Understanding Well-being in Academia Through Self-Determination Theory

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Abstract

Student mental health is a major concern, with research emphasizing the need for effective interventions. Positive psychology (Seligman & Csikszentmihalyi, 2000) now focuses on promoting well-being as a preventative measure rather than post-problem treatment. However, a clear definition of well-being in academia is lacking, which hinders the development of a targeted intervention. This study explores students' conceptualization of well-being in academia from a positive psychology perspective, utilizing Self-Determination Theory (SDT; Ryan & Deci, 2000). Qualitative, semi-structured interviews were conducted with twelve students from diverse cultural backgrounds and enrolled in different years of the BSc. Psychology program at the University of Groningen. Analysis of the interview transcripts was both inductive and deductive, utilizing a thematic analysis and a value-coding approach through an SDT lens. Results indicated a dynamic model of well-being, confirming the relevance of SDT's basic psychological needs (BPN; autonomy, competence, and relatedness) within academic well-being. Furthermore, this study provides a deeper understanding of the BPN in academia, their interrelations, and the impact of the university environment on these needs. The components of autonomy, competence, and relatedness in academia are discussed, and the relevant influencing factors from the university environment are identified per need, summarized in a model. Finally, based on these findings, tentative suggestions are made on how the university could further foster students' BPN.

Keywords: well-being, students, university, positive psychology, Self-Determination Theory (SDT)

Understanding Well-being in Academia Through Self-Determination Theory

Mental health difficulties have been related to poor outcomes across multiple domains, as it relates to peer rejection (Loparo et al., 2023), unemployment (Butterworth et al., 2012), and reduced productivity at work (Organisation for Economic Co-operation and Development, 2012). In academia, student mental health issues relate to impaired academic performance, educational attainment, academic dissatisfaction, dropout intentions, academic dishonesty, and student dissatisfaction in their education (Ball & Bax, 2002; Brännlund et al., 2017; Dyrbye et al., 2006; Keyes et al., 2012; Lipson & Eisenberg, 2018; Stallman, 2010). Notably, it seems that there is a higher prevalence of mental health difficulties among university students than in the general population, as illustrated in Australia, the United States, and Canada (Alessandri et al., 2020; Dyrbye et al., 2006; Larcombe et al., 2016; Stallman, 2010). Moreover, the prevalence of mental health disorders in college students continues to rise (Emmerton et al., 2024; Mason, 2023). A recent survey of 32,558 students at 24 educational institutions in the Netherlands stated that 44% of participating students experienced depression and anxiety in the last four weeks, 62% felt lonely, and 53% were affected by psychological complaints in important domains of life, including their study, work, social contacts and personal life (Nuijen et al., 2023). According to the same report, 56% of students reported feeling moderate to extreme levels of stress, with 62% identifying their studies as the primary source of stress.

Universities often offer support and resources for student well-being, but these are under-utilized. In a study conducted in the United States, only 60% of students reported that they would seek help within the university if their psychological distress would interfere with academic work (Gannon et al., 2024). Gannon and colleagues (2024) found that perceptions of the campus mental health climate (social norms) are related to mental health-related academic help-seeking, over and above other significant predictors such as personal stigma.

Given that there are so many poor outcomes for mental health difficulties and that students in higher education seem particularly susceptible to it, there is a compelling need to address this concern. According to Knoesen and Naudé (2018), the promotion of mental health by the university during the first year can be beneficial for students' academic journey, as this first year is fundamental to student success. Stallman (2010) emphasizes the need for universal, selected and targeted preventative interventions "to enable students to reach their academic potential and career aspirations and to alter a trajectory for some away from serious mental illness" (p. 256). This emphasis on prevention highlights the importance of fostering well-being from the outset rather than addressing problems only once they have become severe.

Defining Well-Being (in Academia) and Positive Psychology

To effectively foster student well-being, it is essential to define the concept of well-being clearly (Fraillon, 2004). However, there is a lack of consensus on its definition within the scientific community (Jerome & Schöngut-Grollmus, 2023; Kiltz et al., 2020), and this ambiguity extends to well-being in academia (Fraillon, 2004; Kiltz et al., 2020). Dodge and colleagues (2012) point out numerous theories about and descriptions of well-being used in the literature, highlighting the difficulty of defining well-being. They conclude their paper by proposing a dynamically oriented definition: "the balance point between an individual's resource pool and the challenges faced" (p. 230). Another widely used definition comes from the World Health Organization (WHO), which defines well-being as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2023, para. 1). These widely used, albeit nonspecific, definitions of well-being, and responding to Stallman's (2010) call for preventative measures, align with a positive psychology perspective.

Positive psychology aims to shift the focus of psychology from only repairing the worst things in life to also building positive qualities (Seligman & Csikszentmihalyi, 2000). With that, it focuses on preventing pathology and amplifying strengths within people rather than only repairing weaknesses. For the present study, we will adopt a positive psychology perspective to investigate the concept of well-being. More specifically, fitting this perspective, we utilize a lens of Self-Determination Theory (SDT) (Ryan & Deci, 2000).

Self-Determination Theory and the Basic Psychological Needs

Self-Determination Theory (SDT) fits with the positive psychology perspective and is a theory of motivation, personality, and optimal functioning (Deci & Vansteenkiste, 2004). SDT identifies three basic psychological needs (BPN) – autonomy, competence, and relatedness – as essential for facilitating optimal functioning, growth, constructive social development, and personal well-being (Ryan & Deci, 2000). In SDT, needs are innate psychological nutrients essential for ongoing psychological growth, integrity, and well-being (Deci & Ryan, 2000). Autonomy refers to the feeling of volition in one's actions, competence refers to the need to feel efficacious with respect to the activities one is undertaking or believing that one is able to achieve something, and relatedness refers to the need for connectedness with others (Kiltz et al., 2020; Ryan & Deci, 2000). SDT proposes that satisfying these BPN contributes to health and well-being. Conversely, it suggests, and has been found in studies, that when these needs are not satisfied, this will contribute to psychopathology and ill-being (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013). The frame of SDT and its BPN will be used to investigate well-being in academia.

SDT and Student Well-Being

SDT and its BPN are a particularly useful frame to address the issue of student well-being. Previous research found that all three BPN were highly relevant to students' perception of well-being in academia (Kiltz et al., 2020). More specifically, teachers seemed to

contribute to students' well-being through satisfaction of the BPN. Other studies also highlight the importance of BPN, even without explicitly using an SDT perspective. A qualitative study by Knoesen and Naudé (2018) tried to identify student experiences (during their first year at university) related to languishing and flourishing. At face value, one could draw parallels between their findings and the BPN, which will be indicated between brackets. Experiences related to flourishing were finding a social support system (relatedness), achieving academic mastery (competence), and environmental mastery (autonomy), among others. Related to languishing were social isolation (relatedness), finding academics overwhelming, feeling unable to keep up, and feeling unprepared for the academic independence expected from them (competence and autonomy). Alessandri and colleagues (2020) found that perceived competence was related to well-being in students. More specifically, another study (Sulea et al., 2015) found that the BPN significantly contribute to student well-being more than personality traits (McCrae, 2009). These findings illustrate the utility of SDT as a frame for well-being in academia.

SDT and the Role of the University in Student Well-Being

SDT examines how social environments support or hinder positive developmental tendencies (Ryan & Deci, 2000). In their paper, Ryan & Deci (2000) state that organizations contribute to alienation and ill-being of students and employees by not providing supports for the BPN. The paper by Aldiabat and colleagues (2014) further describes how universities and its staff can actively improve students' well-being, productivity and success by creating a supportive academic context. Some examples of interventions include counseling supports, educational supports, academic accommodations, and reducing stigma (a barrier to help-seeking). Additionally, the study by Kiltz and colleagues (2020), shows that student and teacher well-being is interconnected through a reciprocal feedback loop. Furthermore, another study found that teacher's autonomy support predicted student perceived competence, which

in turn predicted achievement (Jeno et al., 2023). Thus, the social environment at the university has a role to play in its students' well-being. Findings also indicate the relevance of SDT within that role.

The Present Study

The need for targeted interventions to foster student well-being has been clearly stated in the literature (Knoesen & Naudé, 2018; Stallman, 2010). However, as previously stated, well-being in academia is poorly defined (Fraillon, 2004; Kiltz et al., 2020), complicating designing such an intervention. Therefore, the present study aims to address the literature gap regarding a conceptualization of well-being in academia and to develop a model that could serve as a basis for this intervention. The first overarching research question is:

RQ1: What is well-being?

However, we will not only investigate students' general conceptualization of well-being. Instead, our study will take an SDT perspective to inform more specific, targeted interventions, as previous research suggests that SDT's BPN are a helpful perspective on well-being in the university context (Alessandri et al., 2020; Kiltz et al., 2020; Knoesen & Naudé, 2018; Sulea et al., 2015). We will investigate students' conceptualization of each BPN in academia, as no literature explicitly investigates what it *means* for a BPN to be fulfilled in academia. To inform more targeted interventions, the second research question is therefore:

RQ2: What are the basic psychological needs in academia?

Lastly, SDT emphasizes context as essential for people's well-being, and previous research has shown its relevance in well-being in academia both implicitly and explicitly (Alessandri et al., 2020; Kiltz et al., 2020; Knoesen & Naudé, 2018). To elaborate on these findings, we will explicitly investigate which features of the university environment students describe as affecting their BPN in academia. Our last research question is therefore:

RQ3: How does the university environment affect students' BPN in academia?

A qualitative research approach was followed to address the gap in the literature regarding the understanding of well-being in academia and investigate these research questions. This allowed us to conduct exploratory research and use an individual-oriented approach to generate hypotheses about well-being in academia. Twelve BSc. Psychology students at the University of Groningen were interviewed, inquiring about their conceptualization of well-being in academia and how the university environment affects it. The aim was to enhance our understanding of well-being and develop a model to inform a future intervention.

Method

Participants

For our study, we collected a convenience sample of 12 students currently enrolled in the BSc. of Psychology at the University of Groningen. The decision to recruit 12 participants was grounded in the seminal work of Guest and colleagues (2006), which demonstrated that saturation, the point at which no new information (codes or themes) emerge, is frequently reached within the initial 12 interviews. Each team member recruited two participants, ensuring that neither the interviewer nor the participant knew of each other before conducting the interviews. This step was important to ensure the confidentiality of the participants. Our participants (Table 1) consisted of six males, five females, and one participant who identified differently. Our twelve participants ranged in age from 20 to 28 years old, representing diverse nationalities, including seven from Germany, three from Romania, one from the Netherlands, and one from Luxembourg. Ensuring a comprehensive representation of experiences across various stages of the academic curriculum, we included five participants enrolled in the second year, three in the third year, and four in their fourth year of the three-year bachelor's program.

Table 1

Demographic Characteristics of Participants

Participants	Distribution	
	n	%
Gender		
Male	6	60
Female	5	42
Other	1	8
Nationality		
Dutch	1	8
German	7	58
Luxembourgish	1	8
Romanian	3	25
Age		
20	2	17
21	4	33
22	3	25
23	2	17
28	1	8
Currently enrolled in		
Year 2	5	42
Year 3	3	25
Year 4	4	33

Procedure and Materials

Prior to starting data collection, the Ethics Committee from the Psychology Department approved the planned methods of the research PSY-2324-S-0302, as well as the suggested ways of ensuring the anonymity and confidentiality of the participants. After the recruitment, participants received information about the research, a demographics questionnaire (Appendix A), and the informed consent form (Appendix B). Each participant was then assigned a number to prevent being identifiable by their personal information to others. Finally, each participant was randomly assigned to one of the interviewers.

