70)	3.29(1.10)	3.19(0.87)	3.25(0.93)	3.12(0.81)	4.70(1.33)	3.16(1.06)	2.94(0.58)
Education (n = 210, 13.7 %)	3.54(0.61)	3.87(0.58)	3.75(0.94)	2.85(0.79)	2.71(0.82)	3.03(0.79)	4.96(1.24)	2.73(1.09)	3.18(0.63)
Science (n = 321, 20.9 %)	3.53(0.63)	3.39(0.73)	3.39(1.07)	3.09(0.81)	3.11(0.92)	3.10(0.83)	4.64(1.27)	3.07(1.11)	3.08(0.64)
Medicine (n = 228, 14.9 %)	3.66(0.56)	3.64(0.64)	3.92(0.90)	2.81(0.74)	2.89(0.86)	2.97(0.79)	5.13(1.17)	2.81(1.04)	3.10(0.63)
Law (n = 90, 5.9 %)	3.47(0.58)	3.62(0.74)	3.59(1.01)	2.83(0.71)	3.13(0.88)	2.97(0.68)	4.74(1.31)	2.67(1.09)	3.04(0.67)
Economics (n = 195, 12.7 %)	3.52 (0.59)	3.64(0.69)	3.75(0.97)	3.00(0.77)	2.96(0.84)	3.11(0.78)	4.69(1.27)	2.76(1.01)	3.17(0.62)
Social Science (n = 223, 14.5 %)	3.59(0.54)	3.68(0.60)	3.63(0.98)	3.06(0.78)	2.98(0.83)	3.03(0.79)	4.95(1.09)	2.73(0.90)	3.06(0.58)
Cohort 2									
All faculties (n = 814)	3.48(0.63)	3.53(0.73)	3.40(1.03)	2.97(0.85)	3.01(0.90)	3.09(0.84)	4.56(1.41)	3.01(1.13)	3.25(0.34)
Humanities (n = 154, 18.9 %)	3.37(0.63)	3.37(0.74)	3.23(1.07)	3.26(0.86)	3.32(0.95)	3.22(0.77)	4.33(1.44)	3.36(1.12)	3.28(0.32)
Education (n = 129, 15.8 %)	3.56(0.64)	3.65(0.71)	3.45(0.98)	2.96(0.81)	2.83(0.86)	2.96(0.83)	4.71(1.47)	2.76(1.15)	3.21(0.38)
Science (n = 100, 12.3 %)	3.39(0.69)	3.32(0.81)	3.02(1.12)	3.07(0.88)	3.14(0.82)	3.11(0.82)	4.49(1.48)	3.14(1.21)	3.21(0.37)
Medicine (n = 143, 17.6 %)	3.61(0.56)	3.66(0.65)	3.91(0.77)	2.67(0.80)	2.86(0.87)	2.96(0.78)	5.07(1.15)	2.72(1.01)	3.22(0.29)
Law (n = 51,6.3 %)	3.53(0.63)	3.49(0.78)	3.34(1.03)	2.82(0.88)	3.14(0.95)	3.09(0.77)	4.72(1.34)	3.02(1.03)	3.23(0.28)
Economics (n = 98, 12.0 %)	3.32(0.70)	3.53(0.77)	3.20(1.05)	2.94(0.83)	2.89(0.92)	3.25(0.98)	4.06(1.55)	3.12(1.19)	3.20(0.33)
Social Science (n = 139, 17.1 %)	3.53(0.52)	3.61(0.65)	3.47(1.01)	2.99(0.81)	2.91(0.85)	3.06(0.87)	4.47(1.28)	3.00(1.07)	3.34(0.34)
All faculties (N = 2347; Cohort 1&2)	3.53(0.61)	3.58(0.70)	3.53(1.03)	2.99(0.82)	3.01(0.89)	3.07(0.81)	4.73(1.32)	2.93(1.09)	3.14(0.55)

Table 2
LPA fit indices for different numbers of motivational orientation profile groups.

$N_{Profiles}$	Log L.	AIC	BIC	aBIC	VLMR (p)	Entropy	Group proportions	Group assignment probabilities	BLRT (p)
1	−19,978.49	39,980.99	40,050.12	40,011.99	–	–	1.00	1.00	–
2	−18,757.86	37,565.72	37,709.74	37,630.31	<0.001	0.74	0.43/0.57	0.90/0.94	<0.001
3	−18,521.82	37,119.64	37,338.55	37,217.82	0.02	0.73	0.14/0.35/0.50	0.80/0.89/0.89	<0.001
4	−18,315.29	36,732.59	37,026.39	36,864.36	0.20	0.68	0.31/0.21/0.25/0.24	0.81/0.86/0.77/0.85	.00[a]
5	−18,164.77	36,457.53	36,826.23	36,622.89	0.20	0.70	0.22/0.09/0.29/0.24/0.16	0.77/0.82/0.83/0.79/0.84	.00[a]

Note. Log L. = Log-likelihood; AIC = Akaike information criterion; BIC = Bayesian information criterion; aBIC = sample-size adjusted Bayesian information criteria; VLMR = Vuong-Lo-Mendell-Rubin test p value; BLRT = bootstrapped likelihood ratio test.
[a] The solution was not trustworthy, even after increasing the starts.

in which the changes seen in the two-group to the three-group models were compared with changes seen in the three-group to the four-group models. According to probabilities (an acceptable level of probability for belonging to a class; Nagin, 2005) and entropy (the value of 0.73 as the level 'medium-high'; Clark, 2010), a three-group solution was chosen. Consequently, a three-group solution had also the best interpretability on theoretical grounds (Marsh et al., 2009).

