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Studies in Higher Education

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/cshe20

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To cite this article: Elisabeth F. Klinkenberg, Melissa Versteeg & Rutger F. Kappe (16 Nov 2023): Engagement and emotional exhaustion among higher education students; a mixed-methods study of four student profiles, Studies in Higher Education, DOI: 10.1080/03075079.2023.2281533

To link to this article: https://doi.org/10.1080/03075079.2023.2281533

Published online: 16 Nov 2023.

STUDIES IN HIGHER EDUCATION
https://doi.org/10.1080/03075079.2023.2281533

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Engagement and emotional exhaustion among higher education students; a mixed-methods study of four student profiles

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ABSTRACT

A decline in both student well-being and engagement were reported during the COVID-pandemic. Stressors and internal energy sources can co-exist or be both absent, which might cohere with different student needs. This study aimed to develop student profiles on emotional exhaustion and engagement, as well as examine how profiles relate to student participation, academic performance, and overall well-being. Survey-data from 1,460 Dutch higher education students were analyzed and resulted in a quadrant model containing four student profiles on engagement and emotional exhaustion scores. Semi-structured interviews with 13 students and 10 teaching staff members were conducted to validate and further describe the student profiles. The majority of the survey participants were disengaged-exhausted (48%) followed by engaged-exhausted students (29%). Overall, the engaged-energized students performed best academically and had the highest levels of well-being and participation, although engaged-exhausted students were more active in extracurricular activities. The engaged-exhausted students also experienced the most pressure to succeed. The qualitative validation of the student profiles demonstrates that students and teachers recognize and associate the profiles with themselves or other students. Changes in the profiles are attributed to internal and external factors, suggesting that they are not fixed but can be influenced by various factors. The practical relevance of the quadrant model is acknowledged by students and teachers and they shared experiences and tips, with potential applications in recognizing students' well-being and providing appropriate support. This study enriches our grasp of student engagement and well-being in higher education, providing valuable insights for educational practices.

ARTICLE HISTORY
Received 25 March 2023
Accepted 4 November 2023

KEYWORDS
Students; Higher education; Academic performance; Student well-being; Student engagement

Introduction

Student well-being is well researched in higher education (HE) given the high prevalence of psychosocial problems among students (McLafferty et al. 2017), which has increased during the COVID-pandemic (Van de Velde et al. 2021; Versteeg and Kappe 2021). Student well-being encompasses a broad term targeting positive self-perceptions and the capacity to deal with challenges inherent to student life (Barkham et al. 2019; Cameron and Rideout 2022; Gubbels and Kappe 2019). It is thus an important precursor of academic performance and overall student success, as research on student well-being indicates that happier students are more engaged and report increased participation in academic activities, ultimately improving academic outcomes (Boulton et al. 2019; Zepke and Leach 2010).

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Student engagement

Engagement is a cognitive–affective state involving vigor, absorption, and dedication (Schaufeli et al. 2002; 2019). Vigor captures the willingness of students to invest in their academic studies, absorption regards the extent by which students become engrossed by their study materials while studying, and dedication involves students' sense of enthusiasm toward studying. Analyzes of engagement and study behaviors in first-year students demonstrates that disengagement predicts lower academic achievements later on (Collie, Holliman, and Martin 2016). Otherwise, examination of engagement levels outside of the classroom, including sports, societies, employment, extracurricular events, and peer social activities, also negatively predicts academic outcomes (Boulton et al. 2019; Fokkens-Bruinsma et al. 2021; Santos et al. 2023), highlighting complexity in research results and their interpretation. When considering engagement throughout the academic journey, students who have been studying for longer tend to describe lower engagement levels than new students (Boulton et al. 2019; Salmela-Aro and Read 2017).

Emotional exhaustion

Burn-out, defined as a slow, drawn-out response to chronic, interpersonal stressors, refers to feelings of exhaustion due to study demands (Schaufeli et al. 2002) and is tied to engagement. While high levels of engagement are generally positively linked to academic performances (Lei, Cui, and Zhou 2018), high levels of burn-out negatively influence academic progress (Madigan and Curran 2021). Though engagement and burn-out have previously been conceptualized as a continuum (Leiter and Maslach 2005), more recent research argues that the constructs are distinct (Salmela-Aro and Upadyaya 2020).

Burn-out includes the dimensions emotional exhaustion, cynicism, and incompetence (Schaufeli and van Dierendonck 2000). The emotional exhaustion component of burn-out, defined as feeling study-related strain and stress, and chronic fatigue resulting from study load and study demands (Portoghese et al. 2018; Salmela-Aro and Read 2017), is a potential first sign of study burn-out. Emotional exhaustion is additionally associated with threats to student well-being, including worry, anxiety, and stress (Eaves and Payne 2019; Salmela-Aro and Read 2017). Thus, this specific subcomponent is valuable to research as it allows monitoring of early warnings which can inform prevention methods.

Emotional exhaustion also has an effect on academic outcomes of students (Neumann, Finaly-Neumann, and Reichel 1990). Students who experience higher emotional exhaustion, also report lower levels of academic attainment and perceive lower levels of commitment to their studies. Emotional exhaustion of students is furthermore negatively linked to study engagement (Uludag and Yaratan 2010). Protectors of well-being have also been studied in relation to emotional exhaustion, including perceived resilience (Lee et al. 2021). Higher resilience negatively correlates with emotional exhaustion, providing a possible buffer against student burn-out.