The qualitative research entailed conducting semi-structured interviews of 45 to 60 minutes that followed the structure of the script (Appendix C). Preceding the data collection, the research team conducted pilot interviews. This measure was crucial to ensure that the interviewers had sufficient skills to conduct the interviews and that each member had practice

with the script. The script was tailored to the researchers' pre-defined research questions. It consisted of 15 questions with sub-questions that participants answered during the interviews. SDT (Ryan & Deci, 2000) served as a framework for building the script used to interview the subjects about their subjective experiences. The experiences of interest were students' conceptualization of well-being in academia and the factors contributing to it. All identifiable personal information was anonymized. Once the interviews were recorded and transcribed, the recordings were deleted. Each participant then received the transcript of their interview to confirm the use of their input, with the possibility of excluding parts of the interview or withdrawing from the study altogether.

Data Analysis

Our data analysis adhered to the thematic analysis approach, where the main focus is generating initial codes and searching for themes and patterns (Braun & Clarke, 2006). To understand the role SDT has in well-being in academia, together with the underlying values and beliefs of the interviewed subjects, we have further employed the value-coding approach (Miles et al., 2013). The coding process was conducted utilizing the digital software designed to analyze qualitative data "Atlas.ti Scientific Software Development GmbH". Our analysis was deductive and inductive, as the aim was to identify and generate new patterns and themes to understand students' conceptualization of well-being using the lens of SDT.

Coding Procedure

Initially, all team members individually transcribed two interviews and subsequently coded half of a transcript independently using open coding. As described by Williams and Moser (2019), the multi-stage coding approach helps researchers first identify distinct concepts and themes that can be categorized before attaching concrete interpretive labels. This first step was designed to improve the researchers' grasp of the topic and procedure and uncover interesting findings.

In the second step, two interviews were collaboratively coded and used to create a preliminary codebook. Each transcript segment was discussed with the group, and interpretations were compared to work towards a consensus on the most suitable codes and categories that each researcher later used in their independent analysis (Braun & Clarke, 2006). Thirdly, researchers paired up and coded two transcripts per pair according to the previously established codebook. During this process, each member coded both assigned documents individually before finalizing the codes in a collaborative session with their partner. After coding the first six interviews through the aforementioned process, the team got together to review the codes and adjust the codebook accordingly. Each member analyzed two more interviews using the established codes to ensure inter-coder reliability and establish a final codebook (see Appendix E). In a final step, the members gathered in a joint session to discuss and agree on any last adjustments.

Results

In this section, the findings of the qualitative analysis will be presented. First, participants' conceptualization of well-being will be discussed. Secondly, their conceptualization of SDT's BPN in academia will be explored. Lastly, the factors from the university environment that affect students' BPN in academia will be investigated.
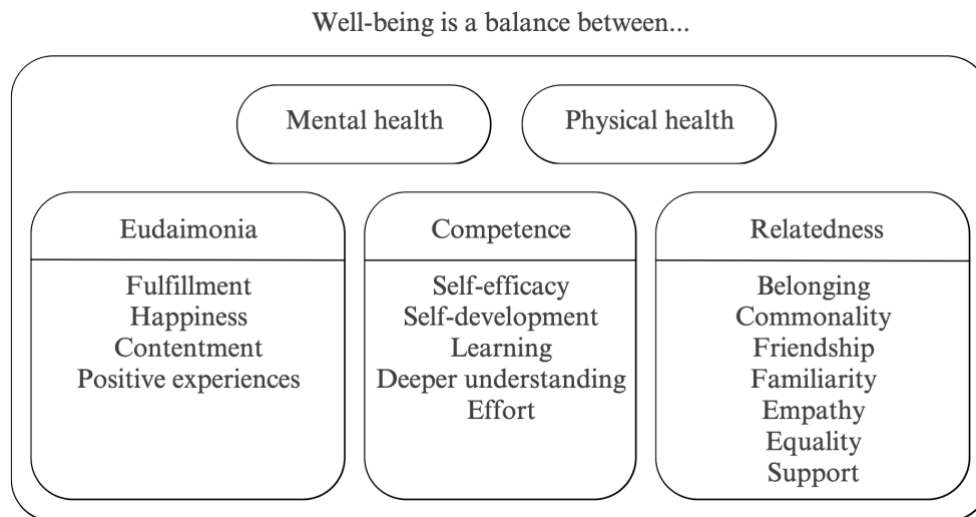
Conceptualization Well-Being

Participant 04: *"I would define it as for myself as a sense of health first of all, both physical and mental, and to certain to a certain degree happiness, fulfillment, wellness, achievement [...] it's actually hard to define, but I will say that those are the pillars and if those are all good, at least, as good as possible, then I think I would say there is well-being, for me."*

This quote nicely illustrates many of the components of well-being that were found. This section will briefly describe these components (balance, mental health, physical health,

eudaimonia, competence, and relatedness). Students' conceptualization of well-being has been visualized in Figure 1.

Figure 1

Conceptualization of Well-Being

Well-being is a balance between...

Mental health	Physical health	
Eudaimonia	**Competence**	**Relatedness**
Fulfillment	Self-efficacy	Belonging
Happiness	Self-development	Commonality
Contentment	Learning	Friendship
Positive experiences	Deeper understanding	Familiarity
	Effort	Empathy
		Equality
		Support

Note. The figure shows participants' conceptualization of well-being as a balance between mental health, physical health, eudaimonia, competence, and relatedness. The figure also shows the subcomponents of the latter three components. Table D1 provides more details and example quotes to illustrate the coding process.

The first all-encompassing theme that occurred often was balance. Many students conceptualized well-being in academia as a fundamental balance between several aspects of their lives and well-being. Some students referred to a balance between mental and physical health; others referred to a work-life balance. Some students also referred to a balance between the BPN.

Participant 06: *"I think balance is good. Like you don't want one thing to become too overly of autonomy without the sense of achieving or belonging, then what am I*

doing? So, I think, yeah, if this would be in a perfect equilibrium, that will definitely help me too.”

Mental and physical health were the following most prominent themes and were often mentioned in the same sentence:

Participant 11: *“Okay, so there are two broad components to it, I would say, like a physical and a mental one. Physiological and psychological component. […] Being at ease, being kind of relaxed, and a low stress level, and functioning well, and yeah, just not having any major complaints.”*

For students, mental health refers to being free from stress, mental disorders, and other complaints that hinder mental, emotional, psychological, and social well-being and functioning. For some students, mental health also included being able to function well and persist through life and their studies despite these levels of stress or other complaints. While physical health was mentioned as essential to well-being, students mainly did not elaborate on its exact role. Physical health refers to an absence of physical pain and being physically healthy and functioning, for which some participants emphasize doing sports and exercising.

Another often-mentioned theme was eudaimonia, which includes fulfillment, happiness, feeling content in one's work, and positive experiences. Some mentioned balancing fun and things that *“actually bring me forward in life”* (Participant 01). Other students also specifically mentioned actively pursuing happiness.

Participant 02: *“I don’t think it’s full mental or physical health but it’s just general content and pursuing of happiness. You don’t always have to be happy, but I think a part of well-being is being able to develop yourself, have friends around you, feel comfortable.”*

This example nicely leads into the following component: relatedness. The relatedness component includes interacting with other people, having friends around you, and feeling

supported. The conceptualization of relatedness in academia will be elaborated on in the next section.

Participant 09: *"And you're surrounded by people who support you and you feel loved by is also really important."*

The final component of well-being that we found is competence. Being able to do the things one would like to do and having academic achievements are significant parts of students' well-being. This also included feeling like you are developing, making progress, and learning new things. The conceptualization of competence in academia will be elaborated on in the next section.

Participant 04: *"Well, I do think a sense of achievement is very important for me. I like to feel like I've achieved something. I'd like to also be knowledgeable about that."*

In summary, as shown in Figure 1, participants' conceptualizations of well-being include a balance between mental health, physical health, eudaimonia, competence, and relatedness. These themes highlight the diverse aspects contributing to students' overall academic well-being.

Conceptualization of Basic Psychological Needs in Academia

This section will elaborate on students' conceptualizations of each of the three BPN to clarify what it means for them to feel that their BPN are fulfilled. These conceptualizations are summarized in Figure 2.

Figure 2

Conceptualization of Basic Psychological Needs in Academia

Autonomy	Competence	Relatedness
Control	Self-efficacy	Belonging
Decision-making	Self-development	Commonality
Independence	Learning	Friendship
Freedom	Deeper understanding	Familiarity
	Effort	Empathy
		Equality
		Support

Note. The figure shows participants' conceptualization of the BPN (autonomy, competence, and relatedness) in academia. Tables D2, D3, D4, and D5 provide additional details and example quotes to illustrate the coding process.

Conceptualization of Autonomy in Academia

Interestingly, few mentioned autonomy unprompted when asked what well-being means to students, explaining its absence in the previous section, Figure 1 and Table D1. However, when asked about it explicitly, it became clear that autonomy is very important to almost all students: *"I mean, if I have to give it on a scale, I would say definitely autonomy is important to me. And yeah, just, it was, and it is important to me."* (Participant 11).

We identified four components of autonomy (see also Table D2). Students first conceptualized autonomy in academia as being in control of their actions and choices. The second component we identified is decision-making, referring to decisions on how to study, how to prepare for an exam, or how to engage with the material: *"And like, the less I can choose which materials to use, the less autonomy I feel like I have, somehow"* (Participant 03). Thirdly, having the freedom to do what you want in your studies, like participating in extracurricular activities, etc. Our last component is independence, feeling like you can do something by yourself without needing support from others.

Participant 04: *"That you don't need additional or great additional amounts of help like a tutor outside of that. You can, with the help from the professor and like the normal materials, develop your own grasp material without additional offset."*

Conceptualization of Competence in Academia

A sense of competence seems important to student well-being in academia: *"I think it's really important. I think in the first year, I felt very incompetent. I was like: 'Oh, I cannot even do this.' I was very insecure. I just seek general growth in that, and that really made me happier. So, in that sense, it's important."* (Participant 02).

We identified five components of competence (Table D3). The first component of competence in academia we found is self-efficacy, which means knowing what one is capable of and believing one can live up to that skill level.

Participant 06: *"I know how much I can do and what is enough."*

A related component is self-development, enhancing one's academic and personal skills. Furthermore, being able to successfully study and retain the information gained during one's studies (coded as "learning"), but also experiencing a deeper understanding of the study material, that goes beyond what is required to pass a course. Lastly, for these participants, competence consists of putting genuine effort into your studies and completing courses successfully.

Conceptualization of Relatedness in Academia

The following quote nicely illustrates that relatedness in academia is very important to students.

Participant 07: *"I feel like it's the most important component of the whole theory because I have quite a lot of self-esteem issues. So having my friends and my boyfriend around me and supporting me throughout my studies made it possible for me to finish the bachelor's because I would have probably given up if it hadn't been for them."*

Relatedness in academia was conceptualized as having seven components (see Table D4). The first component we identified is belonging, having a sense of connection with a group and a feeling that one fits in. Secondly, having things in common (commonality),

sharing a common fate, interests and opinions, and having similar worldviews. This applied to both fellow students and lecturers. Participants also emphasized fostering meaningful connections with friends within and outside academia that one could relate to and connect with over positive and negative experiences. Another aspect is familiarity, being acquainted with people in the lectures and faculty, and having the comfort of recognizing the place. Additionally, empathy (the ability to understand and share another person's feelings, thoughts, and experiences) plays an important role. Equality in status, rights, and opportunities to other students and teachers was also mentioned. The last component we identified was support from others within and outside of academia to help deal with setbacks, persevere, and engage in mutual aid with others to pursue current goals.