4.2. Motivational orientation profile interpretation

Three profiles representing different motivational orientation profiles were identified (Fig. 1). Table 3 shows the means and standard deviations for motivational orientations among the three motivational orientation profile groups in seven faculties (Table 3). The first profile (n = 339, 15 %), the *mastery-oriented* profile, comprised students who scored rather low on task-irrelevant behavior and activation of challenging emotions and high on task-approach and self-efficacy beliefs relative to the other groups. The second profile (n = 1176, 50 %) was

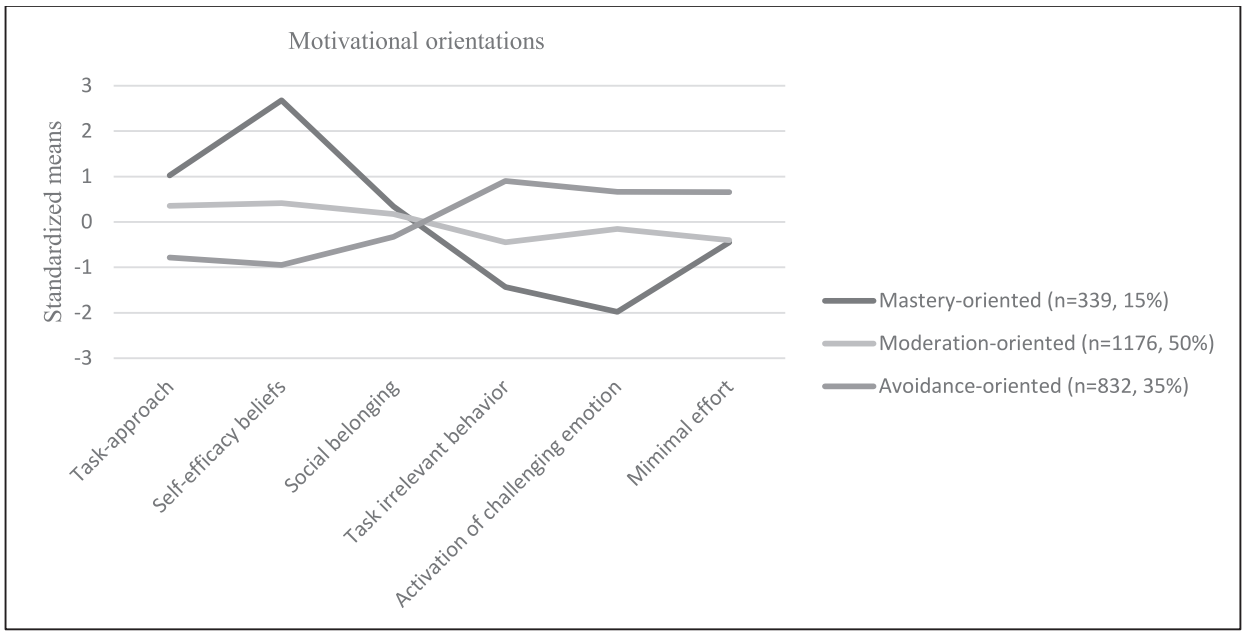

Fig. 1. Latent motivation groups among higher education students based on a three-class model ($N = 2347$).

called the *moderation-oriented* group, since the students in this second profile group represented close to the middle score for each of the motivational factors. They also showed minimal effort at the same level as the students in the mastery-oriented group. The third profile ($n = 832$, 35 %) represented the *avoidance-oriented* group, and the students with this profile scored high on task-irrelevant behavior, activation of challenging emotions, and minimal effort. Furthermore, they had the lowest scores for task-approach and self-efficacy beliefs. Interestingly, all the profiles seemed to score relatively close to the middle in social belonging.

4.3. Students' motivational orientation groups in relation to disciplines

The second aim of the present study was to examine the extent to which these motivational orientation profiles relate to disciplines. To investigate this, the LPA with Mplus' AUXILIARY=DCAT method was carried out for the disciplines (i.e., university faculties) in relation to the students' motivational orientation groups. Fig. 2 shows how the students from the seven faculties were represented in the motivational groups.

The results revealed statistically significant differences in how students from the seven faculties were represented in the motivational orientation groups [$\chi^2 = 117.11(12)$, $p < .001$]. Pairwise comparisons with Bonferroni-corrected p-values show statistically significant differences between the *mastery-* and *moderation-oriented* groups [$\chi^2 = 28.31$ (6), $p < .001$], between the *mastery-* and *avoidance-oriented* groups [$\chi^2 = 89.96(6)$, $p < .001$], and between the *moderation-* and *avoidance-oriented* groups [$\chi^2 = 36.31(6)$, $p < .001$]. Regarding the profile distribution, the mastery-oriented group was largest in the Faculty of Education and smallest in the Faculty of Science relative to the other faculties, whereas the moderation-oriented group was largest among students in the Faculty of Medicine and smallest among students in the Faculty of Humanities. Furthermore, the avoidance-oriented group was largest in the Faculty of Humanities and smallest in the Faculty of Medicine relative to the other faculties.

4.4. Motivational orientation groups and well-being in different disciplines

Finally, we studied whether the motivational orientation profiles differed in terms of study well-being, as measured by study engagement, study burnout, and self-compassion, in the different disciplines using Mplus' AUXILIARY=BCH method for continuous distal outcomes.

The results generally showed statistically significant differences between the motivational orientation profiles and study engagement ($\chi^2 = 1096.72$ (2), $p < .001$), study burnout ($\chi^2 = 1520.72$ (2), $p < .001$), and self-compassion ($\chi^2 = 190.26$ (2), $p < .001$) in all faculties ($N = 2347$) (see Appendix).