A person-oriented approach on engagement and exhaustion

Current research gaps exist in person-oriented approaches to study energy sources and stressors simultaneously, particularly within HE populations (Salmela-Aro and Upadyaya 2020). This limits the translation of findings into distinct individual characteristics by assuming homogeneity of study samples (Mäkikangas and Kinnunen 2016; Sorkkila et al. 2020). Studies on HE samples on engagement and exhaustion also typically overrepresent first-year students, with middle and higher study years understudied (Salmela-Aro and Read 2017). Furthermore, studies demonstrate complex results, indicating a need for contextual meaning to clarify results (Galdino et al. 2020). The current study addresses these concerns by utilizing a person-oriented approach to identify patterns of emotional exhaustion and engagement within groups, using extensive survey-data

containing HE students in all study years. Additionally, the study integrates a mixed-methods approach to enrich quantitative findings with study behavior descriptions and well-being characteristics reported by HE students and teachers through in-depth interviews.

Based on the information above, it is understood that engagement and emotional exhaustion are important factors for HE students, their academic performance, student participation and student well-being as a whole. As a result, there is a need to apply a mixed-method approach that includes both descriptive and model-based methods. This study aims to:

1) Develop a quadrant model-based on student engagement and emotional exhaustion.
2) Seek associations between the four profiles and student participation, academic performance, and well-being.
3) Validate the four profiles based on recognizability, changeability and practical relevance.
4) Deepen the profiles based on experiences of HE students and teachers, including tips and tools to improve student engagement and decrease emotional exhaustion.

Methods

Quantitative survey

The Student Well-being Monitor 2021 (SWM 2021) is a survey regarding student well-being, engagement, and academic performance at Inholland University of Applied Sciences in the Netherlands (Versteeg and Kappe 2021). This university has over 25,000 students in eight different cities in the Western part of the Netherlands. The SWM 2021 was sent out via email between 17 and 22 May 2021 to all students and was available in Dutch and English. Surveys were formatted in Qualtrics survey tool and adhered to European guidelines on General Data Protection Regulation (GDPR) in addition to meeting ethical standards set by the institutional review board at Inholland University of Applied Sciences.

Participants

All participants were actively enrolled students at Inholland University of Applied Sciences. In addition, personal consent was required prior to participation and all respondents were aged 17 years or above. 1,847 participants completed the SWM 2021. Only full-time students were included in the final sample, as those students with other enrolment statuses are often in different stages of their lives (Boumi and Vela 2021), making it hard to interpret results accurately for these groups (e.g. living situation and study delay). Therefore, the final sample consisted of 1,460 full-time students (Table 1).

Measures

The ultra-short Utrecht Work Engagement Scale-Student Form (UWES-3SF) was employed as a measure of student engagement (Schaufeli et al. 2019). The UWES-3SF requires respondents to indicate occurrence frequency along a 7-point scale ranging from 'never' (1) to 'always' (7). Total scores were averaged with higher scores indicating a higher level of student engagement. There is no general cut-off score for this scale. We defined a score of 4 or higher as high engagement. This means that the student feels engaged with the study a few times a month or more on average. The Cronbach's alpha for the three engagement items was .82.

A subscale of the Utrechtse Burn-Out Scale (UBOS) was included as a self-reported 5-item measure of emotional exhaustion (Schaufeli et al. 2002; Schaufeli and van Dierendonck 2000). The UBOS requires responses along a 7-point scale ranging from 'never' (1) to 'always' (7), with items including statements such as 'I feel mentally drained by my study', or 'I feel empty at the end of a study day'.

Table 1. Overview of quantitative survey respondents ($N = 1460$).

	Student total (n=1460)	Disengaged-energized (n=127)	Engaged-energized (n=213)	Engaged-exhausted (n=418)	Disengaged-exhausted (n=702)
Gender					
Male	544 (37%)	52 (41%)	75 (35%)	151 (36%)	266 (38%)
Female	916 (63%)	75 (59%)	138 (65%)	267 (64%)	436 (62%)
Study Year					
1	397 (27%)	28 (22%)	89 (42%)	145 (35%)	135 (19%)
2	397 (27%)	35 (28%)	51 (24%)	109 (26%)	202 (29%)
3	289 (20%)	37 (29%)	33 (15%)	80 (19%)	139 (20%)
4	249 (17%)	13 (10%)	33 (15%)	52 (15%)	141 (20%)
5+	128 (9%)	14 (11%)	7 (3%)	22 (5%)	85 (12%)
Study discipline					
Archicultural/food	106 (7%)	6 (5%)	19 (9%)	44 (11%)	37 (5%)
Business/finance	338 (23%)	51 (40%)	50 (23%)	74 (18%)	163 (23%)
Creative	347 (24%)	22 (17%)	36 (17%)	95 (23%)	194 (28%)
Health/social	321 (22%)	23 (18%)	64 (30%)	94 (22%)	140 (20%)
Teaching/learning	86 (6%)	5 (4%)	10 (5%)	33 (8%)	38 (5%)
Technical	262 (18%)	20 (16%)	34 (16%)	78 (19%)	130 (19%)

Total scores were averaged with higher scores signaling higher emotional exhaustion. We used a cut-off score of 3.21 to define low and high emotional exhaustion, which is used as a national cut-off score used among population studies (Statistics Netherlands n.d.). The Cronbach's alpha for the five items on emotional exhaustion was .91.