As already hinted at in these results, participants described four types of relatedness: to each other, their teachers, the content of courses, and the university as an institution (Table D5). Connections to fellow students refer to having peers to exchange ideas with, learn from, and study with. These peers can also be friends who support each other. Regarding teachers, students mentioned being able to approach and talk to the teachers and ask them questions about the content of courses. Participants also mentioned feeling related to the content of classes, having a sense that the content of the class is interesting and meaningful, sparking a curiosity to learn more about the subject. Lastly, participants described feeling relatedness towards the university as an institution and the faculty in which they study.

Participant 02: *"I do feel like I belong here. I feel very comfortable here. Heyman's is like my second home. I'm here all the time"*

In summary, students' conceptualizations of BPN in academia highlight the critical importance of autonomy, competence, and relatedness to their overall well-being. These insights, summarized in Figure 2, illustrate the diverse ways students perceive and fulfill their BPN, underscoring the intricate interplay of these needs in their academic lives.

University Environment and BPN in Academia

We also investigated which features of the university environment affect students' BPN (Ryan & Deci, 2000) in academia. Each need was separately investigated during the interview, as we inquired about participants' experiences of the BPN throughout their studies. Upon analyzing the interviews, six features of the university environment stood out as affecting the BPN in academia, with some influencing all BPN and others targeting specific ones, summarized in Figure 3. In this section, each of these features and its effects are described.

Figure 3

Model of the University Environment as Influencing Factor on BPN in Academia
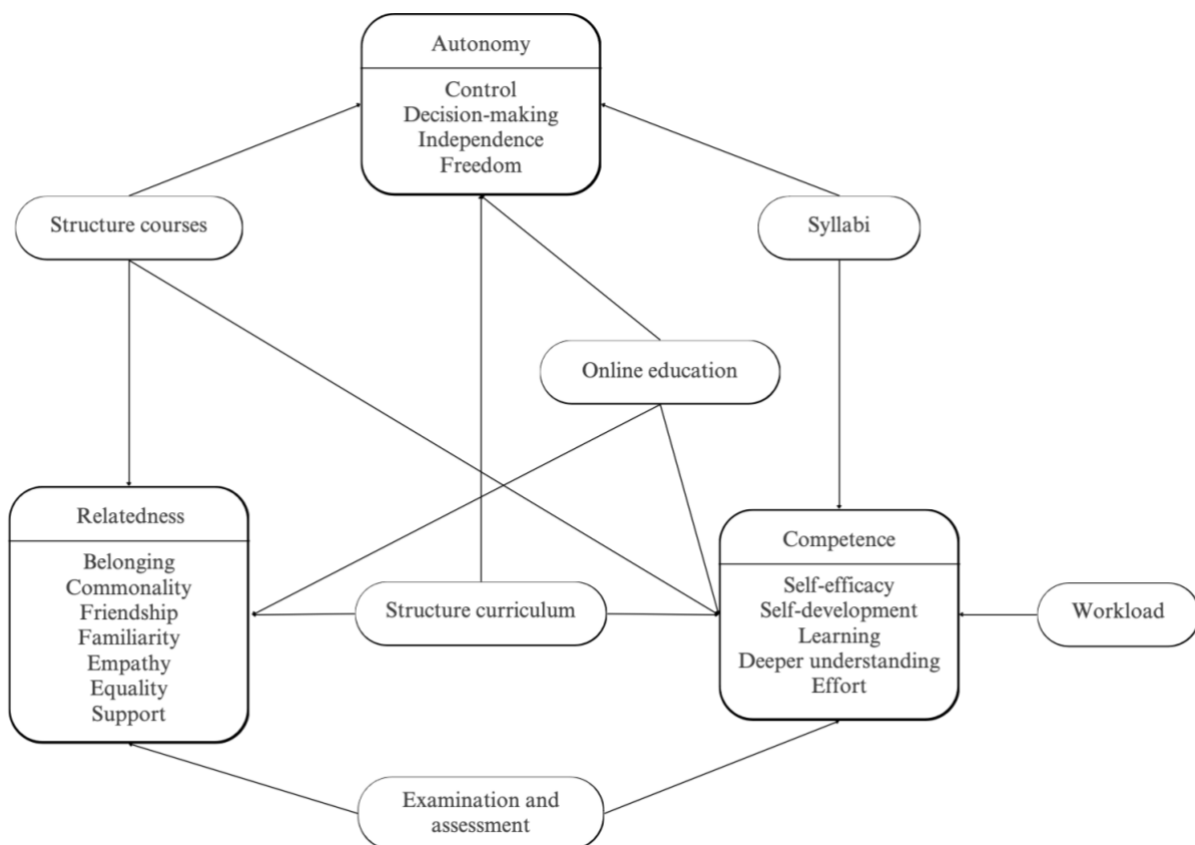
Note. The figure shows the participants' conceptualization of the BPN (autonomy, competence, and relatedness) in academia and the features of the university environment they

experience that influence specific needs. Table D7 provides additional details and example quotes to illustrate the coding process.

Firstly, participants expressed that several features of the curriculum at a large scale affect their BPN. Being able to choose elective courses in the third year was mentioned as something affecting autonomy positively. However, this curriculum feature was quite stressful for some students, as they felt there were too many choices. Furthermore, some participants expressed that this period has also negatively affected their relatedness, as previously established friend groups get split up, and some courses are now taken alone. The strict prerequisites regarding specific courses were mentioned as negatively affecting competence. As failing a first-year statistics course twice causes a domino effect that immediately results in at least half a year of study delay, students' self-efficacy is especially affected. Lastly, participants expressed that their relatedness suffers from exam periods compared to the rest of the study block.

Secondly, features related to the structure or setup within courses affect the BPN. Students appreciated courses in which they could choose how to study or when they could choose their partners for projects or assignments. Some also mentioned a second-year course contributing to their autonomy, Research Methods: Theory and Ethics, as it gave students a lot of control and freedom. Less ideal were randomized group work, strict rules, and lack of choice within courses, including the number of options for a thesis topic. Regarding competence, participants appreciate courses in which they can apply their skills and when they feel like they are improving on skills or knowledge. Regarding relatedness, participants expressed appreciation for the courses set up at a smaller scale, like a practical rather than a lecture setting, including courses like Academic Skills in the first year and the Research Practicum in the second year. To some participants, the larger-scale courses can feel

impersonal. Participants also expressed that when the content of a course matches their personal interests, they feel higher relatedness.

Especially regarding relatedness, participants appreciate attending university in person and having face-to-face interactions instead of online education and communication. Participants stressed the importance of engaging with fellow students and having people to study with and sit next to in lectures. Having fully online education as opposed to in-person lectures, practical classes, and exams was mentioned as something that both hindered and helped autonomy for different students. It also negatively affected their sense of competence.

Competence seems to be affected by multiple aspects of examination and assessment. It hinders the fulfillment of competence when the exam is not experienced to represent the course or when a course is assessed with pass/fail rather than with a numerical grade. Participants appreciate getting detailed, personal feedback on assignments from professors or teaching assistants.

Moreover, it helps students when there are clear guidelines for studying for an exam, including a thorough syllabus. This makes them feel more self-efficacious as it provides them with better guidelines for their own progress (competence). When a syllabus is clear, students feel more in control of their studies (autonomy).

Lastly, the degree workload affects participants' competence. Participants expressed that feeling like they have enough time to study helped their competence. Moreover, being able to participate in extracurricular activities like the Honours Program was beneficial. When the workload is experienced as (too) high, students express that their sense of competence is affected negatively. Feeling like they cannot cope or that they need help negatively affected competence.

Our investigation into how the university environment influences students' BPN in academia highlights important influences across autonomy, competence, and relatedness.

Figure 3 illustrates our model on how various features such as the curriculum, course structure, online education, assessment methods, clarity of syllabi, and workload affect these needs differently.

Discussion

The main aim of this paper was to gain insights into students' conceptualization of well-being (in academia). Specifically, we aimed to develop a model that could inform future interventions to foster students' well-being in academia. The following research questions were investigated: (1) What is well-being? (2) What are the basic psychological needs in academia? (3) How does the university environment affect students' BPN in academia?

Conceptualization of Well-Being

In this analysis, we identified six components of well-being (Figure 1). The first all-encompassing component that was identified is balance. Participants described well-being as a balance between the other five components: mental health, physical health, eudaimonia, competence, and relatedness (Table D1).

Our results regarding students' conceptualization of well-being seem to align with previous research on the topic, combining and elaborating on several previous conceptualizations. Our all-encompassing theme of balance is reflected in the definition by Dodge and colleagues (2012), who defined well-being as a dynamic balance point. Our components of physical health, mental health, and eudaimonia reflect the positive psychology perspective, which emphasizes the need for positive qualities in life rather than only a lack of negatives (Seligman & Csikszentmihalyi, 2000). More specifically, it reflects the definition of the WHO (2023) which emphasizes going beyond the absence of illness and requiring fulfillment of physical, mental, and social aspects of well-being. This social aspect of well-being is reflected in our relatedness component, which also fits with SDT (Deci & Vansteenkiste, 2004). Our last component, competence, was also previously reflected in

SDT's interpretation of well-being, which states that fulfillment of the needs for autonomy, competence, and relatedness are essential to well-being (Ryan & Deci, 2000).

Conceptualization of SDTs BPN in Academia

When asked about the BPN, participants considered all three important for their well-being in academia, despite the BPN of autonomy not appearing in participants' initial (unprompted) conceptualization of well-being. This aligns with previous research showing the relevance of the BPN in student well-being (Alessandri et al., 2020; Kiltz et al., 2020; Knoesen & Naudé, 2018). While numerous descriptions of the BPN can be found in literature, it was unclear what these BPN entail in academia specifically and when these are "fulfilled." We investigated what makes up the BPN in academia for BSc. Psychology students (Figure 2).

Previous definitions of autonomy emphasize the need to experience behavior as self-directed (Kiltz et al., 2020) and volitional (Ryan & Deci, 2000). Our study elaborates on this by identifying four components of autonomy in academia (Figure 2 and Table D2). Our components of being in control and allowed to make your own decisions (on how to study or engage with the course material) match these previous definitions. Our independence component shows that students' conceptualization of autonomy differs from other literature on the concept, as Ryan and Deci (2000) described that this autonomous feeling of volition can accompany both independent and dependent acts. Our last component, freedom, is also supported by literature, as having the freedom to make life choices and happiness are highly related (Behera et al., 2024).