Comparisons with Bonferroni-corrected *p*-values showed that mastery-oriented students rated higher in their level of study engagement than moderation-oriented and avoidance-oriented students in all faculties except the Faculty of Law, where moderation-oriented students had the highest level of study engagement. In addition, mastery-oriented students rated higher in levels of self-compassion than either the moderation-oriented or avoidance-oriented students in all faculties except in Economics and Education, in which moderation-oriented students had higher levels of self-compassion. Mastery-oriented students rated lower in levels of study burnout than moderation- and avoidance-oriented students in all faculties. More precisely, mastery-oriented students in the Faculty of Social Sciences rated the highest levels of study engagement and self-compassion, and the lowest levels of study burnout. In addition, mastery-oriented students in the faculties of Humanities and Education rated the lowest levels of self-compassion, while those studying in the Faculty of Science rated the lowest levels of study engagement.

Avoidance-oriented students in the Faculty of Education rated higher for levels of study engagement and self-compassion than avoidance-oriented students in other faculties, while those studying in the Social Sciences rated lower for levels of study burnout than avoidance-oriented students in other faculties. In addition, avoidance-oriented students in the Faculty of Science rated lower levels of study engagement, while those in the Faculty of Medicine rated lower levels of self-compassion. Avoidance-oriented students in the faculties of both Medicine and the Humanities rated higher levels of study burnout than avoidance-oriented students in the other faculties.

When comparing avoidance-oriented students with moderation-oriented students, the moderation-oriented students rated higher in levels of study engagement and self-compassion and lower in levels of study burnout in all faculties, except for the faculties of Science and Law. Moderation-oriented students in the Faculty of Social Sciences rated higher for levels of study engagement and self-compassion than moderation-oriented students in the other faculties, while those in

Table 3
Means and SDs of motivational orientations for motivational orientation profile groups in seven faculties (N = 2347).

	Mastery-oriented	*Moderation-oriented*	*Avoidance-oriented*
Variable (range 1–5)	M (*SD*)	M (*SD*)	M (*SD*)
Humanities (n = 420)			
Task-approach	3.58(0.59)	3.54(0.58)	3.36(0.68)
Self-efficacy beliefs	3.50(0.69)	3.54(0.71)	3.38(0.75)
Social belonging	3.34(1.06)	3.29(1.05)	3.20(1.16)
Task-irrelevant behavior	3.26(0.87)	3.13(0.87)	3.29(0.86)
Activation of challenging emotions	3.21(0.90)	3.24(0.95)	3.36(0.94)
Minimal effort	3.25(0.72)	3.09(0.81)	3.19(0.83)
Education (n = 339)			
Task-approach	3.72(0.71)	3.51(0.59)	3.52(0.60)
Self-efficacy beliefs	3.82(0.63)	3.81(0.64)	3.73(0.65)
Social belonging	3.58(0.98)	3.63(0.96)	3.46(0.97)
Task-irrelevant behavior	2.91(0.81)	2.86(0.80)	3.11(0.80)
Activation of challenging emotions	2.74(0.87)	2.76(0.81)	2.80(0.85)
Minimal effort	2.87(0.86)	3.07(0.78)	2.99(0.81)
Science (n = 421)			
Task-approach	3.62(0.60)	3.53(0.65)	3.43(0.66)
Self-efficacy beliefs	3.45(0.75)	3.40(0.72)	3.30(0.76)
Social belonging	3.27(1.15)	3.34(1.08)	3.17(1.09)
Task-irrelevant behavior	2.96(0.74)	3.04(0.79)	3.16(0.86)
Activation of challenging emotions	3.01(0.84)	3.10(0.91)	3.20(0.91)
Minimal effort	2.91(0.83)	3.07(0.80)	3.20(0.84)
Medicine (n = 371)			
Task-approach	3.73(0.69)	3.68(0.54)	3.63(0.56)
Self-efficacy beliefs	3.92(0.81)	3.71(0.63)	3.61(0.64)
Social belonging	3.98(0.87)	3.95(0.85)	3.89(0.85)
Task-irrelevant behavior	2.44(1.28)	2.66(0.73)	2.83(0.80)
Activation of challenging emotions	2.74(1.28)	2.83(0.86)	2.97(0.83)
Minimal effort	2.76(0.63)	2.92(0.81)	2.97(0.78)
Law (n = 141)			
Task-approach	3.88(0.61)	3.71(0.56)	3.41(0.60)
Self-efficacy beliefs	3.68(0.81)	3.60(0.77)	3.59(0.74)
Social belonging	3.58(1.09)	3.55(1.00)	3.54(1.01)
Task-irrelevant behavior	2.65(0.94)	2.70(0.72)	2.84(0.78)
Activation of challenging emotions	3.04(0.94)	3.12(0.92)	3.23(0.91)
Minimal effort	2.81(0.67)	2.89(0.69)	3.04(0.73)
Economics (n = 293)			
Task-approach	3.60(0.69)	3.53(0.69)	3.47(0.60)
Self-efficacy beliefs	3.74(0.76)	3.64(0.74)	3.50(0.68)
Social belonging	3.69(1.00)	3.47(1.09)	3.25(0.94)
Task-irrelevant behavior	2.79(0.85)	3.94(0.75)	3.10(0.78)
Activation of challenging emotions	2.61(0.85)	2.93(0.83)	3.19(0.89)
Minimal effort	3.07(0.94)	3.15(0.81)	3.25(0.94)
Social Science (n = 362)			
Task-approach	3.62(0.55)	3.58(0.55)	3.45(0.44)
Self-efficacy beliefs	3.70(0.62)	3.64(0.57)	3.55(0.65)
Social belonging	3.61(0.98)	3.56(1.02)	3.44(0.99)
Task-irrelevant behavior	2.87(0.72)	2.99(0.79)	3.04(0.80)
Activation of challenging emotions	2.91(0.84)	2.93(0.78)	3.00(0.84)
Minimal effort	2.88(0.70)	3.00(0.80)	3.12(0.93)

Economics rated lower for levels of study burnout than those in other faculties.