To study differences between the student profiles based on engagement and exhaustion, several other measures were also included. Regarding well-being, the Centre for Epidemiological Studies-Depression scale short version (CES-D8) ranging from 0 to 24 was used to assess depressive symptoms (Radloff 1977). Furthermore, the Brief Resilience Scale (BRS) ranging from 1 to 5 was included to assess resilience (Smith et al. 2008), a single score from 1 to 10 indicates level of experienced stress and a score from 1 to 4 the pressure to succeed. As for study participation, a subset of 14 items were selected from available questionnaires on behavioral study tendencies, extracurricular participation, academic integration, and belongingness within HE study contexts (Severiens and Joukes 2001; Van de Velde et al. 2021; Van Diepen and Elffers 2021). Items contained statements such as 'I feel like I can be myself within this study' and 'usually I participate in all study activities', all of which require responses along a 5-point Likert scale ranging from 'strong disagreement' (1) to 'strong agreement' (5). Academic performance was measured by assessing study delay, where respondents were asked to indicate if they were experiencing any delay during the 2020-1 academic year using the European Credit Transfer System (ECTS) credits as a reference. Responses were required along an ordinal scale in which higher scores indicated higher levels of academic delay from no delay (0) to more than 30 ECTS delay (6). Gender, age, living situation, study year and study discipline were included as background variables. Living situation includes living at parent(s)/guardian(s) or having moved out.

Statistical analyzes

IBM SPSS Statistics, Version 27.0 was used to carry out analyzes. The student profiles were constructed based on the cut-off scores for high and low engagement and high and low emotional exhaustion. Correlations between the profiles and other well-being measures, study participation, academic performance and background characteristics were conducted to assess the association between variables.

Qualitative interviews

Semi-structured interviews were held with HE students and teaching staff to further explore the resultant profiles. Outcomes from the quantitative analyzes were used by the authors to prepare interview guides for each target group.

Participants and procedure

Participants were recruited through the Intranet of Inholland University of Applied Sciences and through snowball-sampling. Also, participants from other (applied) universities and education programs (i.e. part-time enrollment) were recruited to study whether the quadrant model is also recognizable and applicable in other HE contexts. The selection criteria for students was that they needed to be enrolled at a HE institute. The selection criteria for teachers was that they work at a HE institute and work with HE students. In total, 13 students and 10 teachers were interviewed (Table 2). The individual interviews were all conducted in Dutch and via Microsoft MS Teams. The interviews lasted 30–80 min, with an average of 50 min. Following background questions, the quadrant model (Figure 1; part of quantitative results) was presented. The interview subsequently focused on the four student profiles.

At the end of the student interviews, participants were asked to fill a short survey containing the SWM 2021 engagement and emotional exhaustion items. This allowed placement of students along the quadrant model, to assess whether the distribution of the interviewed students differed from the survey participants. Furthermore, it allowed to identify their profile from the survey measures versus the interview method. The recordings and transcripts of the interviews were stored in a secure drive only the research team could access.

Analyses

All interviews were recorded and transcribed. Interview quotes were thematically coded based on the topics in the interview guides and according to student profiles. Results were structured in Microsoft Excel to differentiate between topics, quotes, and background information. All short surveys

Table 2. Overview of qualitative interview respondents ($N = 23$).

	Teacher (n= 10)	Student total (n=13)	Disengaged-energized (n=1)	Engaged-energized (n= 6)	Engaged-exhausted (n= 4)	Disengaged-exhausted (n=2)
Gender						
Male	3 (30%)	7 (54%)	1	5	–	1
Female	7 (70%)	6 (46%)	–	1	4	1
HE Institute						
Inholland	7 (70%)	9 (69%)	–	4	4	1
Other	3 (30%)	4 (31%)	1	2	–	1
Study Year						
1		3 (23%)	–	2	1	–
2		6 (46%)	1	3	1	1
3		1 (8%)	–	–	–	1
4		3 (23%)	–	1	2	–
Study discipline						
Archicultural/food	–	–	–	–	–	–
Business/finance	3 (30%)	2 (15%)	–	2	–	–
Creative	1 (10%)	2 (15%)	–	–	1	1
Health/social	3 (30%)	5 (38%)	1	1	2	1
Teaching/learning	–	1 (8%)	–	1	–	–
Technical	3 (30%)	3 (23%)	–	2	1	–