Competence has previously been referred to as the "need to feel efficacious with respect to the activities one is undertaking" (Ryan & Deci, 2000, p. 73) or believing that one is able to achieve something (Kiltz et al., 2020). Our results allow for a more in-depth analysis, as we identified five components of competence in academia (Figure 2 and Table

D3). To feel competent in academia, students value knowing what one is capable of and believing one can live up to that skill level, aligning with SDT (Ryan & Deci, 2000) and emphasizing the importance of competence as a BPN. This self-awareness builds their confidence in their skills and abilities. Secondly, developing themselves and their skills is crucial. This includes not only acquiring new knowledge but also applying it meaningfully to foster personal and academic advancement. Literature underscores that skill development is pivotal for achieving academic success and personal fulfillment (Ryan & Deci, 2000). Thirdly, students experience a sense of competence through deep engagement with course content. This extends beyond completing tasks to actively participating in profound discussions and understanding material at a deeper level. Active learning strategies, which encourage this deep engagement, enhance students' sense of competence and overall academic well-being (Prince, 2004). The last component is effort, as participants also conceptualized competence as the amount of work they put in, which aligns with literature that links effort with academic achievement and a stronger sense of competence (Dweck, 2006; Jaidumrong et al., 2023).

Relatedness has previously been defined as "the need to feel belongingness and connectedness with others" (Ryan & Deci, 2000, p. 73), but our findings give more insight into how this need is expressed and fulfilled within the academic environment, identifying seven components (Figure 2 and Table D4). Students first conceptualize relatedness as feeling like they belong in the group with other students and within the faculty, aligning perfectly with the aforementioned definition (Ryan & Deci, 2000). This also applies to our component of friendship, which emphasizes meaningful connections with others. Our familiarity component, feeling acquainted with people in the lectures and faculty and having the comfort of recognizing the place, aligns with studies discussing the positive effects of familiarity on happiness (Oishi et al., 2011). Our empathy component is supported by previous studies that

found that positive empathy correlates positively with well-being and social closeness, as empathetic people act as a buffer to stress of people around them (Morelli et al., 2015, 2017). Previous studies also support our component of equality. Experiencing more equality among fellow students regarding social ties has been related to classroom belongingness (Cappella et al., 2013) and may increase content understanding and classroom participation (Molloy Elreda et al., 2022). The last component of relatedness in academia we found was having support. Social support has previously been linked to higher happiness (Behera et al., 2024).

Our results identified components of each BPN in academia, and one could hypothesize that fostering one or each of these components could increase well-being in academia. However, as we collected more specific data on influencing factors from the university environment, a more extensive model was developed (Figure 3), and we could speculate about more targeted interventions.

University Environment and BPN in Academia

Our results indicate that the university environment influences students' BPN in academia, aligning with SDT (Ryan & Deci, 2000) and previous research findings (Aldiabat et al., 2014; Jeno et al., 2023; Kiltz et al., 2020). We investigated which factors of the university environment affect students' BPN in academia: curriculum structure, structure or setup within courses, online versus on-site education, examination and assessment, clarity of syllabi, and workload (Figure 3 and Table D7). Our findings allow us to further elaborate on this, as our qualitative approach allowed for a more in-depth look into *how* this happens, as we attempted to tie these factors to specific needs.

As shown in our model (Figure 3), the structure of the larger curriculum and the setup within courses seem to influence all three BPN, as well as the education setting (online versus in-person). While the setup of electives in the third year was appreciated in the need for competence and autonomy, it may also negatively affect relatedness. Participants expressed

that online education, as opposed to in-person, negatively influenced their BPN. Examination and assessment related mainly to participants' competence and relatedness needs. Students mentioned the clarity of syllabi as affecting their autonomy and competence. Lastly, the university workload seems mainly tied to participants' need for competence.

I will now reflect on each need and some influencing factors, elaborate on the most important factors to students, and make tentative suggestions for interventions to help further foster each need.

Factors That Can Be Targeted to Develop Evidence-Based Interventions

Autonomy

Students expressed that their need for autonomy in academia was more unfulfilled at the start of their study than towards the end. This was most often described in the context of the curriculum structure, as the first two years of the degree are filled with mandatory courses, and only in the third-year students experience more independence, freedom, and the ability to make choices regarding their studies. Furthermore, students experience rigidity in how they 'must' prepare for an exam. This leads to our suggestion that to foster students' autonomy in academia (and therefore well-being), it may be worth looking into offering more choices regarding elective courses earlier in the degree and more options for engaging with course material. This suggestion aligns with previous research, as it has been found that when teachers use autonomy-supportive, rather than controlling, teaching strategies, students perform better, feel more intrinsically motivated, and have higher self-esteem (Deci et al., 1981; Flink et al., 1990). Previous studies have also made a similar suggestion (Jeno et al., 2023). However, there is a delicate balance of autonomy to be found. As the University of Groningen carries a very diverse student body, while this could benefit some students, there is the potential for other students to experience too much autonomy, negatively affecting their

well-being in academia as the satisfaction level of the BPN may differ per culture (Ryan & Deci, 2000).

Competence

Regarding competence in academia, features regarding examination and assessment were mentioned the most as affecting this need negatively. Participants expressed that when a course is evaluated with only pass/fail or when assignments are being met with little or very general feedback, this hinders fulfillment of competence. Participants find it important to get a good idea of how well they are doing, and this vagueness leaves them unsatisfied. They feel as if their efforts are not appreciated and feel less knowledgeable at the end of these courses than courses that are numerically graded or have assignments that receive thorough, personal feedback. This discrepancy between teachers' feedback and that which students deem useful has been found previously (Carless, 2019).

Our findings also align with previous research showing that students prefer quality feedback over quantity (Voelkel et al., 2020), as students value detailed, specific, honest, and constructive feedback. According to Voelkel and colleagues (2020), the feedback should not just identify areas needing improvement but also provide a rationale for the grade given to the work. Therefore, our tentative suggestion to improve students' competence in academia would be to eliminate mere pass/fail grading and to assess each course with at least a numerical grade to eliminate vagueness. Furthermore, teachers could provide more thorough feedback and clarify why a particular grade is given. On the other hand, a study by Kinman and Wray (2013) shows that more than half of higher education staff already experiences levels of stress they find unacceptable and that their work-life balance is often poor. Furthermore, academics already face high and conflicting expectations as is (Winefield et al., 2014), and increasing their workload by adding, e.g., more paperwork or teaching hours, has been related to burnout (Jensen & Olsen, 2023). Moreover, as Kiltz and colleagues (2020)

already pointed out, teacher well-being is interconnected with student well-being. Therefore, caution should be taken concerning how to implement this.

Relatedness

For relatedness in academia, the structure or within courses seemed most important. Participants expressed preferring smaller-scale courses with practicals rather than large, impersonal lectures. In these small settings, students feel more equality in their relationship with teachers and experience more familiarity as they start to recognize and get to know their fellow students and teachers better.

Studies indicate that larger class sizes hurt student-rated outcomes in terms of amount learned, instructor rating, and course rating (Monks & Schmidt, 2011). Smaller-scale, practical courses allow for more student-teacher immediacy than large-scale lecture-style courses. Immediacy encompasses communication behaviors that strengthen a sense of closeness and encourage nonverbal engagement with another individual (Mehrabian, 1969). According to a meta-analysis, teacher immediacy is tied to student motivation (Liu, 2021). They explain this finding by the fact that getting students' attention is the most crucial factor in motivating students, and immediacy (moving around the class, making eye contact, calling students by name) enables teachers to do so (Keller, 1987). There are also studies indicating that teacher immediacy has a positive effect on student achievement (Liu, 2021; Witt et al., 2004). Therefore, our tentative suggestion to foster student relatedness in academia is to implement more smaller-scale courses, allowing for more student-teacher interaction and immediacy. However, one potential route the university may take to implement this is limiting the number of students, which would make the program, which is already 'numerus fixus,' an even more elite environment.

Strengths and Limitations

It is important to highlight the strengths and limitations of this research. Our qualitative approach allowed us to conduct in-depth interviews, providing us with more meaning to concepts (Moser & Korstjens, 2017). We let our participants elaborate on their answers to ensure we fully understood their perspectives. This gives us more insight into the complexities of the human mind and its interactions with the context compared to results from a potential quantitative study (Tenny et al., 2024). It is well-suited to investigate topics that are difficult to quantify, like well-being (in academia) (Dodge et al., 2012). It also gave us flexibility, allowing themes to emerge that were not previously considered. Our approach was hypothesis-generating, strengthened the understanding of the topic of well-being, and can, in turn, improve its measurement in the future.

On the other hand, our results are based on a small sample size (n=12) and cannot be generalized to a larger population. Additionally, we used a convenience sample, as participants were provided by the researchers, further reducing the generalizability. Moreover, while all BSc. Psychology students at the University of Groningen, not all participants have had the same experiences in their degree, as third- and especially fourth-year students completed part of their study during the COVID-19 pandemic.

Although the researchers conducted multiple rounds of coding and maintained close communication to ensure consensus on the codes, the process remains susceptible to subjective interpretation. Furthermore, participant answers could be dependent on their state of well-being at the time of the interview, and it is possible that they would have provided different answers on a different day. Moreover, our interview required students to reflect retrospectively on earlier years of their studies. Their answers are dependent on their memory and could be biased. Lastly, we did not use a validated interview; the researchers formulated the questions based on their own research questions.

While we cannot generalize these results, we can use them as a starting point to develop a model and to generate hypotheses. This model and its hypotheses, as laid out in this paper, can be tested in future studies. Additional research can further examine the importance of the suggested components of well-being and the BPN using quantitative methods. Future research should include a larger sample size and students enrolled in each program year, allowing for more generalization of these findings. This should also allow researchers to investigate differences in well-being and the fulfillment of the BPN across years of study and remove the retrospective aspect of the present work. Furthermore, a longitudinal analysis of the BPN may be beneficial to enhance our understanding of its mechanisms and, in turn, its function.

Conclusion

Student mental health is a significant concern, and previous research has highlighted the necessity for effective interventions. With the recent shift towards positive psychology, there is a growing emphasis on promoting well-being from the outset as a preventative measure rather than treating problems after they occur. However, the current literature lacks a clear definition of well-being within the academic context, a crucial understanding needed before developing appropriate and targeted interventions.

The findings of this research indicated a dynamic model of well-being, which showed the relevance of SDT's basic psychological needs within well-being in academia and how these are connected. Furthermore, this study gave us a better understanding of what the BPN in academia entail and how the university environment affects these needs. Components of autonomy, competence, and relatedness in academia were discussed, and the relevant influencing factors from the university environment were identified per need. Finally, based on these findings, tentative suggestions were made on how the university can further foster students' basic psychological needs.

Previous definitions of well-being have been imprecise, which makes them inadequate to inform targeted interventions. Although this study did not provide an all-encompassing definition of well-being in academia, and this gap remains to be filled, it does provide us with a more specific conceptualization of well-being, basic psychological needs in academia, and the influencing factors from the university environment. These insights can inform a specific, targeted intervention to foster student well-being in academia. Further research is needed, however, to test the suggested model and to be able to generalize it to a larger population.

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Appendix A

Demographics Questionnaire

Demographic Questionnaire Study: Understanding Well-being in Academia through Self-Determination Theory (SDT)

Participant _____ (filled out by the researcher)

We kindly request some brief socio-demographic information from you as a participant. This information will assist us in understanding your responses within context.

1. I am   ☐ male   ☐ female   ☐ other   ☐ prefer not to say

2. Age   _____ years

3. Nationality   _____

4. Concerning my studies

    a. I'm currently enrolled in the

       ☐ Bachelor   ☐ Master

    b. I am in my

       ☐ 1st year   ☐ 2nd year   ☐ 3rd year   ☐ 4th year

If you have any further questions concerning the interview study, do not hesitate to ask. Again, thank you very much for participating in our study and helping us get better insights into well-being at the university.