5. Discussion

The aim of the study was to examine whether different combinations of motivational orientation toward learning situations could be identified among students in different disciplines, to what extent these motivational orientation profiles related to the disciplines, and whether the motivational orientation profiles differed in terms of study well-being (as measured by study engagement, study burnout, and self-compassion) in the different disciplines. By shedding light on motivational orientation profiles, we aimed to see the role of motivation in different higher education disciplines and thus raise awareness of the motivational factors affecting studying and teaching in higher education. To this end, a person-oriented approach was chosen to identify groups of students based on their motivational orientation. By utilizing LPA, individual students were sorted into groups with a similar motivational profile, which differed from the motivational profiles of the other groups (see similar grouping design: Marsh et al., 2009). In the present study, the analyses yielded three distinct motivational orientation profiles, which were named according to their main motivational orientation feature.

5.1. Motivational orientation profiles across disciplines (H1)

Of all students, 15 % belonged to the first group, described as *mastery-oriented* and characterized by higher levels of task approach and self-efficacy and lower levels of task-irrelevant behavior, activation of challenging emotions, and minimal effort. For social belonging, their scores were close to the average as compared with the other groups. These scores were interpreted on the basis of previous research showing that task approach, self-efficacy, and social belonging correlate positively with each other and negatively with certain other motivation factors (e.g., Laitinen et al., 2024). Furthermore, there is empirical evidence that suggests that it is more useful to focus on task approach, self-efficacy beliefs, and social belonging than on task-avoidant behaviors when considering mastery and success in different learning situations and across disciplines (e.g., De Brabander & Martens, 2014; Salonen et al., 1998).

In the largest group, *moderation-oriented* (50 %), students rated near-average scores on all the variables, and none of the variables were particularly emphasized in their motivational orientation profile. These students showed slightly above average scores for task approach, self-efficacy beliefs, and social belonging. They rated a little below average for task-irrelevant behavior, activation of challenging emotions, and minimal effort. Considering the qualities of this group, as made up of individuals who score similarly on all motivation factors in learning situations, this profile may be reflecting a flexible (e.g., Donche & Van Petegem, 2009) or strategic learning approach (e.g., Parpala et al., 2010) in which the motivational orientation matches the particular course of study. However, this orientation also reflects a consistent motivational profile characterized by a typical combination of motivational orientations in learning situations that fit together theoretically. Additionally, these students' activation of challenging emotions was slightly higher than that of their other task-avoidant behaviors. Further research is needed here. In particular, a follow-up study involving students who belong to this motivational profile could investigate its relationship to academic achievement.

The third profile, the *avoidance-oriented* group (35 %), comprised students with the highest levels of task-irrelevant behavior, activation of challenging emotions, and minimal effort, as well as the lowest task approach and self-efficacy belief scores as compared with the other profile groups. Thus, these students rated high for emotional and behavioral motivational challenges in learning situations, and they had lower confidence in themselves than the other groups. Furthermore,

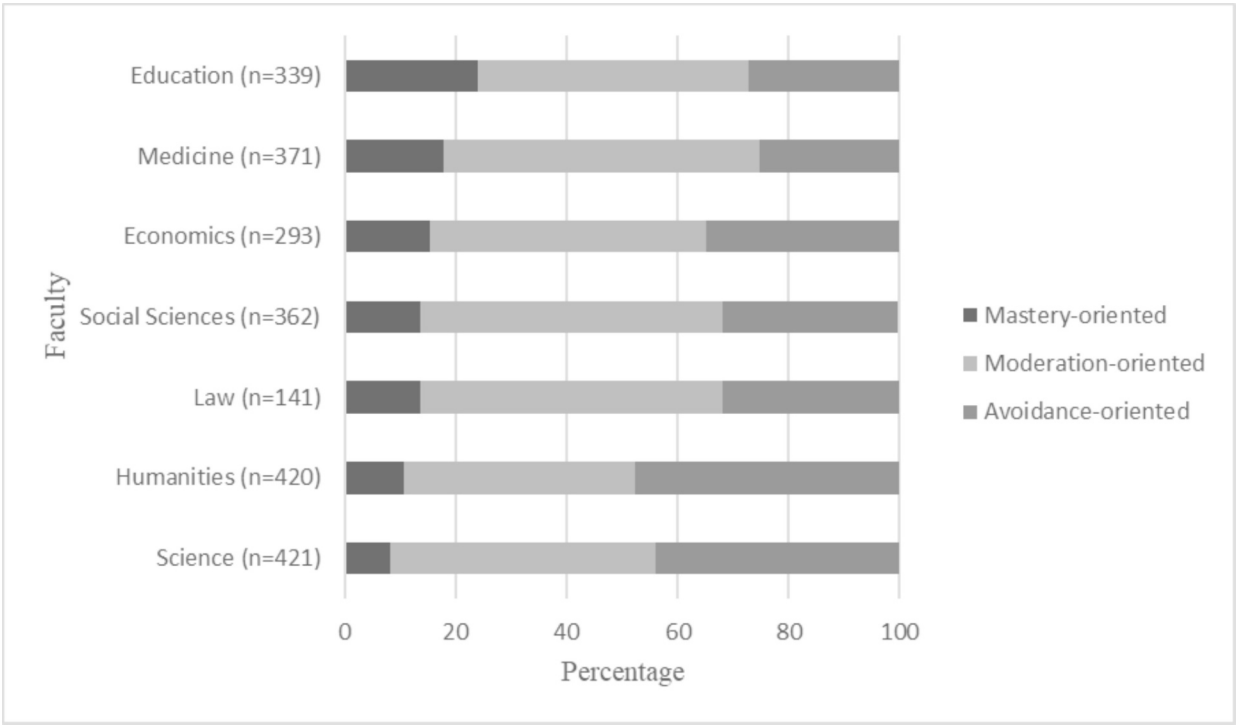

Fig. 2. Percentages of latent motivation groups in seven faculties.

these students may have been experiencing friction between their own learning approach and the university environment in which more independent learning might be required than the students were accustomed to (Vermunt & Verloop, 1999). Thus, uncertainty about the learning required in different educational contexts may contribute to these students experiencing a significant lack of the sense of capability in that environment (Coertjens et al., 2017). It is important to note that, in accordance with Vauras et al. (2019), the scores associated with social interaction were fairly similar for all motivational profiles.