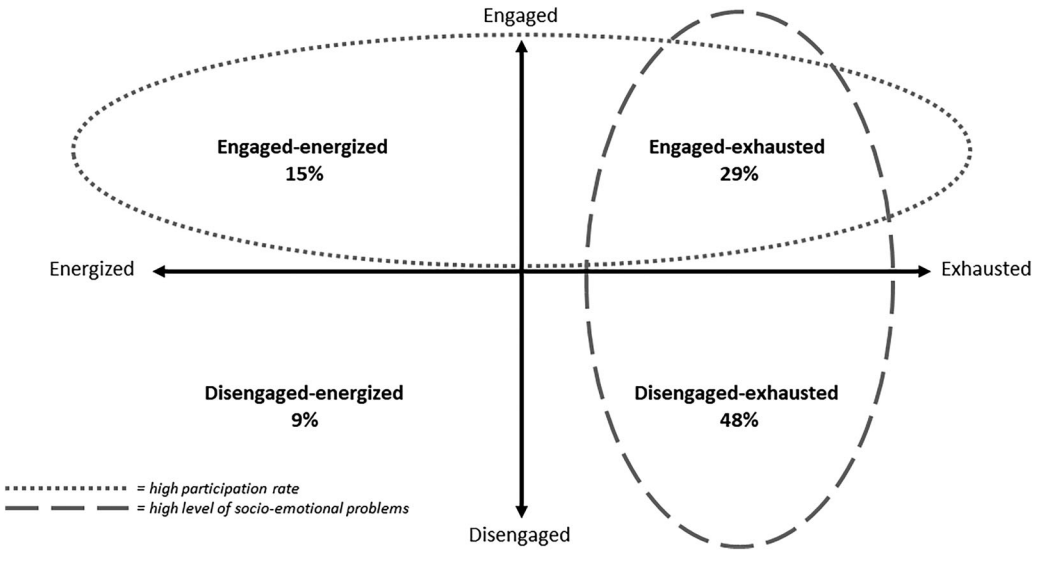

Figure 1. Quadrant model on engagement and emotional exhaustion ($n = 1{,}460$).

were analyzed in IBM SPSS Statistics, Version 27.0 and profiles were constructed using methods analogous to analysis of the SWM 2021 data.

Results

Quantitative results of the student profiles

Based on the classification of disengagement-engagement on the y-axis, and emotional energized-exhaustion on the x-axis, a quadrant model emerged with four groups: disengaged-energized students, engaged-energized students, engaged-exhausted students, and disengaged-exhausted students. Almost half (48%, $n = 702$) of the students belonged to the disengaged-exhausted quadrant, followed by engaged-exhausted (29%, $n = 418$), engaged-energized (15%, $n = 213$), and disengaged-energized (9%, $n = 127$). Below, we describe the main associations between the four student profiles with background characteristics, well-being, study behaviors, and study achievements. All correlations can be found in Appendix 1.

Background characteristics

The disengaged-exhausted students are older ($r = .06$, $p < .05$), have moved-out from their parents/guardians house ($r = .10$, $p < .001$) and are in a later phase in their studies ($r = .18$, $p < .001$) more often. On the other hand, the engaged-energized ($r = -.12$, $p < .001$) and engaged-exhausted ($r = -.11$, $p < .001$) students are more often found in the earlier study phases. Regarding the study disciplines, the disengaged-energized students follow economic/finance programs more frequently ($r = .12$, $p < .001$), while the engaged-energized students follow health/social programs more often ($r = -.08$, $p < .01$). The engaged-exhausted students follow creative/communication programs more ($r = .09$, $p < .001$,) and the disengaged-exhausted students follow agricultural/food ($r = .08$, $p < .01$) and pedagogical ($r = .05$, $p < .05$) programs more frequently than the other profiles. No significant differences between profiles were found regarding gender.

Well-being

In general, the engaged-energized students have the highest well-being levels and the disengaged-exhausted students exhibit the lowest well-being levels. For example, the engaged-energized students report the lowest amount of depressive symptoms ($r = -.42$, $p < .001$) while the disengaged-exhausted students report the highest amount of symptoms ($r = .38$, $p < .001$). Additionally, the engaged-energized students are most resilient ($r = .27$, $p < .001$) and experience the least amount of stress ($r = -.30$, $p < .01$), while the disengaged-exhausted students are the least resilient ($r = -.22$, $p < .001$) and experience the most amount of stress ($r = .23$, $p < .001$). However, the engaged-exhausted students experience the most pressure to succeed ($r = .19$, $p < .001$), while the disengaged-energized students experience the least pressure to succeed ($r = -.14$, $p < .001$; $r = -.12$, $p < .001$).

Study participation & achievements

Both the engaged-energized and engaged-exhausted student profiles are associated with high levels of academic participation. However, while the engaged-energized students generally score highest on curricular activities such as 'I'm rarely behind with the coursework for my study' ($r = .24$, $p < .001$), the engaged-exhausted students generally score highest on extracurricular activities such as 'I participate in extra (online) activities, provided by my study (association)' ($r = .13$, $p < .001$). The disengaged-exhausted students score the lowest on all study behaviors. Regarding study achievements, the engaged-energized students have the least amount of study delay ($r = -.17$, $p < .001$), although the engaged-exhausted ($r = -.11$, $p < .001$) and disengaged-energized ($r = -.08$, $p < .01$) profiles also negatively associate with study delay. Only the disengaged-exhausted profile is associated with increased study delay ($r = .23$, $p < .001$).