Contact: L.Ballato@rug.nl   Bachelor Thesis Project
University of Groningen   Well-being in Academia

<center>**Appendix B**</center>

<center>Informed Consent</center>

Informed Consent for Interview Study within the Project: Understanding Well-being in Academia through Self-Determination Theory (SDT)

April 2024

I, [Participant's Name], hereby consent to participate in the current research conducted by [Researcher's Name], a student at the University of Groningen. Contact: [Researcher's Contact Information]

I have agreed to participate in the study "Understanding Well-being in Academia through Self-Determination Theory (SDT)," understanding that my participation is entirely voluntary. I acknowledge that my data will be kept confidential. I reserve the right to withdraw from this study at any time without penalty and to request that my responses not be used. The researcher is responsible for the secure storage of the data.

I will have the opportunity to review a summary of my interview and indicate whether I wish particular parts not to be considered in the analysis. The data will be only used for educational purposes and will not be published.

 I read and understood the information form, which provides more detailed information about the research.

Date: [Participant's Date]

Signature Participant:

Date: [Researcher's Date]

Signature Researcher:

Contact: Dr Laura Ballato
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Appendix C

Script

Q nr.	Conceptualization of Well-Being
1	In general, what does well-being mean to you? (When you hear "well-being" – what comes to mind?)
	Self-Determination-Theory
	Now let's move on to Self-determination-theory. Self-Determination Theory, or SDT, is a psychological theory of motivation that explains how people strive for growth, connection, and well-being. At its core, SDT suggests that everyone has three basic, innate needs: autonomy, competence, and relatedness. • Autonomy is about feeling in control of your own actions and decisions. • Competence involves feeling skilled and capable in what you do. • And relatedness is about having meaningful connections with others. According to SDT, fulfilling these three needs is essential for psychological health, motivation, and happiness. For the questions that follow, please try your best to stay within the framework of academia and the three psychological needs of SDT competence, relatedness and autonomy. Do you have any questions about SDT?
2	What is autonomy within academia for you?
	When you look back at your studies, were there certain periods during which you felt more or less autonomous? • How was this need (not)met in your first year compared to now?
	What importance did autonomy play over the course of your studies?
3	What makes you feel competent within academia?
	When you look back at your studies, were there certain periods during which you felt more or less competent? • How was this need (not)met in your first year compared to now? • How do exam periods impact your feelings of competence? • How do you feel your personal level of resilience, your ability to bounce back, influences your feelings of competence?
	What importance did competence play over the course of your studies?
4	What is relatedness within academia for you?
	When you look back at your studies, were there certain periods during which you felt more or less relatedness? • How was this need (not)met in your first year compared to now? How has your relationships influenced your persistence in academia? • Can you describe a time when you felt a sense of belonging in academia?

	• Have there been any experiences where your relationships posed difficulties or distractions during your studies? *(In case they have answered this earlier can be omitted)*
	What importance did relatedness play over the course of your studies?
	Values and Identity
5	What does an important decision look like to you?
	What do you prioritize when making important decisions during your study years? • Did it change through the years of study? If so, how?
6	What motivates you within academia? • Why?
7	How did you choose your third-year courses? *(For first and second year students: how will you choose…?)*
8	What does it mean for you to be a student?
9	In what ways do you think your student identity influences your overall well-being in academia? *(If the student is unsure what is meant with student identity, refer them to their answer to the previous question, as this captures their student identity.)* (Identity: How you see and express yourself)
10	How easily do you bounce back from a stressor such as not passing an exam within your academic life? • How do you feel this has impacted your sense of well-being within academia?
	Influencing well-being
11	Think of a moment where you had the feeling your well-being was fulfilled. • How did your perception of being a student contribute to feeling well-being in that very moment? • Were there some other <u>internal</u> factors that contributed to that feeling of fulfilled well-being?
	Who is responsible for student well-being
12	Who do you think is responsible for student well-being? *(Ask this open question first, before asking specifically about themselves or university. If they already talk more about one or the other, let them, don't redirect them into talking about one thing first.)*
13	To what extent are you responsible for your own well-being in academia?
	What are the actions you have taken to enhance your experience of well-being? *(If the student does not really know what to say, remind them of the three needs.)* • What motivated you to take this initiative?

	Are there any behaviors that you wanted to implement, but have not done so so far? • Why?
14	To what extent is university responsible for student well-being?
	What is the university doing right now to foster students' basic psychological needs? *(If the student does not really know what to say, remind them of the three needs)*
	What do you think the university can do to further enhance students' basic psychological needs? (*If the student does not really know what to say, remind them of the three needs*)
	What were you missing from the university with regards to fostering the three needs in your first year?
15	Is there anything else that we haven't talked about yet that you think influences your well-being?
	Is there anything else you would like to add?

Appendix D

Analyzed Codebook

Table D1

Conceptualization of Well-Being

Component	Description	Example
Balance	Experiencing a balance between several aspects of their lives, including mental and physical health, and work-life balance among others.	"So general well being includes, like, many different well beings that are, in a way, more stable, like, the balance is quite stable"
Mental health	Being free from mental disorders that hinder mental, emotional, psychological, and social well-being and functioning.	"I guess physical and mental health kind of? Yeah, are like the two main things that are necessary for wellbeing for me. Yeah."
Physical health	Being physically healthy and functioning.	"Okay, so there are two broad components to it, I would say, like a physical and a mental one. Physiological and psychological component."
Eudaimonia	Being happy, feeling content, and having positive experiences.	"Overall, I think, for me, it's always a state of balance, where I feel like I kind of am on top of everything that I want to do. just like being content with what I do, and then having positive experiences, I would say."
Competence	Being able to do the things one would like to do and/or have academic achievements.	"Well, I do think a sense of achievement is very important for me. I like to feel like I've achieved something. I'd like to also be knowledgeable about that."
Relatedness	Interacting with other people, having friends and feeling supported.	"And you're surrounded by people who support you and you feel loved by it's also really important."

Table D2

Conceptualization of Autonomy

Theme	Description	Example
Being in control	Being in control of your own actions and choices.	"I feel like it is quite important because you want to feel like you have control of your studies, right? You want to feel like this is what you want to do and what you chose to do"
Decision-making	Making decisions how to study, prepare for an exam, or how to engage with the material.	"And like, the less I can choose which materials to use, the less autonomy I feel like I have, somehow"
Freedom	Having the freedom to do what you would like in your studies, like participating in extracurricular activities etc.	"You choose your own path, and you feel the freedom"
Independence	Feeling like you can do something by yourself,	"Yeah, and to not need, like to rely on someone else […] That you don't need additional or

Theme	Description	Example
	without needing support from others.	great additional amounts of help like a tutor outside of that. You can, with the help from the professor and like the normal materials, develop your own grasp material without additional offset."

Table D3

Conceptualization of Competence

Theme	Description	Example
Deeper understanding	Being able to go beyond the passive receiving of information from courses, to being able to have deeper discussions about the material.	"Seeing what you think about things and just being like very engaged in the academic world"
Effort	Putting genuine effort into your studies and trying to complete courses successfully.	"I think a competence that I have is I know how much I can do and what is enough. And I can really just put enough effort into it. So there's something that is satisfying for me."
Learning	Being able to successfully study and retain the information gained during one's studies.	"I felt like non competent, like, so bad, because I did nothing [...] that showed off, you know, I only mean, if I, for example, read a book, but don't talk about this book. And I don't feel I learned something."
Self-development	Enhancing one's academic and personal skills.	"I definitely also had a learning curve on how to approach them and how to interpret certain things. So kind of as a scientist. I think I've definitely gained some skills that helped me navigate in the academic sphere."
Self-efficacy	Knowing what one capable of, and believing that one can live up to that level of skill	"I think a competence that I have is I know how much I can do and what is enough. And I can really just put enough effort into it. So there's something that is satisfying for me."

Table D4

Conceptualization of Relatedness

Theme	Description	Example
Belonging	A sense of connection with and feeling that one fits in the group.	"Relatedness is for me, once feeling related with my fellow students, feeling of belonging, maybe also developing the identity of being a psychology student."
Commonality	Sharing common fate, similar interests, opinions, and having similar worldviews.	"And so I would say that that's part of relatedness that you like are working together with others. But I also think in lectures for example, it can be when you because

Theme	Description	Example
		oftentimes lectures, a bit more interactive that you can see that other people share your point of views or have similar ideas and thoughts about things as you do."
Friendship	Fostering meaningful connections with friends within and outside academia that one could relate to and connect over positive and negative experiences.	"I think for me, mainly, this means having, having friends, having people that understand me that go through the same things I'm going through right now. And being able to connect to them, talk to them."
Familiarity	Being acquainted with people in the lectures, faculty and having the comfort of recognizing the place.	"I also think lectures help if there are people, a lot of people showing up. It's nice to be in this big group and then have your own little group that you always sit with, but you recognize all the faces and it's comfortable."
Empathy	Ability to understand and share the feelings, thoughts and experiences of another person.	'I'm in the Red Cross, in a committee, and we wanted to do like a party thing and we wanted to like the donations to go to mental health [...] I think we already like, quite like a bunch of like just more human people, if that makes sense."
Equality	Being equal in status, rights and opportunities.	"I am working in a small group together with the supervisor where I always look up to and we are on the same level, we can talk and exchange ideas, it's really nice"
Support	Having supportive others within and outside of academia to help deal with setbacks, persevere; engaging in the mutual aid with others in pursuit of current goals.	"Ask my friends if they understood something that I might not have understood. Exchange notes, like things that people will use to study for exams and everything like that. So it helped with having a support system, but also to help with the studies ecause you have someone there going through the same exact thing."

Table D5

Types of Connections in Academia Described by Participants

Connections	Description	Quote
Fellow students	Having peers to exchange ideas with, learn from, and study with. These peers can also be friends who support each other.	"It helped with having a support system, but also to help with the studies because you have someone there going through the same exact thing."
Teachers	Being able to approach, talk to the teachers, asking them questions about the content of courses.	"Also having connections to researchers, having connections to lecturers, feeling like I can approach them and ask questions."
Content of classes	Having a sense that the content of the class is interesting and meaningful, sparking a curiosity to learn more about the subject.	"The content, because when I read the content, meaning also, it's really interesting, and I liked it a lot.

Connections	Description	Quote
University/faculty	Feeling like one belongs with the university, within the faculty and the university buildings.	"I am having the sense of belonging to my uni and having the sense of belonging to my faculty"

Table D6

Example Expressions Regarding the Fulfillment of BPN within Academia.

