# Exploring study-life balance of students and their perceptions of an engagement app

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### ABSTRACT,

This report presents the results of a qualitative, explorative study of students' perspectives on study-life balance and the potential contribution of an app to this balance. Based on five interviews with bachelor students from the University of Twente, our conclusion is that students have difficulties achieving a good study-life balance, due to multiple influencing factors, including their study, side activities, social environment, financial pressure and personality. A personalized engagement app in which students can evaluate on their study-life balance and its relevant factors, could make students aware of managing their study-life balance, with the goal of reducing stress levels, improving well-being and enhancing study performance.

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Keywords Student Stress, Work-Life Balance, Study-Life Balance, Student Wellbeing, Study Performance, e-HRM

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### **1. INTRODUCTION**

Lately, there has been a lot of attention in the media regarding the well-being and increasing study stress and workloads of students. In November 2019, Interstedelijk Studenten Overleg (ISO) published a report on the well-being of university and applied sciences students in The Netherlands. From this report, a weighted average of 57 percent of the 53.000 students experienced unhealthy stress and 34 percent suffered from psychological related conditions during their study (ISO, 2019). In another project, more than 77 percent of responding students experienced a moderate range of stress, while just over 10 percent experienced a serious range of stress and only 12 percent had no stress problems (Abouserie, 1994).

Increasing work stress is not only a trend among students. As broad debates show, among employees all around the world job stress is increasing. Some researchers argue that nowadays, it is difficult for employees to find balance between their work and personal lives (Mauno et al., 2006). This so-called 'work-life balance' has been widely explored in the scholarly literature (e.g. Hayman, 2005; Moore, 2007; Pocock, 2005). Those who do succeed and achieve a high level of work-life balance perceive little to no conflict between their work and personal lives, also called 'work-life conflict' (e.g. Frone, 2003; Quick et al., 2004). Poor work-life balance and higher levels of work-life conflict are associated with more perceived job stress (Bell, Rajendran & Theiler, 2012).

Comparing the increasing stress and workloads of students with the trend of more job stress, poorer work-life balance and more work-life conflict of employees offers us unique knowledge that can be possibly applied to students, as students experience poor balance between their study and personal lives. Since both professional and personal lives of employees are different than those of students, the term work-life balance does not apply for students. Therefore, we introduce a new term – study-life balance. We define it as the division between a student's time and focus between their study and other activities, such as leisure activities and extracurricular activities and how a student's study and personal life (positively or negatively) affect or interfere with each other.

The concept study-life balance has not yet been explored as widely as work-life balance in literature. Exploring this concept further will explain causes of increasing levels of stress among students and contribute to further research on well-being of students.

The first goal of this research is to explore the perceptions of students on the study-life balance problem. This gives insight in the way students experience their own study-life balance, whether or not there is a problem with keeping balance, possible causes of this problem and which important factors play a role in achieving such balance.

The second goal of this research is to explore the potential contribution of an app in the process of monitoring study-life balance. This is done by exploring the perspectives of students on the contribution an app could have in this process. Results give insight into the perceived implication of monitoring certain aspects or factors of study-life balance and how these could possibly help to solve, predict or avoid the study-life balance problems.

Therefore, this explorative study was inspired by two main research questions:

- 1. What are the perceptions of students on study-life balance?
- 2. What is the potential contribution of an engagement app to the study-life balance of students?

## 2. TOWARDS A MODEL FOR STUDY-LIFE BALANCE

### Causes of stress among students

Previous research has identified various causes of stress among students. Stress is mostly defined as being caused by exposure to stressors in the environment (LaMontagne, Keegel, Louie & Ostry, 2010). In academic literature, many study-related and non-study related causes for stress are identified.