Qualitative validation of the student profiles

Recognizability

During the interviews, the quadrant model was presented and the survey results were briefly explained. Respondents were asked whether they recognized the model's student profiles. Students linked the student profiles to themselves or other students:

> I immediately get a number of classmates in my head that I can match with this [profile]. (Engaged-energized student)

Additionally, Nine of the ten teachers recognized the student profiles and associated them with students. Several teachers ($n = 3$) regarded the quadrant model as a simplified representation of students, and mentioned that the distribution of the student profiles varies between study years. Furthermore, though representing the largest group, the exhausted-disengaged profile was hardest to recognize and describe by the interviewees. However, most respondents did believe that many students are exhausted-disengaged, stating that these students are hardest to recognize, or are at risk of getting 'lost':

> I recognize the exhausted-disengaged a little less, but during the covid-period you also saw each other less often. (Engaged-energized student)

All 13 interviewed students completed the short survey (Figure 2), and 11 (85%) accurately identified their student profile during the qualitative assessment. Two of the students thought they were engaged-exhausted, but were disengaged-exhausted according to survey results. Their interviews did reveal signs of disengagement, such as not preparing for lessons, feeling depersonalized, and experiencing a lack of study interest and motivation. Another student explained that it might be difficult to place yourself in this quadrant as it is perceived as the most negative student profile:

> You put a label on yourself when you chose disengaged-exhausted. (Engaged-energized student)

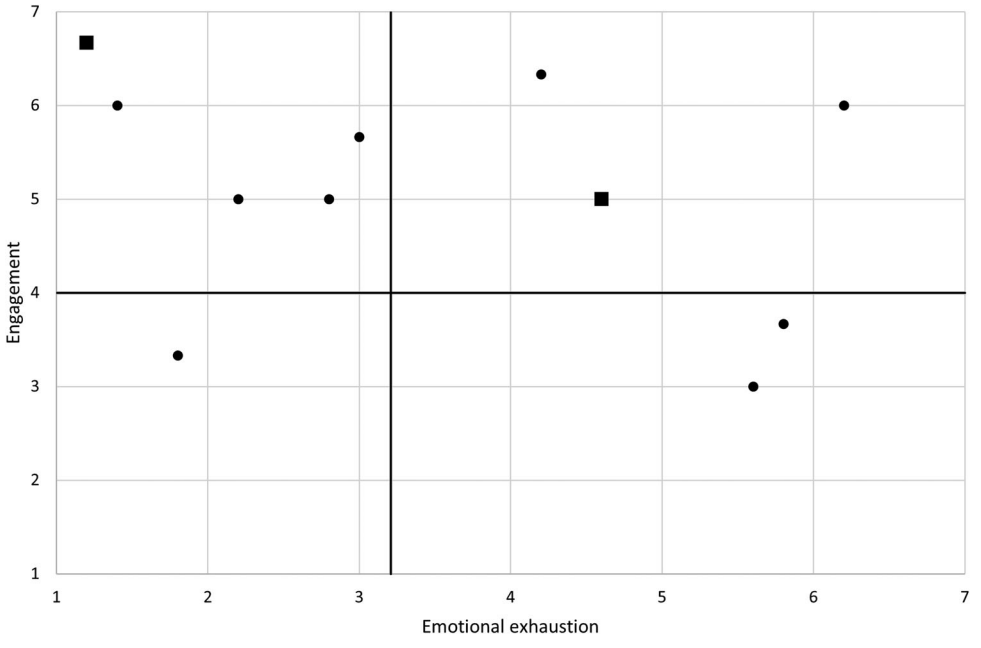

Figure 2. Quadrant model with scores of interviewed students ($n = 13$). Note: The squares indicate two students with exactly the same scores on engagement and emotional exhaustion.

Changeability

The changeability of the student profiles was explored to investigate how fixed or variable the profiles are according to students and teaching staff. Most of the students and teachers believe that internal and external factors can cause students to shift from one quadrant to another. Overall, engagement is believed to be more influenced by the HE institute, while emotional exhaustion is also very much dependent on life events and other psychosocial factors:

> How enthusiastic you are about your studies can be influenced a lot. But emotional exhaustion also partly depends on what happens outside of your studies. (Disengaged-energized student)

Respondents also identified shifts during the curriculum. Most students start engaged and energized, but in later phases of the studies – for instance, during the internship and thesis – students become more exhausted and disengaged. This is in line with the results of the survey, showing the gradual increase of exhausted-disengaged students in later study years. One of the students told of his own experiences in which difficult courses, or feelings of being treated unfairly by teaching staff cause these shifts during their studies:

> For me it is subject to change, although I believe I've never been energized-disengaged. I think that it is the same for many students. You start energized and engaged and then gradually move to engaged-exhausted and then disengaged-exhausted. (Disengaged-exhausted student)

Although students can shift from one quadrant to another, participants believed that the student profiles are also dependent on personality and the ability to cope with changes. They see that the quadrants can represent various phases, but that most people have a default profile, as they are naturally more engaged or more prone to emotional exhaustion:

> People who don't like changes quickly find everything too much to handle. It has a lot to do with your own flexibility. It is linked to your DNA and what you were taught at home. (Teacher)

Practical relevance

Furthermore, during the interviews practical relevance of the quadrant model was explored. Most students were enthusiastic and, although they could estimate their own position in the quadrant model, they were curious whether it matched the survey results. Additionally, students expressed eagerness to learn how to improve their own, and their classmates' well-being. The model made student well-being more tangible:

> Such a model provides frameworks. You can keep it in mind, and when you see a student you can place it [in the quadrant model]. This gives more structure. (Engaged-energized student)

Although most teachers found the quadrant model and the student profiles interesting, they expressed more hesitance about the potential for practical implementation. Teaching staff who were also mentors, or who were involved in one-on-one coaching, identified the value of the quadrant model relevant to their work:

> I think this will certainly help. It will become a bit more tangible. You don't want to put everyone in a box, but it might help to recognize [those students] and to know what I can do as a coach to improve the development of the student. (Teacher)

Qualitative description of the student profiles' characteristics and needs

Disengaged-energized student profile

Distinctive about the disengaged-energized student profiles according to the interviews, are the low levels of experienced pressure to succeed and the low levels of effort. Yet, these students are typically able to obtain descent study results:

> I passed everything. Sometimes my studies are a bit too easy and I could definitely do more. But if I can pass everything, then it's fine. I don't feel the pressure to get A's. (Disengaged-energized student)

Teachers recognize that disengaged-energized students are less intrinsically motivated by their studies and have a different goal, such as getting a high-paying job, or to graduate as quickly as possible:

> They participate less, but you can also recognize them by the way they ask questions. They don't learn for the process of learning, but they learn for the results. (Teacher)

According to the respondents, increasing the engagement of the disengaged-energized students can be done through making the studies more attractive, for instance, by incorporating informal interaction and social activities within studies. Making the connection with the interests and practice of the students can help with this:

> Let them choose something in the area that they like. For example, by letting the class choose a topic for a project. They must have a subject that gets them hyped up and if they can use it in class, they get excited. (Engaged-exhausted student)

Additionally, the disengaged-energized student can benefit from more challenge. This relates to the relatively low study-delay but also associates with the typically low levels of engagement and stress:

> Last year I guided two girls and I had the idea it is just too easy for them. That made them indifferent. (Teacher)

Lastly, interview respondents described that the disengaged-energized student can be engaged in other areas, such as work or sports. Respondents reasoned that if students feel well and pass their studies, room should be made to accommodate disengaged-energized students, rather than forcing them to be present and involved:

> I don't care if you're in bed with a hangover or if you have to go to the dentist. You can miss three workgroups, regardless the reason. But do take your responsibility. (Teacher)

Engaged-energized student profile

Engaged-energized students were easily recognized during the interviews. Students were described as appearing in a 'flow' or along an 'upward spiral', where successfully completing courses further strengthens the engagement and energy. These students are described as having a positive and serious attitude and as trusting their own capabilities:

> Not all days are fun. But in general I go to school full of energy. That's because of my personality. I think: 'we're going for it again, this will be a nice day!' (Engaged-energized student)

The interview respondents also view engaged-energized students as socially active within HE. They often stay behind to talk with their fellow students or teachers after lectures, and feel at home. Yet, it is reported that this profile can struggle in group projects:

> They feel annoyed with students who do nothing. Their bar is quite high. Their pitfall is that they do not involve others in a project group. (Teacher)

Respondents emphasize that it is important to keep giving attention to the engaged-energized student, even though it seems like no support is needed. This can be achieved by teachers in group projects, for instance by evaluating both the individual and collaborative efforts besides the content of the assignment. Additional suggestions include challenging and involving students to keep them engaged:

> Sometimes I give them a more prominent role, for example, to have them answer the questions that other students ask. (Teacher)

Regarding emotional exhaustion, it is important that engaged-energized students feel that the HE institute supports them. The recognition for work is important. When students felt that they had been treated unfairly, this resulted in stress, frustration, and uncertainty, subsequently causing them to (temporarily) shift from energized to exhausted:

> Sometimes I have the feeling that the teachers are not helping me to achieve a certain result and that I am unable to reach my full potential. I am one of the few students who reads the regulations about my rights and obligations as a student. Unfortunately, I see that it is not being followed very often. (Engaged-energized student)

Engaged-exhausted student profile

Especially perfectionism, being involved in many different things, and pursuing the appreciation of others are commonly mentioned characteristics of engaged-exhausted students. The survey results indicate that students within this profile experience the highest levels of pressure to succeed, which is confirmed in the interviews:

> I am a hard worker with perseverance. I am also social, but sometimes a bit insecure. I have a fear of failure and sometimes experience a lot of pressure to perform well. (Engaged-exhausted student)

The engaged-exhausted student does not want to disappoint others. This is in contrast to engaged-energized students who are more self-assured. It also relates to the higher levels of emotional exhaustion mentioned by teachers. They recognize that students in this profile have achieved a certain status, such as excellent grades, but that they feel a lot of pressure to keep it that way:

> Other students rely heavily on the engaged-exhausted students, like: 'of course you have an A.'. If that person gets a B, they will feel ashamed. (Teacher)

Although students within this student profile have favorable characteristics such as its passion and commitment, a downfall is not prioritizing their own well-being. Tuition and supervision on stress management, personal development, and planning were suggestion to aid transitions from exhausted to energized:

> I knew a student who had difficulties with planning and was very stressed because they had to do everything at the last minute. I think it helps to give them extra guidance to sort things out. (Teacher)

Certain stressors can be avoided and the interviewed students recognized this. Unclear communication about assignments, scheduling problems, and the receival of solely negative feedback were mentioned as common practices in HE that do not benefit student well-being or learning processes. Especially for the engaged-exhausted student, these kinds of practices cause stress and performance pressure:

> We had a lot of exams in the past week. When we explained this to the teachers, even they said it was too much. In the end it was a mistake made by the planner. But such a mistake has a lot of influence on the students. And then there is a lot of unclarity about assignments. If you have to figure everything out yourself, it will also cost a lot of energy. (engaged-exhausted student).