BPN	Code		Quote
Autonomy	Fulfilled	Being in control, being allowed to make decisions, and experiencing freedom and independence.	"Yeah, I think that especially now, like in my third and fourth year, where I could actually choose subjects and so on, that also played a big role because, um, I could do what I was interested in. […] I really enjoyed that. So then I think that was good."
	Not fulfilled	Lack of control, decision-making, freedom and independence.	"But I would have still preferred if I didn't have to repeat statistics this many times. And this whole thing caused like a study delay, and then it affected like the whole rest of my studies, and it made it quite chaotic. I really didn't like that part. I would have liked to choose to study that life on myself if I really wanted it, right."
Competence	Fulfilled	Feeling high self-efficacy, self-development, and learning, putting in effort, and having a deeper understanding of the study material.	"My feeling of competence was quite high during the whole first year. And that was definitely getting more in the first weeks. Like when I started, I thought, okay, well, I'm not sure if I'm going to pass all these courses, and it's going to be so hard. And then, after the first exams, I thought, okay, well, I'm fine."
	Not fulfilled	Feeling helpless, stagnated, not learning, not putting in effort and not having a deeper understanding of the study material.	"When you study for something, and then you feel okay, it was alright. But then you get the results back and it was just not right at all. So I think that was definitely one of my low points in terms of competence."
Relatedness	Fulfilled	Having friends, feeling like you belong, and have things in common with others, and experiencing familiarity, empathy, equality and support.	"I think it's not hard for me to fit in or to at least have the feeling that I belong, and I think that also makes me feel very safe and secure."
	Not fulfilled	Lacking friends, feeling like you don't belong or have things in common with others, or not experiencing familiarity, empathy, equality or support.	"I didn't have any bond within my academic skills mentor group in the first year, like none. I wouldn't even recognize over half of the people that were in there. Uh, even though it's really meant to be a learning community, right? Like you're meant to be kind of like a friend group, support each other. So it was really lonely."

Table D7

Influencing Factors from University Environment affecting BPN in Academia

Theme	Description	Example
Structure curriculum	Features of the curriculum at a large scale, like length of study blocks.	"Now towards the end of my fourth year, there were a lot of classes that I took alone. Just because my friends were either done or taking different classes in the third year. I felt a bit less related to them again, because I don't see them as much anymore."
Structure courses	Features related to the structure or setup within courses	"I would say that some of the courses can probably be restructured. But I don't know if that will directly influence student wellbeing. In terms of being a bit less stressful, less workload, but still teaching somewhat of the same amount of material. I think there are probably ways to do that, which is obviously hard but not undoable."
Online education	Experiencing online education and communication as opposed to face-to-face education.	"Yeah, it was online. So, sometimes you had open book exams online. And then you look things up because you're allowed to, and then you get a high grade. Yeah. [Sarcastically] Wow."
Examination and assessment	Features of examination and assessment, including mode of examination, feedback on assignments, etc.	"Getting feedback is very important. Sometimes personalized feedback, which I think I don't get much chance like to, because sometimes it's like big courses, 300 students. But if you have like smaller courses, and then you get feedback, that's actually really good. And then you see, okay, I can improve here. I'm already doing good here, but maybe I can improve."
Syllabi	Features of the syllabi of courses, including clarity on learning goals and grade meaning.	"I think grades are a bit strange for essays, like, how, what's the difference between an 8.3 and an 8.2 thesis, or like, an 8 thesis, 8.5 thesis, you cannot really point it out. I think it's also just a bit unfair"
Workload	The study load experienced throughout the bachelor's degree.	"I feel like some professors refuse to see that the classes they teach might be having a too high of a workload. Like when I compare what my friends say, and what younger students say, there are a few classes that repeatedly share the same sentiment of this was way too much. It's too much reading and too many lectures. And I just don't understand but you don't get any extra help. So I feel like some professors should maybe have a conversation with the heads of university or just with student representatives and like actually taking the feedback that they get, because even when they read the course evaluations that say that the workload is too high for everyone, and you get the feedback from hundreds of students, and they still refuse to change what they do."

Appendix E

Complete Codebook

Conceptualization Well-Being

Category	Code	Description	Example
Well-Being	CONC WB: Balance	Experiencing a balance between several aspects of their lives, including mental and physical health, and work-life balance among others.	"So general well being includes, like, many different well beings that are, in a way, more stable, like, the balance is quite stable"
	CONC WB: Competence	Being able to do the things one would like to do and/or have academic achievements	"Well, I do think a sense of achievement is very important. For me. It's yeah, it's, I like to feel like I've achieved something I'd like to also be knowledgeable about that, which, to me is honestly more important than, for example, a grade."
	CONC WB: Content	Feeling content, being at ease, feeling comfortable	"I guess just being content with where you are in your life right now. And like having the feeling like you can do, okay, in the future, like you don't have to excel necessarily, but just the feeling of being fine for the future."
	CONC WB: Mental health	Being free from mental disorders that hinder mental, emotional, psychological, and social well-being and functioning	"I guess physical and mental health kind of? Yeah, are like the two main things that are necessary for wellbeing for me. Yeah."
	CONC WB: Physical health	Being physically healthy and functioning	"Okay, so there are two broad components to it, I would say, like a physical and a mental one. Physiological and psychological component."
	CONC WB: Positive experiences	Having positive experiences and pursuing happiness	"Overall, I think, for me, it's always a state of balance, where I feel like I kind of am on top of everything that I want to do. just like being content with what I do, and then having positive experiences, I would say. "
	CONC WB: Relatedness	Interacting with other people, having friends and feeling supported.	"And you're surrounded by people who support you and you feel loved by it's also really important."
Autonomy	CONC AUTO: Being in control	Being in control of your own actions and choices	"I feel like it is quite important because you want to feel like you have control of your studies, right? You want to feel like this is what you want to do and what you chose to do"
	CONC AUTO: Decision-making	Making decisions how to study, prepare for an exam, or how to engage with the material.	"And like, the less I can choose which materials to use, the less autonomy I feel like I have, somehow"

Category	Code	Description	Example
	CONC AUTO: Freedom	Having the freedom to do what you would like in your studies, like participating in extracurricular activities etc.	"You choose your own path, and you feel the freedom"
	CONC AUTO: Independence	Feeling like you can do something by yourself, without needing support from others	"Yeah, and to not need, like to rely on someone else. Like of course, you need the professor to like in the lecture and everything, like provide you with the materials and then that you don't need additional or great additional amounts of help like a tutor outside of that you can with the help from the professor and like the normal materials, develop your own grasp material without additional offset."
Competence	CONC COMP: Comparison to others	Comparing own achievements, skills, grades, etc. to those of other people.	"I would compare myself maybe to glimpses of what I would see, how other people would deal with the situation"
	CONC COMP: Deeper understanding	Being able to go beyond the passive receiving of information from courses, to being able to have deeper discussions about the material.	"Seeing what you think about things and just being like very engaged in the academic world"
	CONC COMP: Effort	Putting genuine effort into your studies and trying to complete courses successfully.	"I think a competence that I have is I know how much I can do and what is enough. And I can really just put enough effort into it. So there's something that is satisfying for me."
	CONC COMP: Extracurricular activities	Participating in activities (academic and not) outside of the normal curriculum..	"I think that grades are probably the biggest source of feeling of competence and from academia. But like for me, probably also being in the Honors College just because obviously, you need to have certain grades to get in and you obviously also need to apply and then get accepted and do more things next to all the other things you already have to do."
	CONC COMP: Grades	Understanding competence in connection to grades	"Yeah, I guess I mean, the framework of grades, for example, and it's already contributing to feeling competent... "
	CONC COMP: Having the resources	Having resources available that allow the student to live up to their full potential.	"It helps me when there's a thorough proper syllabus, and when the, when the people around me like my mentor, my teacher, as well is willing to put in the effort to help me and to give me like the space and the time and the effort that to make the sessions well."
	CONC COMP: Learning	Being able to successfully study and retain the information gained during one's studies.	"I felt like non competent, like, so bad, because I did nothing like nothing. That showed off, you know, I only mean, if I, for example, read a book, but don't talk about this book. And I don't feel I learned something."
	CONC COMP: Personalized feedback	Receiving personalised feedback from a professor or teaching assistant.	"If you have like smaller courses, and then you get feedback, that's actually really good. And then you see, okay, I can improve here. I'm already doing good here, but maybe I can improve."

Category	Code	Description	Example
	CONC COMP: Resilience	Being able to bounce back from setbacks such as bad grades.	"If I would feel less resilient, I would feel less competent. Um, Yeah, I guess it made me it made my feeling of competence more stable."
	CONC COMP: Self-development	Enhancing one's academic and personal skills.	"I definitely also had a learning curve on how to approach them and how to interpret certain things. So kind of as a scientist. I think I've definitely gained some skills that helped me navigate in the academic sphere."
	CONC COMP: Self-efficacy	Knowing what one is capable of doing and believing that one is able to live up to that level of skill.	"I think a competence that I have is I know how much I can do and what is enough. And I can really just put enough effort into it. So there's something that is satisfying for me."
Relatedness	CONC RELA: Belonging	A sense of connection with and feeling that one fits in the group.	"Relatedness is for me, once feeling related with my fellow students, feeling of belonging, maybe also developing the identity of being a psychology student."
	CONC RELA: Having things in common	Sharing common fate, similar interests, opinions, and having similar worldviews.	"And so I would say that that's part of relatedness that you like are working together with others. But I also think in lectures for example, it can be when you because oftentimes lectures, a bit more interactive that you can see that other people share your point of views or have similar ideas and thoughts about things as you do."
	CONC RELA: Connections fellow students	Having peers to exchange ideas with, learn from, and study with. these peers also be friends who support each other.	"...Ask my friends if they understood something that I might not have understood. Exchange notes, like things that people will use to study for exams and everything like that. So it helped with having a support system, but also to help with the studies because you have someone there going through the same exact thing. "
	CONC RELA: Connections teachers	Being able to approach, talk to the teachers, asking them questions about the content.	"...and then probably also having connections to researchers having connections to, to lectures having, feeling like I can approach them and ask questions. Just probably the opposite of just feeling alone and feeling ostracized."
	CONC RELA: Content of classes	Having a sense that the content of the class is interesting and meaningful. Sparking a curiousity to learn more about the subject.	"The content, actually, the content, because when I read the content, meaning also, it's really interesting, and I liked it a lot. But the negative part of it is sometimes the extrinsic motivation, I would love to engage way more"
	CONC RELA: Having friends	Fostering meaningful connections with friends within and outside academia that one could relate to and connect over positive and negative experiences.	"I think for me, mainly, this means having, having friends, having people that understand me that go through the same things I'm going through right now. And being able to connect to them, talk to them."
	CONC RELA: Familiarity	Being acquainted with people in the lectures, faculty and having the comfort of recognizing the place.	"I also think lectures help if there are people, a lot of people showing up. It's nice to be in this big group and then have your own little group that you always sit with, but you recognize all the faces and it's comfortable."

Category	Code	Description	Example
	CONC RELA: Empathy	Ability to understand and share the feelings, thoughts and experiences of another person.	"I'm in the Red Cross, in a committee, and we wanted to do like a party thing and we wanted to like the donations to go to mental health (...) I think we already like, quite like a bunch of like just more human people, if that makes sense."
	CONC RELA: Physical presence	Attending university in person, having face-to-face interactions as opposed to online education and communication.	"Like at this point, I'm in Heyman's like every day and I'm meeting my friends here and I'm having meetings and I'm kind of connected to a lot of people because of the activities I'm doing within academia. So then I think both on a like very kind of physical hands on way that really, really, really helps with my sense of belonging for compared to the beginning where I was just at home, but never really at uni."
	CONC RELA: Studying with other people	Having people one could study with to stay connected and motivated.	"Having friends in your, that you can study with, um, or just chill with think, um, it really helps me. It really, like I need social pressure to study as well."
	CONC RELA: Support	Having supportive others within and outside of academia to help deal with setbacks, persevere; engaging in the mutual aid with others in the pursuit of current goals.	"Ask my friends if they understood something that I might not have understood. Exchange notes, like things that people will use to study for exams and everything like that. So it helped with having a support system, but also to help with the studies because you have someone there going through the same exact thing."