For example, Abouserie (1994) identified examinations and results, studying for exams, too much to do, the amount to learn, self-imposed need to do well and essays and projects as main sources of stress. Besides this study, various other research projects have identified stress-causing factors. Students feel pressure to earn good grades (Hirsch and Ellis, 1996), and experience unclear assignments and excessive homework (Frazer and Kohn, 1986). Other study-related causes are mentioned as heavy workload (Benjamin et al., 1986; Peterson & Peterson, 2009; Sheldon & Krieger, 2004), no sufficient amount of feedback about the study progress (Daicoff, 1997; Dresser, 2005), unclear expectations from students (Daicoff, 1997), and deadlines to progress in the study (Misra and McKean, 2000).

External social factors are found to contribute to student stress, too. Competition between students to stand out and perform better than others was found by many as a strong stress factor (Daicoff, 1997; Gutierrez, 1985; Pritchard & McIntosh, 2003; Sheldon & Krieger, 2004; Tani & Vines, 2009; Stallman, 2012). It was shown that students are focused on results (Tani & Vines, 2009) and therefore strive to get the best grades (Peterson & Peterson, 2009) that puts a lot of self-inflicted pressure on students, which is a driver for increased levels of stress. Although competition exists in most fields of study, there are some in particular which tend to be more competitive, such as in law schools (Australian Law Students Association, 2010; Larcombe et al., 2013).

Besides study-related stressors, some non-study related causes of stress have been defined as well. These include financial pressures and relationships with friends and family (Wright, 1967), hobbies and curricular activities and personal habits and worries, such as alcohol, smoking, commuting and sickness (Double & Supriya, 2010). Also, some causes of stress related to adapting to a new environment have been noticed. Especially freshmen experience more stress because of factors like being away from home for the first time, having to maintain good performance and adjusting to a new social environment at the same time (D'Zurilla & Sheedy, 1991; Ross et al., 1999).

In integration, we see that researchers have found several groups of factors that contribute to student stress during their study. Although there are more, in our view these are the most important groups: study-related factors, external social environment factors, and personality factors. This leads us to the following model:



# Figure 1. Groups of factors influencing stress levels of students

Study, the external social environment and the personality of students all contribute to the amount of stress of a student. The aspects that contribute to these three main groups of factors can have both a positive and negative influence on the levels of stress.

We conclude that student stress is widely explored in previous research. However, the research conducted on study-life balance and the impact of student stress on study-life balance is limited. Some aspects might be similar to those of employee stress impacting work-life balance. However, the life of a student studying at university and the life of an employee working in an organization vastly differ. Therefore, we cannot use the same influencing factors for study-life balance as for work-life balance. Meanwhile, we can use observations by researchers who worked on work-life balance saying that stress affects the quality of life and naturally leads to work-life imbalance (e.g. Fleetwood, 2007; Aryee et al., 2005). Therefore, it is probable that student stress also leads to studylife imbalance.

### Importance and consequences of study-life balance

Significant levels of stress have been proven to have a significant impact on an individual's well-being and it can cause various psychological, behavioural and physical health difficulties (Gatchel & Kishino, 2012). Furthermore, work-related stress increases the chance of depression, anxiety, aggression, fatigue, burnout, alcohol use, smoking, infrequent exercise and poor diet (Leka & Jain, 2010). These consequences of an unhealthy amount of stress are also seen among students. Some start to use alcohol and drugs to cope with their stress (Johnson, 1986). Furthermore, students experience depression and other mental illnesses (Furr et al., 2001) and even attempt suicide (Bernard & Bernard, 1980).

### **3. METHODOLOGY**

The main goals of this research are to explore the perceptions of students on study-life balance and the potential contribution of an engagement app to study-life balance. The method used to address these goals is explained in this chapter

### The app VIGO

To research the potential contribution of an app to manage studylife balance, we decided to take the existing application VIGO as a point of reference.

VIGO is an employee engagement tool presented in a mobile application. The app enables employees to measure, track and

analyze their work energy. On a daily basis after work, employees evaluate their day by giving it a rating of 1-10, adding a note which shortly describes the day and by reflecting on the six work drivers, which are shown in *Figure 2*.