Disengaged-exhausted student profile

Teachers indicated that disengaged-exhausted students may not ask for help and therefore disappears from sight. Teachers who were more involved in student well-being (i.e. coaches) recognized that many students are disengaged-exhausted. The feeling of being antagonized by other students, teachers, or the HE institute as a whole, can cause students to shift to this profile:

> I am not allowed to retake my tests because there is a new curriculum. I now do my internship in the summer holidays to not fall behind even further. The institute does not help me. (Disengaged-exhausted student)

Some respondents believed that the HE institute or the studies do not fit well for this student profile. However, other interviewees felt that invisible stressors outside of the studies can cause the emotional exhaustion seen in this profile, such as family- or financial problems. Overall, although the result can be the same (i.e. low academic performances or study delayal), the cause can vary among students:

> If you are disengaged because the studies do not suit you, or if you are disengaged due to the COVID situation [the reason] is something completely different. (Teacher)

The students who have experienced emotional exhaustion mentioned that they were not given the space to make mistakes and that their situation was not properly understood. Acceptance from the HE institute is important and supports personal acceptance of their situation:

> Make it normal that things don't go smoothly every now and then. There is always the requirement that you be prepared, but in the end you don't motivate people with that. If there is a certain situation at home that makes it difficult to be fully prepared, it might be even more frustrating. (Disengaged-exhausted student)

It was also noted that available resources, do not match the disengaged-exhausted student profile. Although there are many resources, relatively few students use them. Gains can be made by contacting students first:

> We have peer-coaching, a pilot with a student-psychologist and counsellors. But those are things where you, as a student, have to take the first step. And that is not what a disengaged-exhausted students is going to do. (Teacher)

Lastly, teachers identified judgment among other teachers, of students who remain absent or who do not actively participate in lessons. Teachers even had the impression that students are becoming more disengaged-exhausted because of judgement. Students agreed that a positive relation with teachers can help to become more engaged and helps to identify personal uncertainties:

> The most important thing is the connection between students and teachers. Of course you have to do it yourself, but the teacher is an important link. (Engaged-energized student)

Discussion

This study aimed to explore different student profiles based on engagement and emotional exhaustion using mixed-methods. Results indicate that students can exhibit both engaged and exhausted

traits, in addition to displaying both disengaged and energized characteristics, demonstrating the distinctiveness of the two constructs (Leiter and Maslach 2005). Differences were found in well-being, engagement and study delay between the four student profiles in the quadrant model. The profiles were also recognized by the interviewed students and teaching staff, and most of them were positive about the practical relevance. The interviews extended the quantitative results, by validating the four profiles, describing characteristics and giving tips for each profile based on the experiences of students and teaching staff. The quadrant model can be utilized to identify students and offer them suitable support.

Although the approach in this study differs from most studies on student well-being, some similarities can be noted compared to other literature. First, a decrease in engagement and an increase in exhaustion in later study years is found (Boulton et al. 2019; Salmela-Aro and Read 2017). Second, the findings of Fokkens-Bruinsma et al. (2021) regarding a negative association between engagement levels outside the classroom and academic performance, is implicitly found in the engaged-exhausted quadrant. Although this profile does not have more study delay compared to other profiles, they were described in the interviews as struggling with their different responsibilities, eventually leading to lower academic results. Finally, Versteeg and Kappe (2021) previously found that the protective effect of support from the HE institute is lost when a student experiences high levels of academic stress. This seems in line with the present results, as the quantitative results show elevated levels of stress in the exhausted-profiles and interview respondents reported that the exhausted-profiles miss or don't know about support from the education institute. Strengthening resilience and working on social- and emotional skills may help those students to make better use of the available support resources (Lee et al. 2021; Santos et al. 2023), which also coheres with the quantitative and qualitative findings.

A contrasting finding worth mentioning, is that no significant gender differences between the student profiles was found in the quantitative data, while other studies do report on more mental health issues in females (McLafferty et al. 2017; Salmela-Aro and Read 2017) and some interviewees had the perception the disengaged-energized group would contain relatively more males. Also, the differences found between study disciplines were quite small. The quadrant model therefore seems to be universally applicable in the HE context.

This study has potential limitations. Compared to the distributions derived from the quantitative analyzes, the engaged-energized students were overrepresented in the interviews. One explanation for this outcome could entail willingness to participate, where engaged-energized students might be more willing to commit time for the interview aspect of the study. Also, snowball-sampling and an announcement on Intranet might more effectively reach engaged students, who are generally observed to be more invested in the HE institute's communication (Boulton et al. 2019). It would be interesting to study what kind of recruitment measures help to reach certain student profiles, both from a research perspective and for the educational practice.

Furthermore, the survey was distributed during COVID-19 lockdown restrictions among HE institutes, while the bulk of the interviews were conducted during a later stage. Therefore, the experiences of the students who filled in the survey might differ from the experiences of the students who were interviewed, which might be another explanation of the high number of engaged-energized students in the interview sample (Versteeg and Kappe 2021). However, a quick analyzes of the latest SWM cohort in 2022 showed no decrease in disengaged-exhausted students compared to the year before. Continued research will monitor trends in student well-being before, during, and after COVID-measures.