5.2. Motivational orientation profile groups and disciplinary variations (H2)

Second, this study aimed to examine the extent to which motivational orientation profiles relate to different disciplines. Previous research has shown that students who study the soft disciplines score higher for their approach to learning than students who study the hard disciplines (e.g., Parpala et al., 2010; for a categorization of disciplines, see, for example, Neumann et al., 2002). The results of the present study reflect these earlier findings, showing that the Faculty of Education had a larger proportion, and the Faculty of Science had a smaller proportion, of mastery-oriented students than the other faculties. In addition, the Faculty of Humanities had a larger group of avoidance-oriented students and a smaller group of moderation-oriented students than the other faculties. According to Ylijoki (2000), there is an emphasis in the behavioral sciences (including education and social sciences) on internal motivation, critical thinking, and analyzing for professional growth, which supports, for instance, exploring, eagerness, and willingness to understand tasks. In contrast, students in the humanities may feel uncertain about their future and what to expect from their major studies, even if they show an interest in their subject area (Mikkonen et al., 2013). It is significant that students in the Faculty of Medicine rated with a bigger moderation-oriented profile group and a smaller avoidance-oriented profile group than students in the other faculties. Thus, medical students may be characterized as flexible (see description above) or resilient, while a previous study reported that they need to be organized, as do students in the Faculty of Law (Parpala et al., 2010). These two groups of Law and Medicine students had similar scores for both intention to understand and the activation of challenging emotions and avoidance behavior. Salonen et al. (1998) emphasize the role of context in shaping motivational orientation, and by focusing on environment, motivational orientation theory can more accurately predict behavioral outcomes in specific contexts. Different environments, such as educational settings or learning environments, can significantly impact which orientation an individual adopts. This highlights that the results of this study can be a valuable tool for educators, employers, and psychologists aiming to foster specific types of motivation.

5.3. Motivational orientation profiles, study well-being, and different disciplines (H3)

The final aim of this study was to explore whether the motivational orientation profiles differed in terms of study well-being (study engagement, study burnout, and self-compassion) within the different disciplines. The results showed that both mastery- and moderation-oriented students in the Faculty of Social Science rated higher levels of study engagement and self-compassion than students in any other faculties. Mastery- and avoidance-oriented students in the Faculty of Social Science rated the lowest levels of study burnout. This could mean that the perceived relevance of theoretical studies for one's career strengthens both intrinsic motivation and study well-being among students (e.g., Janke, 2020) in the Faculty of Social Science. Furthermore, avoidance-oriented students in the Faculty of Medicine rated lower levels of self-compassion and higher levels of study burnout than most other avoidance-oriented students, although the levels were similar to those of avoidance-oriented students in the Faculty of Humanities. The curriculum in the Faculty of Medicine has traditionally been school-like in character, with a pre-set, timetabled study plan and a typical course overload (Ruohoniemi & Lindblom-Ylänne, 2009). Thus, these students need to be organized and strategic in their studies to get through all the obligatory courses, and they therefore may have less self-determination, including autonomy (e.g., Deci & Ryan, 2004), which can lead to student workload, study burnout, and decreased self-compassion. It is also possible that self-compassion is less likely to develop when there is a risk

of not getting through the course and having to repeat the year. In contrast, avoidance-oriented students in the Faculty of Education rated higher levels of study engagement and self-compassion than avoidance-oriented students in the other faculties. This might, in part, be because social interaction is considered very important when studying to be a teacher, and this may serve as a resource for increasing study well-being, even among avoidance-oriented students. Similarly, as noted in a prior study (Parpala et al., 2010), students in the so-called hard disciplines are found to be more surface-oriented, often combined with a fear of failure and a lack of purpose. This research adds to the prior recognition that both mastery- and avoidance-oriented students in the Faculty of Science rate lower levels of study engagement, and mastery-oriented science students rate more study burnout than those from other faculties. For avoidance-oriented students, the school-like curriculum of the Faculty of Medicine may lead to their lower perceptions of well-being, whereas social interaction, as a characteristic of the Faculty of Education, may serve as a positive resource for their study well-being. In addition, it can be suggested that the hard disciplines, such as the Faculty of Science, may contribute an important factor in all students' experiences of well-being. The motivational profiles applied in this study may, in part, reflect the global assessment of motivation that we applied; therefore, future studies should consider greater heterogeneity in discipline-specific motivations as relating to students' behavior and emotions in learning, for instance, instead of group-level analysis to focus more person-specific level (e.g., Saqr, 2023). However, in this study, we confirmed that certain motivational profiles of discipline can be identified. Furthermore, we identified differences between disciplines in relation to students' motivational and well-being factors. The results highlight that students' self-rated data are crucial to the understanding and optimization of learning and the environment in which it flourishes. Learning analytics can help address heterogeneity by providing insights into individual student performance, identifying learning patterns, and facilitating personalized learning experiences. This diversity may represent a challenge for teachers who need to adapt their instructional strategies to meet the varied needs of students.