Figure 2. Drivers and sub drivers in VIGO

At the end of each month, employees receive a dashboard on which the collected evaluation data is presented and analyzed. Employees can easily see insights such as their average daily score, how their scores are distributed over the days of the week, which drivers they score better or worse at and more. On top of that, VIGO Insights provides them with more in-depth insights and personalized, to-the-point advised based on the analyzed data. Employees thus gain insight in which drivers give them energy at work and which drivers drain their energy.

What makes VIGO unique, is their bottom-up approach and daily evaluation frequency (Veldwijk, 2019). This bottom-up approach makes employees aware of and responsible for their job satisfaction. Based on the insights, they can evaluate what they need to improve their work energy and subsequently take initiative to make changes happen or discuss their needs with a manager.

Due to its bottom-up approach, VIGO is a good starting point to explore the potential contribution of an app to the study-life balance of students. This approach could potentially enable a more bottom-up culture at universities in which students are presented with the opportunity to take initiative to fulfil their needs based on insights provided by a similar tool.

### **Data collection**

Qualitative, explorative research was applied to gain in-depth insight into the perspectives of students on the study-life balance problem. Useful insights for this research were honest thoughts and new perspectives and issues regarding the research topic, for which in-depth interviews were found to be a suitable method (Broyce & Neale, 2006). The research was done by means of interviews, as for this research it was of interest to discover the stories of students and gain insights from their knowledge and experiences about the topic (Doody & Noonan, 2013). The interviews were held in an unstructured form, starting with a very open question concerning the study-life balance problem with follow-up questions based on the respondent's insights and thoughts (Holloway & Wheeler, 2010).

In total, five interviews were conducted of which two were done online and three took place face-to-face. All interviews were held in a time span of one and a half week with the first on Wednesday, June 3, and the last on Friday, June 12, 2020. The lengths of the interviews varied between 34 minutes and 66 minutes, with an average length of approximately 49 minutes. The online interviews were held using digital meeting software Zoom. During the interviews, only few notes were taken to fully focus and listen to the participants' responses. For the online meetings using Zoom, the built-in recording feature was used to capture the audio from the interview. For the face-to-face meetings, the standard iPhone Voice Memos application was used. All participants gave permission to record the audio before the interviews started.

All participants were, at the time of the interviews, studying at the University of Twente (UT). The students were all doing their bachelor's degree in different fields of study and varying study years, as shown in *Table 1*. Furthermore, we decided to include students from various countries of origin and genders. In total, students of three countries of origin participated in this research. Two participants were female. The ages of the participants varied between 20 and 23 years old, averaging at 22.2 years old.

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Interviewee	Field of study	Study year
Interviewee 1	International Business Administration	2 <sup>nd</sup> year
Interviewee 2	International Business Administration	1 <sup>st</sup> year
Interviewee 3	Psychology	2 <sup>nd</sup> year
Interviewee 4	Creative Technology	3 <sup>rd</sup> year
Interviewee 5	International Business Administration	3 <sup>rd</sup> year

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At the start of the interview, the relevance of the research was explained. Then, the topic study-life balance was introduced to the students, some background information from the literature was given, the concept study-life balance was explained, the app VIGO was shortly introduced, and the research questions were mentioned. Subsequently, based on the research questions, the students were questioned on the two main topics with each some sub-topics. There was no predetermined list of questions. The information and perceptions of students was gathered through follow-up questions and discussion based on the respondents' answers. Besides the main topics with sub-topics, the interview was very open and encouraging to discuss other relevant topics.

The first main topic was the perception of the student on studylife balance. This topic included the sub-topics overall perception of study-life balance and student stress, own experience with maintaining balance and factors which influence study-life balance and stress.

The second main topic was the student's perspective on the contribution of an app like VIGO to study-life balance. The app VIGO was thoroughly introduced to the students with support of screenshots from the app itself and the monthly dashboard.