Influencing Factors Well-Being

Category	Code	Description	Example
Internal factors		Things about the participant more internally that affects their well-being (in academia)	
	INT F: Achievement oriented	Being hardworking, goal-oriented and/or aiming for high grades	"It's really important, like I don't know this is like a belief that has been instilled in me by my parents for so long. It's just like okay, work is the most important thing. You need to work you need to earn you need to like just be a hardworking person. "
	INT F: Attitude / mindset	Participant's perception that mindset one adopts can shape one's perceptions, attitudes, and reactions to life events, and thus affects one's overall well-being	"I'm a bit of an over thinker, and then I'm having sometimes those kind of downward spirals, where I think, just because this doesn't work well right now, or I'm so stressed, how will I ever get out of this acute phase of stress? And then I'm also kind of thinking five steps ahead and then like in a negative direction. "

Category	Code	Description	Example
	INT F: Comparing self to others	Participant's tendency to compare themselves to other people	"Yeah, because I thought that everybody else had already their groups and their people and stuff, and then I was a bit like, I don't know, like, not the odd one out, but like, like, I did know some people, but I wasn't so close friends with them that I thought, okay, or I thought, okay, they're in person friends already, and I kind of need to join in and stuff, and in the end it worked. But also, like, at first I remember that was very intimidating as well."
	INT F: Confidence / self-efficacy	Participant's general sense of confidence and self-efficacy, their perception of their ability to succeed in a given situation	"But there was definitely a moment where I trusted myself and had self-confidence that I can actually do it. And that felt really good. And trusting then I had a lot of motivation for the next block and kind of carried that momentum. to actually staying on top this time and not pushing it to the end again."
	INT F: Mental health	Mental health (problems) including e.g., depression, ADHD.	I think, so, my ADHD diagnosis is something that made me insecure through, and still does, makes me insecure throughout life, because you kind of get a stamp, like, you're less capable than the rest of the people. So that really bothered me in the beginning, because you start a new thing, you start new studies, you start new things every year, even though it's one bachelor's. And then you're like, okay, so this is different for me than for other people, but what does that mean for me? Does that mean that I cannot do this, maybe? But I really got over that now, I think. I think that will start again when I do a master's.
	INT F: Openness to experience	Participant's openness to experience, learning and sense of curiosity	"Openness for experiences. Yeah, those experiences then contributed to the well-being. And yeah, being curious also. It's kind of the same, they both play into that, like having new experiences"
External factors		External factors affecting well-being in academia	
	EXT F: Online education	Participants perception that online eduction had a critical role in their well-being in academia	"And I think when I felt at least competent was my first year COVID, everything's online. You just feel like you're not even doing the study. So when you get a grade, you don't care because, um, it kind of feels like you don't deserve that grade."
	EXT F: Parents	Participants perception that parents had a critical role in their well-being in academia	"I just saved myself the money of renting and stayed at home which was the right decision in my opinion for me"
	EXT F: Weather	Participants' perception that weather influences their well-being in academia	"the weather that's definitely, also a very important factor, obviously"

Category	Code	Description	Example
	EXT F: Workload Outside Degree	Particpants perception that a workload outside their psychology degree had a critical role in their well-being in academia	"Because I, for me, I'm working right now. Quite a lot, probably more than I should. But then doing honours College, everything, that's not really possible."

BPN Fulfillment

Category	Code	Description	Example
Autonomy	BPN: AUTO: Fulfilled	Expression of an experience/situation within their studies in which their need for autonomy was met.	"Yeah, I think that especially now, like in my third and fourth year, where I could actually choose subjects and so on, that also played a big role because, um, I could do what I was interested in and I could also try out different subjects and so on. So I think I really enjoyed that. So then I think that was good."
	BPN: AUTO: Not fulfilled	Expression of an experience/situation within their studies in which their need for autonomy was not met, either being too low or too high.	"But I would have still preferred if I didn't have to repeat statistics this many times. And this whole thing caused like a study delay, and then it affected like the whole rest of my studies, and it made it quite chaotic. So I, yeah, I really didn't like that part. I would have liked to choose to study that life on myself if I really wanted it, right."
Competence	BPN: COMP: Fulfilled	Expression of an experience/situation within their studies in which their need for competence was met.	"My feeling of competence was quite high during the whole first year. And that was definitely getting more in the first weeks. Like when I started, I thought, okay, well, I'm not sure if I'm going to pass all these courses, and it's going to be so hard. And then, after the first exams, I thought, okay, well, I'm fine. Alright."
	BPN: COMP: Not fulfilled	Expression of an experience/situation within their studies in which their need for competence was not met.	"When you study for something, and then you feel okay, it was alright. But then you get the results back and it was just not right at all. So I think that was definitely one of my low points in terms of competence."
Relatedness	BPN: RELA: Fulfilled	Expression of an experience/situation within their studies in which their need for relatedness was met.	"I think it's not hard for me to fit in or to at least have the feeling that I belong, and I think that also makes me feel very safe and secure "

Category	Code	Description	Example
	BPN: RELA: Not Fulfilled	Expression of an experience/situation within their studies in which their need for relatedness was not met.	"I didn't have any bond within my academic skills mentor group in the first year, like none. I wouldn't even recognize over half of the people that were in there. Uh, even though it's really meant to be a learning community, right? Like you're meant to be kind of like a friend group, support each other. So it was really lonely."

Importance of BPN

Code	Description	Example
Importance autonomy	Personal evaluation of the need for autonomy in academia to be of high or low importance.	"I would say it's quite important for me, just because that, again, makes it way more interesting for me if I have autonomy, that makes sense, if I don't have autonomy, I feel like a lot of times it feels forced and then I get bored by the tasks."
Importance competence	Personal evaluation of the need for competence in academia to be of high or low importance.	"Relatedness I think, from a social aspect is very important to me, but from an academic life perspective, not so important, I don't really link it to the concept of my academic self."
Importance relatedness	Personal evaluation of the need for relatedness in academia to be of high or low importance.	"It's something I think about a lot, because I compare myself a lot to other people and friends. And if I don't feel competent in my studies, I start spiraling."

Aspects Linked to Students' Identities

Code	Description	Example
IDENTIY	Aspects that are linked to students' identities	
ID: COMM HIGH	Showing a high commitment to plans and decisions	"Yeah. I mean, I would like to do therapy. So I would choose my courses according to that."

Code	Description	Example
ID: COMM LOW	Showing a low commitment to plans and decisions or not having concrete plans	"But overall, I think I just chose it based on what sounds interesting in a moment. One course I chose just for the vibes because all of my friends took it"
ID: EXPL HIGH	Demonstrating a high level of curiosity and a strong tendency to explore in one's decisions and actions.	"I'm just here to kind of maximize the whole experience but also really, like, I took my time going to university (...) I'm here because I want to learn stuff here because I want to see what's out there and I think there's kind of motivation"
ID: EXPL LOW	Demonstrating a low level of curiosity and a weak tendency to explore in one's decisions and actions.	"Then I did forensics, sexology, CBT, also just because I wanted to really dive into it. And yeah, so I didn't even look at the other courses."
ID: Student	Identifying as a student and acknowledging that this conceptualization influences other aspects of their lives	"I have like a positive image of being a student. Like, it's not like I think being a student is a burden or something. So like, overall, I think it's cool learning experience. I think that does, like positively influence my academic well being."
ID: Belonging	feeling accepted, valued, and connected to a group or community	"And then like, giving the presentation about it felt like really good. And everyone was like, That was so good. And then I felt like okay, maybe this is something that I that I do like belong to also."
ID: Being student relates to WB	Explicitly mentioning how being a student influences well-being	"Being a student gives me a good feeling, a good place in life right now."
ID: Development	Expressing that one developed mentally	"I think coming from where I came from, anxious little first year girl, I'm just really proud of myself for everything that I've done."

Aspects Linked to Students' Values

Code	Description	Example
VALUE: Achievement	Valuing ambition and personal success by striving for competence and social recognition	"I feel like it's also a lot about proving people you're competent, which is a shame. Yeah, but it's qualities you need. In order to get this bachelor, masters to go do a PhD. It's really important."
VALUE: Hedonism	Prioritising enjoyment and instant gratification; demonstrating a tendency towards pleasure-seeking	"I would never say no to a social gathering, and also the first two years were hedonistic, so always like seeking fun and immediate pleasure over the future orientation and maybe like reaching a long term goal."
VALUE: Knowledge	Perceiving knowledge, learning, and acquiring skills as intrinsically motivating	"I love learning new things. I love, it's really exciting to me to come as close to a truth as possible, even though that also doesn't exist, you know? Being so close to the newest developments really excites me and motivates me. I like knowledge."

Code	Description	Example
VALUE: Relationships	Perceiving belongingness, connections as important; being mindful of others' needs and personal impact on others	"I focus a lot on my boyfriend, because we plan to have a future together. So I try to, like consider how what I choose might affect him. Because if we plan on actually living together later, I don't know what but if we want to keep this relationship going, I can't be selfish in my decisions because somebody else also is going to be affected by it."
VALUE: Security	Inclination towards safer and more familiar options and/ or predetermined path and structure	"But like freedom is good in theory, but for me, I feel like it gives me too many options and it's so scary."
VALUE: Self-Direction	Placing a high importance on freedom, exploration, independent choices and actions	"I really don't like when I don't have the feeling that I can do what I want to do. I don't know, I really feel like I want to work to be able to do what I feel like, in a way that makes sense. Like, I want to have the freedom to choose my next step."
VALUE: Self-Transcendence	Striving for a positive change for something larger than just oneself, contributing to the enhancement of others' welfare	"I really need to like feel like just find something meaningful to my life that I can use. I dedicate myself to and will help people and help myself."
VALUE: Stimulation	Preference for novelty, challenge, as well as displaying oppenness to experience	"Openness for experiences. Yeah, those experiences then contributed to the well-being. And yeah, being curious also. It's kind of the same, they both play into that, like having new experiences and also the, I don't know how to call it, the need for change. It's something that's not going good. I'm like, okay, I need to change something. I want to change something."

Aspects Linked to Students' Resilience

Code	Description	Example
Motivational strategies	Students use bad grades as a motivator to do better	"When I get a bad grade, that's a big motivator for me...it's like a rush, almost like a dopamine rush"
Active problem solving	Students act on their willingness to change	"I think generally, um, when something bad happens, um, after like a moment of shock and of letting it out and so on, I'm also usually always already thinking, okay, what to do after that situation"
Emotional regulation	Students are not overly emotional about setbacks and remain calm	"Just having the faith that is going to be fine because it will be if you just keep working on it"

Factors Influencing Relatedness in Academia

Category	Code	Description	Example
RELA HIGH		Positively affecting relatedness.	
	RELA HIGH: Connection to others	Feeling connected to other people.	"I think it's really important to feel like you're not alone. I think if I felt very lonely, I don't know if I could have made it through this degree, because I think it's so important to have friends that you can just complain to, um, and that are going through the same thing as you."
	RELA HIGH Institution	This can be interpreted as the university, faculty or current year of study(i.e first, second year etc.)	"Like first, I just had the student assistant job for like a year and then beginning of last year I started the teaching job...but like I'm creating, creating and changing education like on a kind of daily basis with my jobs and I think that also really really helped me helped with my sense of belonging and also kind of forming that identity"
	RELA HIGH:Support network	Having a support network, such as family, friends, and/or a partner	"Well, I think it's important I think the support I received like that was important. And I do think that definitely, being here being like present physically at the university at the student life like going to the lectures in person, that's also in a sense, part of connectedness."
RELA LESS		Negatively affecting relatedness.	
	RELA LESS: (Lack of) Connection to others	Feel disconnected from other people.	"I think it's like almost impossible to do it without having people around you. And of course it's about psychology, but I want to compare to [Censored second Bachelor study] because like, I feel a lot less related to the people there, they're younger."
	RELA LESS: Exam period	The exam season	"When it's exam phase? Less, because I'm in the library a lot. And I know other students, they sometimes learn in groups, but I haven't found a good one yet. So I was always like studying for myself. Yeah, so on that period, I feel less."
	RELA LESS: Practical groups	Assigned groups in the practical courses for the bachelors	"...Everything when we had to, like contribute something ourselves, we pretty much had to do it individually. So there wasn't really a lot of relatedness. And it was just me and this paper that I had to write for my academic skills or something."
	RELA LESS: Unsure about future	Uncertainty about the future	"...Sometimes I felt like everyone was so sure of like, what they're doing in their study. And, like, already, like, a lot of people have plans, what they're going to do in their masters. And even after in this, like, very clear vision of what they want to do with the bachelor. And for me, I was always like, yeah, I don't really know."