5.4. Limitations

A few limitations of the study should be noted. First, the results of the present study indicate that motivation and study approach differ among students in different higher education academic disciplines. However, it should be noted that even small correlations reach levels of significance in samples as large as this one. Second, based on previous research, gender differences may have been linked to motivation in different disciplines more than to the discipline itself, although this factor has been omitted from this study due to the potentially small gender profile groups (Delisle et al., 2009). Third, this study was carried out in a university, and thus, one must be cautious in generalizing the results to the entire Finnish young adult population. Furthermore, given that the response rate was quite low, and the results were based on a self-rating of motivation and well-being, we must stress that the results cannot be generalized to the entire population from which the sample was taken. Because of sampling method (convenience sampling), the possibility of a group of students who did not respond may also increase bias. Fourth, the person-centered approach may reveal different profiles quantitatively but not qualitatively, which means that the same students may simultaneously exhibit features from different motivational profiles. Thus, there is a measure of uncertainty associated with clustering, especially if the entropy value related to the quality of the classification remains low. Therefore, further study is needed in the context of multidisciplinary higher education to investigate the development of motivational profiles in relation to academic achievement.

6. Conclusions

It appears that there is disciplinary variation in motivational orientation. Furthermore, the results show that both motivational orientation and academic discipline have an effect on students' perceptions of study well-being. This study examines motivation according to different types of motivational orientation, and it includes aspects such as learning-related interest in knowledge, social belonging, and the desire to protect oneself from self-threatening experiences of failure. The results confirm that it is important that higher educators are aware of the different kinds of motivational profiles as rated by students in different disciplines. In particular, identifying both adaptive (e.g., task-approach, social belonging) and maladaptive (e.g., task-irrelevant behavior, minimal effort) motivational tendencies can enable both the students and the counseling services who support the students to regulate their learning approach toward the achievement of learning goals. Students can be helped to focus on new study methods and self-organization and to attach and include themselves within the study environment. The theory acknowledges that motivational orientations are not static. They can change over time and across different situations and are influenced by personal experience and external factors. This is crucial from the pedagogical point of view because enhancing students' motivation through improved resources and reduced demands is linked to the students' study well-being, thus enabling them to make better progress in their studies.

From a theoretical point of view, our results contribute to previous person-centered studies on motivation by showing that motivational orientations differ, at least to some extent, between higher education students in the different academic disciplines. In addition, the results broaden an understanding of the relationships between motivational orientation profiles and study well-being, both within and between disciplines, and provide valuable information for the development of higher education pedagogy and expertise in different domains (e.g., for models of personal epistemology and academic performance at different educational levels; Greene et al., 2010). Further examination of individual cognitive and social mechanisms, such as modeling within-person processes (Saqr, 2023), is needed to understand the multidimensional aspects of students' motivation and their capacity to cope with changes in study approach according to discipline and to help identify possible targets for intervention.

CRediT authorship contribution statement

Satu Laitinen: Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Eero Laakkonen:** Writing – original draft, Validation, Supervision, Software, Resources, Methodology. **Tiina Tuominen:** Writing – original draft, Supervision, Resources, Project administration, Methodology, Conceptualization. **Ari Kaukiainen:** Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization.

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Appendix

Table A1
Motivational orientation profiles and well-being factors from all data associated with this article, including that from all faculties combined and from individual faculties.