The categorization of student profiles was based on cut-off scores. Though other categorization methods (i.e. on the mean, median or through cluster analysis) would be valid, using the cut-off scores was determined as most solid content-wise and is not dependent on the sample itself. The cut-off scores were validated by the interview-respondents, who predominantly recognized the quadrants. Moreover, 85% of the students accurately matched their profiles during the interview and the survey, which further supports the used cut-off scores.

The quadrant model can be used as a conversation starter between students and teachers to talk about well-being and study engagement, and to detect support needs. Based on it, a handout was developed for students at Inholland University of Applied Sciences, to plot their profiles in the quadrant model and to reflect on their results. A conversation guide for teachers was additionally developed, with question examples to better identify, and effectively support students using these profiles. Their impacts will be evaluated both in classroom settings and through interviews. In future research, we hope to further extent knowledge on student's well-being, by not purely considering the negative associations between energy sources and stressors and considering engagement as 'good' and exhaustion as 'bad', but rather taking a more person-oriented approach whereas various energy sources and stressors may be more or less present in one individual, how these affect each other, change during the student journey and what type of support fits best for the individual student.

With this study, we uncovered diverse student profiles based on engagement and emotional exhaustion, shedding light on the distinctive nature of these constructs and their real-world implications. We hope this study inspires other researchers to look further than associations between variables, but delve deeper in the complexity of student well-being and how this translates into practice.

Acknowledgements

We thank Naomi Seldenthuis and Linda Adrichem for interviewing a part of the respondents of this study.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix 1. Correlations between student profiles and well-being, study participation, achievement and student background

	Disengaged-energized ($n = 127$) Mean (R)/% (Phi)	Engaged-energized ($n = 213$) Mean (R)/% (Phi)	Engaged-exhausted ($n = 418$) Mean (R)/% (Phi)	Disengaged-exhausted ($n = 702$) Mean (R)/% (Phi)
Well-being				
Depressive symptoms (0–24)	7.9 (−.12)***	6.4 (−.38)***	11.8 (−.03)	13.4 (.37)***
Resilience (1–5)	3.3 (.16)***	3.4 (.27)***	2.8 (−.06)*	2.7 (−.22)***
Stress (1–10)	6.3 (−.21)***	6.2 (−.30)***	7.7 (.11)***	7.8 (.23)***
Pressure to succeed (1–4)	3.6 (−.14)***	3.9 (−.04)	4.2 (.19)***	3.9 (−.07)**
Study participation & Achievement				
I work hard to succeed in my studies and spend a sufficient amount of time on it (1–5)	3.2 (−.09)***	4.1 (.23)***	3.8 (.19)***	3.2 (−.28)***
Usually, I participate in all study activities (1–5)	3.8 (−.01)	4.3 (.16)***	4.1 (.12***)	3.6 (−.22***)
I'm rarely behind with the coursework for my study (1–5)	2.9 (−.01)	3.6 (.24)***	3.1 (.09)***	2.6 (−.25)***
I'm not doing something else during class (1–5)	2.7 (−.04)	3.2 (.11)***	2.9 (.04)	2.7 (−.10)***
I feel at home at this study (1–5)	3.5 (.00)	4.2 (.28)***	3.8 (.20)***	3.2 (−.38)***
I feel like I can be myself within this study (1–5)	3.7 (.02)	4.2 (.23)***	3.8 (.13)***	3.4 (−.29)***
My teachers know me (1–5)	3.3 (.00)	3.7 (.17)***	3.4 (.05)*	3.1 (−.16)***
I participate in thinking about, and discussing, ways to improve education (1–5)	2.8 (−.03)	3.3 (.14)***	3.2 (.12)***	2.7 (−.19)***
I commit myself to the higher education institute (e.g. via the study commission, as class representative) (1–5)	2.2 (−.06)*	2.6 (.08)**	2.6 (.09)***	2.3 (−.11)***
I participate in (online) social activities that are hosted by my study (association) (1–5)	2.0 (−.05)	2.5 (.10)***	2.4 (.11)***	2.0 (−.14)***
I am committed to my fellow students (1–5)	3.3 (−.03)	3.8 (.17)***	3.7 (.16)***	3.1 (−.25)***
Being in touch with my fellow student helps me to perform well (1–5)	3.4 (−.06)*	3.7 (.05)*	3.8 (.13)***	3.4 (−.12)***
I know the names of the teachers who's classes I follow (1–5)	4.0 (−.01)	4.2 (.08)**	4.2 (.08)**	3.9 (−.13)***
I discuss gained insights with teachers (1–5)	2.8 (−.02)	3.3 (.17***)	3.1 (.13)***	2.7 (−.22)***
Current study delay (1–6)	2.2 (−.08)**	1.9 (−.17)***	2.3 (−.11)***	3.1 (.27)***
Background characteristics				
Gender – Female	59% (−.02)	65% (.02)	64% (.01)	62% (−.01)
Age in years	21.8 (−.02)	21.8 (−.02)	21.7 (−.04)	22.2 (.06)*
Living situation – moved out	22% (−.04)	24% (−.04)	25% (−.05)*	33% (.10)***
Study year (1–5)	2.6 (.02)	2.1 (−.12)***	2.3 (.18)***	2.8 (−.11)***