Types of Connections in Academia Described by Participants

Connections	Description	Quote
Fellow students	Having peers to exchange ideas with, learn from, and study with. These peers can also be friends who support each other.	"It helped with having a support system, but also to help with the studies because you have someone there going through the same exact thing."
Teachers	Being able to approach, talk to the teachers, asking them questions about the content of courses.	"Also having connections to researchers, having connections to lecturers, feeling like I can approach them and ask questions."
Content of classes	Having a sense that the content of the class is interesting and meaningful, sparking a curiosity to learn more about the subject.	"The content, because when I read the content, meaning also, it's really interesting, and I liked it a lot.
University/faculty	Feeling like one belongs with the university, within the faculty and the university buildings.	"I am having the sense of belonging to my uni and having the sense of belonging to my faculty"

Influence of Relationships on Well-Being

Code	Description	Example
RELATIONSHIPS affect negatively	Relationships had a negative impact on their wellbeing	"I don't think anything crazy like even now, um, three weeks ago, actually, I broke up with my boyfriend, who I had, like, for a very longtime. So throughout my entire study period, so that kind of, you know, I feel like at the moment changes a lot all of the sudden. Um, but and that of course like I see that it puts a lot of stress on my body and myability to focus and so on."
RELATIONSHIPS affect positively	Relationships had a positive impact on their wellbeing	"...I also have friends that are like, very determined, and I think that can also, like has definitely also motivated me to do more and like seeing how passionate they are about the stuff also made me like a bit more excited, I guess about the study. So yeah, I think it has helped me."
RELATIONSHIPS no affect	Relationships had no impact on their wellbeing	"Yeah. Not really, like it's all stable."

Responsibility of, Acts by, and Wishes for University Observed by Participants to Foster Student Well-Being

Category	Code	Description	Example
RESP UNI:		What is the university responsible for regarding student well-being?	

Category	Code	Description	Example
	RESP UNI: Basis of social safety	Providing an environment that prioritized social safety, limits discrimination and takes student well-being into account.	"I think a big factor is overall the university plays a big part in how they design a programme, how they, the professor's they hire the environment that you created. Is it more of a hostile environment? is it caring environment?"
	RESP UNI: Good quality of education	Providing good quality of education, including organization of courses as well as hiring capable teachers.	"The education needs to be good by capable people. I think that's sometimes difficult because not everybody within academia wants to teach. But I think good education gives students feel the competence, give students the motivation because they see a competent person, it's inspiring"
	RESP UNI: WB Resources	Providing well-being resources, including study advisors, student psychologists, and accomodations for disabilities.	"There should be student doctors, student psychologists, very important, mentors, very important, study advisors, those are base things that the university has to provide"
ACT UNI:		Acts by, or features of the university observed by participant to foster student well-being	
	ACT UNI: Autonomy	Fostering student autonomy	"So I think that is like the academic autonomy that the university does give, of course, more or less by default, by the way it's structured."
	ACT UNI: Competence	Fostering student competence	"With the competence, I mean, there's a lot of programs on like, external facility, study associations, all of that, that you can be a part of, and I think that can increase your competency. So I think there's a lot of university or more like slightly external organizations that are provided"
	ACT UNI: Relatedness	Fostering student relatedness	"I really do think that there is usually an attempt of the university to foster some more relatedness even within courses by encouraging course, group work. I like to create group projects within certain courses that people work together. It doesn't always work out to a very like to like the extent that many people want it to and not liking having to do all of the coursework, but I do think it's the attempt in this case, like on this sense that counts like and it is this an opportunity to meet new people like to get to know like other people, of course, that you maybe haven't known if you were like randomly assigned to like some small group project with Yeah, I think that's so think they're doing a lot."

Category	Code	Description	Example
	ACT UNI: Structure courses	Features of the structure or content of specific courses	"Because we did have like a lot of like, we did have some mentors that throughout the year, I think the first year was a lot of mentors, like for academic skills for the research part, for statistics"
	ACT UNI: Structure curriculum (large scale)	Features of the curriculum at a larger scale, degree wide	"Well, the fact that you get to choose first of all your degree that you've gone for, and then that you have some, ok here in the first two years less but in the third year more choice of subjects, electives. And that kind of stuff."
	ACT UNI: WB resources	Well-being resources that the university provides, including study advisors and student psychologists among others	"I mean, like I just said, they have therapists. I really liked the fact that they offer study advisors. Yeah. Cuz with the whole study delay thing I really appreciated having somebody to go to who could help me figure out what steps I have to take next, for me to actually be able to do what I want to do"
WISH UNI:		Aspects the participant thinks the university could improve on to foster student well-being	
	WISH UNI: Autonomy	Changes that would improve student autonomy	"Giving more freedom with like, projects and choosing courses earlier, or just, yeah, project stuff. I think that would help me a lot to feel happier in the studies."
	WISH UNI: Communication	Changes regarding the communication with / from the university to students	"but they should have had clear rules for every course, the same thing, because this was just confusing. And it was almost like, they didn't even explain why things change sometimes."
	WISH UNI: Competence	Changes that would improve student competence	"I remember within statistics three, they were like, if you failed two, you cannot pass, which is bullshit, I think, because there are so many reasons why students fail courses, which is, I think, almost most of the time, not related to if they were capable to do the course. I kind of believe if you get in university, you're capable. Maybe that's naive, I don't know. But I think saying that takes away a lot of feeling of competence of a student"
	WISH UNI: Assessment and grading	Changes regarding the mode of assessment, types of exams, grading and feedback on assignments.	"I don't think realistically, but just in some utopian thing, like, get rid of the multiple choice tests, just do essays, or open questions."
	WISH UNI: Financial	Changes that addressed students' financial situations.	"Increasing the number of student jobs because a lot of students need jobs, and a lot of students will be fit to do the job."
	WISH UNI: Pressure	Changes regarding the pressure on students, including workload and course prerequisites among others	"When I compare what my friends say, and what younger students say, there are a few classes that repeatedly share the same sentiment of

Category	Code	Description	Example
			this was way too much. It's too much reading and too many lectures. And I just don't understand but you don't get any extra help."
	WISH UNI: Relatedness	Changes that would improve student relatedness to each other and from teacher to student	"I would prefer if there was a bit more personal interaction, at least possible with not just the other students because that is possible but also to like the staff"
	WISH UNI: Structure courses	Changes regarding the structure of or setup within courses.	"I would say that some of the courses can probably be restructured. But I don't know if that will directly influence student wellbeing. In terms of being a bit less stressful, less workload, but still teaching somewhat of the same amount of material. I think there are probably ways to do that, which is obviously hard but not undoable."
	WISH UNI: Structure curriculum	Changes regarding the curriculum on a larger scale, including the length of study blocks among others.	"to do it like in the biology bachelor where you're like, have a course for a few weeks and then have an exam for that one course. That you're doing it one at a time because that would help me a lot personally, so so much to just focus on one thing at a time and I would have like, it's so straightforward, and it makes so much more sense that I didn't just have the exam and move on"
	WISH UNI: Understanding	Changes regarding the university's (and teacher's) understanding and empathy towards students, including force majeure circumstances, mental health, and feedback on courses.	"They don't care about the people with chronic illness, who can't show up to class, there's courses who require your mandatory participation, and just like one time, you can miss it, and they see like, Okay, if someone died, or if you're ill, but like, they, again, don't care about people, with chronic illness, no matter if it's mental or physical."
	WISH UNI: WB resources	Changes regarding the well-being resources that our university offers, including extra resources and the availability of those resources	"But I think, for example, it takes a while to get into the study advisors here. I think that's terrible. I think you should be able to make an appointment very quickly because it's already very anxiety-provoking to go there and that you have to wait for weeks."

Responsibility of, Acts by, and Wishes for the Participants Themselves to Foster Their Student Well-Being

Category	Code	Description	Example
ACT OWN		Acts taken by the participant themselves to foster their student well-being.	

Category	Code	Description	Example
	ACT OWN AUTO	Fostering own autonomy.	"I kind of feel like I made a decision in my third year. I started in other studies, and I spread out my third year a little bit because I'm doing my thesis in my fourth year, which gave me even more autonomy and time to decide."
	ACT OWN COMP	Fostering own competence.	"I feel achieved or feel competent when I [...] present myself in meetings in a professional way, or the sessions [that I am teaching] go well."
	ACT OWN RELA	Fostering own relatedness.	"If I see somebody in a lecture and I think, oh, they seem cool, I actively try to talk to them."
	ACT OWN: Self-compassion	Treating yourself with kindness, understanding and support.	"Over the years, I've grown to accept the fact that bad things can happen. I have bad reactions to the bad things. But that is just human."
	ACT OWN: Checking in on yourself	Taking a moment to assess ones current mental, physical and emotional state.	"I think I'm good at detecting when I'm not doing so well, like just from a well being perspective. Um, and then usually also realize, okay, I need to find a solution for this. I need to calm down and to prioritize my well-being."
	ACT OWN: Taking responsibility	Taking responsibility for the outcomes of ones actions.	"I'm like, okay, I need to change something. I want to change something. This can't continue like this. Like, I'm having like a down phase. I can't get up to study. Okay, what do I need to change?"
	ACT OWN: Therapy	Seeking out professional psychological help.	"I did go to therapy at some point. So I did get a package of knowledge that I can use. And I know that somehow I have to do those things to be okay."
WISH OWN		Aspects the participant thinks they themselves could improve on to foster their student well-being.	

Category	Code	Description	Example
	WISH OWN: RELA	Action to increase sense of relatedness that the student wishes to take in the future	"Finding a study group would be something that I want to do."
	WISH OWN: COMP	Action to increase sense of competence that the student wishes to take in the future	"I would just like to stop the comparison, because I am my own person. And my success is independent of how well [my friends] do. Even if they do better, I still do good."
	WISH OWN: AUTO	Action to increase sense of autonomy that the student wishes to take in the future	"I want to get back in touch with my hobbies, just to stay anchored in my identity and develop it a bit more. I also need to put effort into something else [than school]."
	WISH OWN: Self-compassion	Wishing to be more compassionate towards oneself in the future	"I feel like there is still room for more acceptance towards my grades."
	Wish OWN: Work/Life balance	Wishing to have more balanced life in the future	"I am always saying that I want to have weekends off, I think that is a big thing."