Variable	Overall	Mastery (ma) vs. Moderate (mo)	Mastery (ma) vs. Avoidance (av)	Moderate (mo) vs. Avoidance (av)
All faculties (N = 2347)				
Cohort (1 & 2)	$\chi^2(2) = 8.57^{*}$	$62_{ma};38_{mo}\%/70_{ma};30_{mo}\%$ ns	$62_{ma};38_{av}\%/\ 61_{ma};39_{av}\%$ ns	$70_{mo};30_{av}\%/61_{mo};39_{av}\%^{*}$
Study year (1–5)	$\chi^2(8) = 26.48^{**}$	$32_{ma};22_{ma};17_{ma};17_{ma};12_{ma}\%/ 30_{mo};25_{mo};18_{mo};15_{mo};13_{mo}\%$ ns	$32_{ma};22_{ma};17_{ma};17_{ma};12_{ma}\%/ 20_{av};25_{av};24_{av};17_{av};14_{av}\%^{*}$	$30_{mo};25_{mo};18_{mo};15_{mo};13_{mo}\%/ 20_{av};25_{av};24_{av};17_{av};14_{av}\%^{**}$
Study engagement[a], *M*(SD)	$\chi^2 = 1096.72^{***}$	$0.87(0.05)/0.38(0.03)^{***}$	$0.87(0.05)/-0.88(0.04)^{***}$	$0.38(0.03)/-0.88(0.04)^{***}$
Study burnout[a], *M* (SD)	$\chi^2 = 1520.72^{***}$	$-1.16(0.04)/-0.28(0.03)^{***}$	$-1.16(0.04)/0.87(0.03)^{***}$	$-0.28(0.03)/0.87(0.03)^{***}$
Self-compassion[a], *M*(SD)	$\chi^2 = 190.26^{***}$	$0.53(0.07)/0.13(0.03)^{***}$	$0.53(0.07)/-0.39(0.04)^{***}$	$0.13(0.03)/-0.39(0.04)^{***}$
Humanities (n = 420)				
Cohort (1 & 2)	$\chi^2(2) = 3.78$ ns	$68_{ma};32_{mo}\%/64_{ma};36_{mo}\%$ ns	$68_{ma};32_{av}\%/53_{ma};47_{av}\%$ ns	$64_{mo};36_{av}\%/53_{mo};47_{av}\%$ ns
Study year (1–5)	$\chi^2(8) = 8.34$ ns	$29_{ma};19_{ma};18_{ma};18_{ma};16_{ma}\%/ 19_{mo};25_{mo};23_{mo};18_{mo};16_{mo}\%$ ns	$29_{ma};19_{ma};18_{ma};18_{ma};16_{ma}\%/ 25_{av};35_{av};16_{av};14_{av};10_{av}\%$ ns	$19_{mo};25_{mo};23_{mo};18_{mo};16_{mo}\%/ 25_{av};35_{av};16_{av};14_{av};10_{av}\%$ ns
Study engagement[a], *M*(SD)	$\chi^2 = 319.93^{***}$	$0.87(0.07)/-0.31(0.07)^{***}$	$0.87(0.07)/-1.28(0.12)^{***}$	$-0.31(0.07)/-1.28(0.12)^{***}$
Study burnout[a], *M* (SD)	$\chi^2 = 294.73^{***}$	$-0.60(0.08)/0.42(0.07)^{***}$	$-0.60(0.08)/1.35(0.08)^{***}$	$0.42(0.07)/1.35(0.08)^{***}$
Self-compassion[a], *M*(SD)	$\chi^2 = 43.55^{***}$	$0.33(0.09)/-0.25(0.08)^{***}$	$0.33(0.09)/-0.57(0.13)^{***}$	$-0.25(0.08)/-0.57(0.13)^{*}$
Education (*n* = 339)				
Cohort (1 & 2)	$\chi^2(2) = 29.05^{***}$	$54_{ma};46_{mo}\%/86_{ma};14_{mo}\%^{***}$	$54_{ma};46_{av}\%/49_{ma};51_{av}\%$ ns.	$86_{mo};14_{av}\%/49_{mo};51_{av}\%^{***}$
Study year (1–5)	$\chi^2(8) = 24.64^{***}$	$46_{ma};23_{ma};11_{ma};9_{ma};12_{ma}\%/ 18_{mo};21_{mo};21_{mo};26_{mo};14_{mo}\%^{*}$	$46_{ma};23_{ma};11_{ma};9_{ma};12_{ma}\%/ 32_{av};17_{av};31_{av};11_{av};9_{av}\%$ ns	$18_{mo};21_{mo};21_{mo};26_{mo};14_{mo}\%/ 32_{av};17_{av};31_{av};11_{av};9_{av}\%$ ns
Study engagement[a], *M*(SD)	$\chi^2 = 167.50^{***}$	$0.96(0.08)/0.17(0.10)^{***}$	$0.96\ (0.08)/-0.69(0.10)^{***}$	$0.17(0.10)/-0.69(0.10)^{***}$
Study burnout[a], *M* (SD)	$\chi^2 = 188.26^{***}$	$-0.77(0.09)/-0.66(0.10)$ ns	$-0.77(0.09)/0.76(0.09)^{***}$	$-0.66(0.10)/0.76(0.09)^{***}$
Self-compassion[a], *M*(SD)	$\chi^2 = 20.26^{***}$	$0.33(0.11)/0.29(0.13)$ ns	$0.33(0.11)/-0.25(0.09)^{***}$	$0.29(0.13)/-0.25(0.09)^{***}$
Science (n = 421)				
Cohort (1 & 2)	$\chi^2(2) = 4.09$ ns	$78_{ma};22_{mo}\%/79_{ma};21_{mo}\%$ ns	$78_{ma};22_{av}\%/65_{ma};35_{av}\%$ ns	$79_{mo}:21_{av}\%/65_{mo};35_{av}\%$ ns
Study year (1–5)	$\chi^2(8) = 22.92^{**}$	$36_{ma};18_{ma};18_{ma};15_{ma};12_{ma}\%/ 17_{mo};28_{mo};29_{mo};15_{mo};12_{mo}\%^{*}$	$36_{ma};18_{ma};18_{ma};15_{ma};12_{ma}\%/ 13_{av};29_{av};28_{av};19_{av};12_{av}\%^{**}$	$17_{mo};28_{mo};29_{mo};15_{mo};12_{mo}\%/ 13_{av};29_{av};28_{av};19_{av};12_{av}\%$ ns
Study engagement[a], *M*(SD)	$\chi^2 = 202.33^{***}$	$0.41(0.06)/-0.05(0.08)^{***}$	$0.41(0.06)/-1.51(0.12)^{***}$	$-0.05(0.08)/-1.51(0.12)^{***}$
Study burnout[a], *M* (SD)	$\chi^2 = 209.78^{***}$	$-0.61(0.07)/0.76(0.09)^{***}$	$-0.61(0.07)/0.91(0.12)^{***}$	$0.76(0.09)/0.91(0.12)$ ns
Self-compassion[a], *M*(SD)	$\chi^2 = 67.43^{***}$	$0.45(0.08)/-0.53(0.10)^{***}$	$0.45(0.08)/-0.46(0.13)^{***}$	$-0.53(0.10)/-0.46(0.13)$ ns
Medicine (n = 371)				
Cohort (1 & 2)	$\chi^2(2) = 1.51$ ns	$57_{ma};43_{mo}\%/63_{ma};37_{mo}\%$ ns	$57_{ma};43_{av}\%/67_{ma};33_{av}\%$ ns	$63_{mo};37_{av}\%/67_{mo};33_{av}\%$ ns
Study year (1–5)	$\chi^2(8) = 15.44^{*}$	$39_{ma};27_{ma};11_{ma};10_{ma};13_{ma}\%/ 26_{mo};29_{mo};20_{mo};13_{mo};12_{mo}\%$ ns	$39_{ma};27_{ma};11_{ma};10_{ma};13_{ma}\%/ 21_{av};31_{av};21_{av};24_{av};4_{av}\%^{*}$	$26_{mo};29_{mo};20_{mo};13_{mo};12_{mo}\%/ 21_{av};31_{av};21_{av};24_{av};4_{av}\%$ ns
Study engagement[a], *M*(SD)	$\chi^2 = 156.65^{***}$	$0.93(0.06)/0.19(0.06)^{***}$	$0.93(0.06)/-1.04(0.18)^{***}$	$0.19(0.06)/-1.04(0.18)^{***}$
Study burnout[a], *M* (SD)	$\chi^2 = 225.24^{***}$	$-0.88(0.07)/-0.03(0.07)^{***}$	$-0.88(0.07)/1.35(0.15)^{***}$	$-0.03(0.07)/1.35(0.15)^{***}$
Self-compassion[a], *M*(SD)	$\chi^2 = 32.34^{***}$	$0.40(0.08)/-0.08(0.08)^{***}$	$0.40(0.08)/-0.60(0.19)^{***}$	$-0.08(0.08)/-0.60(0.19)^{*}$
Law (n = 141)				
Cohort (1 & 2)	$\chi^2(2) = 0.60$ ns	$66_{ma};34_{mo}\%/66_{ma};34_{mo}\%$ ns	$66_{ma};34_{av}\%/59_{ma};41_{av}\%$ ns	$66_{mo};34_{av}\%/59_{mo};41_{av}\%$ ns
Study year (1–5)	$\chi^2(8) = 5.16$ ns	$19_{ma};32_{ma};18_{ma};22_{ma};9_{ma}\%/ 26_{mo};33_{mo};13_{mo};20_{mo};8_{mo}\%$ ns	$19_{ma};32_{ma};18_{ma};22_{ma};9_{ma}\%/ 25_{av};22_{av};23_{av};14_{av};18_{av}\%$ ns	$26_{mo};33_{mo};13_{mo};20_{mo};8_{mo}\%/ 25_{av};22_{av};23_{av};14_{av};18_{av}\%$ ns
Study engagement[a], *M*(SD)	$\chi^2 = 39.25^{***}$	$0.44(0.20)/0.33(0.10)$ ns	$0.44(0.20)/-0.72(0.15)^{***}$	$0.33(0.10)/-0.72(0.15)^{***}$