Afterwards, the students were questioned on the sub-topics overall perception and usefulness of such an app and dashboard for students, relevance of the currently included drivers and subdrivers in the app and ideas for additions and changes.

### Increasing reliability of online interviews

As described before, two of the five interviews were conducted online. Due to COVID-19 and its social distancing measures, not all interviews could be done face-to-face. For the three interviews that did take place face-to-face, the social distancing measures were carefully applied.

Since online interviews are different than face-to-face interviews, the possible effects that the difference in methods could have was taken into account. In previous research, some advantages and limitations of online interviews have been identified.

Most research on this topic mentions Skype as a tool to conduct online interviews. However, for this research Zoom was chosen. Zoom is a videoconferencing tool widely used by both companies and individuals. The tool enables users to have online meetings by using a microphone and webcam on either a computer, smartphone or tablet. Zoom has an integrated function to record the audio, video, or both during a call.

One of the main advantages of conducting online interviews is that the individuals involved in the interview are location independent, which enables easy internationalization of the research and mitigates the cost of travel (O'Connor et al., 2008). This removes the financial and geographical dispersion constraints of face-to-face interviews, expanding the boundaries of research populations (Cater, 2011).

However, limitations of online interviews have been found also. It is more difficult to get a sense of body language when a webcam is used instead of a face-to-face interview. The webcam usually captures merely the individual's head and upper body. As a consequence, it is hard to read the other person's body language. The visual, non-verbal cues that are in a face-to-face setting helpful to contextualize the interview participant, are lost (O'Connor et al., 2008). Besides this challenge, Hay-Gibson (2009) identified a possibility that an interviewee is not comfortable being filmed and that for some individuals the requirement to obtain the correct software is an obstacle to participate in the interview.

In the two online conducted interviews in this research, the latter challenges were not experienced. Fortunately, the two participants with whom the interview was held online already had the Zoom software installed. Even if this was not the case, this challenge probably would have not applied, since Zoom offers the possibility to participate in the meeting through a web browser on a computer, although for better user experience downloading the software is the preferred option.

However, the other limitation regarding body language and verbal clues did apply. Reading a participant's body language and verbal clues was much more difficult through the webcam than it was for the face-to-face interviews. One of the reasons for this was that only the face and upper body was visible. However, also the facial expressions were still hard to read since there still is a big difference between looking at an individual face-to-face and on a screen.

Furthermore, it was more difficult to build rapport and establish a good connection of understanding each other during the online interviews. Also, explaining the app VIGO by using screenshots was easier to do in person than it was online through screen sharing. Other problems arose due to network issues, where at times the internet connection was poor which caused that not everything said was understandable.

### Data analysis

To analyze the interviews, we used open coding, axial coding and selective coding. Firstly, we transcribed the interviews verbatim. The transcribing took approximately 4 hours per hour of audio recording, thus the average time of transcribing per interview was a bit more than 3 hours, or approximately 16 hours for all interviews in total.

During and after the transcribing, we marked interesting quotes and added comments to summarize the insights. Then, all quotes were collected in a document, where for each chunk of text an open code was allocated. After that, related quotes were grouped in categories, or second order open codes.

For the first part of the interviews regarding study-life balance, we created 145 first-order open codes. These codes are grouped in 28 second-order open codes, which are described in chapter 4.1 (p.5). All the collected quotes with their respective coding can be found in the appendix (Appendix *Table 3*, p.15).

For the second part of the interviews regarding the potential contribution of an app like VIGO, we created 55 first-order open codes. These codes are categorized in 15 second-order codes, which are described in chapter 4.2 (p.8). The quotes for the second part can also be found in the appendix (Appendix *Table 4*, p.20).

### 4. FINDINGS

In this chapter, the findings of the interviews after analysis are presented. The first part focuses on the perceptions of students on study-life balance. After analyzing the results, we divided this part in three sections: study-life balance, study and social environment. The second part focuses on their perspectives on the potential contribution of an app like VIGO to study-life balance.