(*continued on next page*)

Table A1 (*continued*)

Variable	Overall	Mastery (ma) vs. Moderate (mo)	Mastery (ma) vs. Avoidance (av)	Moderate (mo) vs. Avoidance (av)
Study burnout[a], *M* (SD)	$\chi^2 = 98.90^{***}$	-1.03(0.13)/−0.37(0.10)***	-1.03(0.13)/0.76(0.13)***	-0.37(0.10)/0.76(0.13)***
Self-compassion[a], *M*(SD)	$\chi^2 = 8.08^{*}$	0.44(0.21)/−0.09(0.14)*	0.44(0.21)/−0.29(0.15)***	−0.09(0.14)/−0.29(0.15) ns
Economics (n = 293)				
Cohort (1 & 2)	$\chi^2(2) = 4.74$ ns	59_{ma};41_{mo}%/73_{ma};27_{mo}% ns	59_{ma};41_{av}%/56_{ma};44_{av}% ns	73_{mo};27_{av}%/56_{mo};44_{av}% ns
Study year (1–5)	$\chi^2(8) = 7.08$ ns	24_{ma};24_{ma};12_{ma};24_{ma};16_{ma}%/ 26_{mo};21_{mo};23_{mo};12_{mo};18_{mo}% ns	24_{ma};24_{ma};12_{ma};24_{ma};16_{ma}%/ 24_{av};27_{av};12_{av};22_{av};15_{av}% ns	26_{mo};21_{mo};23_{mo};12_{mo};18_{mo}%/ 24_{av};27_{av};12_{av};22_{av};15_{av}% ns
Study engagement[a], *M*(SD)	$\chi^2 = 180.15^{***}$	0.92(0.13)/0.11(0.07)***	0.92(0.13)/−1.25(0.11)***	0.11(0.07)/−1.25(0.11)***
Study burnout[a], *M* (SD)	$\chi^2 = 234.07^{***}$	-1.05(0.11)/−0.38(0.07)***	-1.05(0.11)/1.03(0.10)***	-0.38(0.07)/1.03(0.10)***
Self-compassion[a], *M*(SD)	$\chi^2 = 14.61^{***}$	0.45(0.19)/0.18(0.08) ns	0.45(0.19)/−0.26(0.11)***	0.18(0.08)/−0.26(0.11)***
Social Sciences (n = 362)				
Cohort (1 & 2)	$\chi^2(2) = 0.16$ ns	58_{ma};42_{mo}%/62_{ma};38_{mo}% ns	58_{ma};42_{av}%/61_{ma};39_{av}% ns	62_{mo};38_{av}%/61_{mo};39_{av}% ns
Study year (1–5)	$\chi^2(8) = 5.53$ ns	22_{ma};20_{ma};19_{ma};23_{ma};15_{ma}%/ 28_{mo};26_{mo};20_{mo};13_{mo};13_{mo}% ns	22_{ma};20_{ma};19_{ma};23_{ma};15_{ma}%/ 21_{av};23_{av};16_{av};20_{av};21_{av}% ns	28_{mo};26_{mo};20_{mo};13_{mo};13_{mo}%/ 21_{av};23_{av};16_{av};20_{av};21_{av}% ns
Study engagement[a], *M*(SD)	$\chi^2 = 200.65^{***}$	1.13(0.10)/0.23(0.05)***	1.13(0.10)/−0.77(0.09)***	0.23(0.05)/−0.77(0.09)**
Study burnout[a], *M* (SD)	$\chi^2 = 158.64^{***}$	−1.07(0.13)/−0.32(0.05)***	−1.07(0.13)/0.74(0.09)***	−0.32(0.05)/0.74(0.09)***
Self-compassion[a], *M*(SD)	$\chi^2 = 34.60^{***}$	0.86(0.18)/0.13(0.06)***	0.86(0.18)/−0.36(0.11)***	0.13(0.06)/−0.36(0.11)*

Note Bonferroni correction was used in pairwise comparisons of the motivational orientation profiles.

[a] Standardized scores.

ns Non-significant.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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