# 4.1 Students' perspectives on study-life balance

### 4.1.1 Study-life balance

In general, the participants had varying views on their study-life balance. Most participants stated that their study-life balance is variable, shifting from one side to the other depending on many factors. These influencing factors are further elaborated in this chapter. Overall, interviewees 2 and 5 stated that they have a good study-life balance, whereas interviewee 1 said "*I do so much that it is not possible to have a good balance*" and interviewee 4 also recognized a lack in balance.

### Intrusion of study and life

One commonly mentioned factor which negatively influences study-life balance is the mix of study and life. Interviewees expressed an opinion that study can interfere with personal life, but personal life can also interfere with study. It appeared that study interfering with personal life is a more recognized issue.

### Study interfering with personal life

Multiple students recognized that their study very seldom leaves their mind, it is always present. They found it difficult not to think about university work while trying to relax and thus they said that their study interferes with their personal life.

# "I feel like **most** of my **day** is spent **thinking** about my **study**"

### Personal life interfering with study

Interference from personal life to study is less recognized by the participants. Interviewee 2 said "I don't think my university life is affected by my personal life, because I usually put university first". Meanwhile, another student did experience this interference sometimes: "The only moments when it was really stressing, was when one of the things I did didn't go as planned, then the other stuff also suffered from that" (Interviewee 5).

### Extra activities

Besides studying, the students carry out various other activities. From the interviews, we identified two main categories of extra activities: extracurricular activities and physical activity. Students participate in these activities for various reasons.

### Extracurricular activities

Mainly interviewees 1 and 5 participate in extracurricular activities. Some of the identified activities are doing a board year, committees and an honours program. Interviewee 5 argued that students do these activities because *"These are the things that students see more value in"* and that

# **"Students** want to **develop** themselves also **besides** their

# studies"

Interviewee 5 also said that universities should "take into account that students do a lot besides their study" and that universities should "encourage it and adapt the study program to it". On the other hand, interviewee 1 said "I couldn't say if I didn't have all this stuff whether I would study more". It would only help clearing his mind.

### Physical activity

Doing sports and other physical activities was recognized as a big stress reliever for most students. They noticed that they can get their mind free when doing sports and that they don't think about university during physical activity. However, one interviewee stated that he thinks about university in the gym "because you are just with yourself", but "if you're doing sports in a group, like when I was rowing, you don't think about school". According to interviewee 4 it helps to plan a moment for physical activity, so you know that that is the time to not focus on university.

### **Financial pressure**

One of the topics regarding study-life balance that came up in almost every interview, is that the balance is negatively affected if the student is in a poor financial situation. All interviewees were in a comfortable financial situation, however one interviewee noticed that there are "some people who look at every euro they spend, and I think that they're really stressed from that".

The interviewees argued that studying is costly and that this could cause for financial pressure if a student is not in a comfortable financial situation. Interviewee 1 stated that "You have to buy the books to get good grades, and the books are like a couple of hundred euros every module". Furthermore, interviewee 3 argued that it would be stressing if you could not pay your rent. Financial pressure also puts pressure on study performance, as interviewee 5 noticed:

# "Every year we study extra costs €2000, without even counting cost of living"

### Part-time job besides study

The participants noticed that some students have to work to cover all their expenses. This could, according to the interviewees, cause for stress and study-life imbalance. Interviewee 3 said, "*I think I won't have any time to work and have a private life when I have to do a lot for university*". Also, interviewee 1 experienced that being in a situation where you do not have to work releases pressure.

### Flexibility

One aspect that students noticed to help them in achieving a good study-life balance is flexibility. Interviewee 5 argued that "a fixed schedule would be a problem for people who want to be active besides their studies". However, having the freedom to be flexible also comes with a certain responsibility. Interviewee 3 experienced that "a flexible schedule helps me manage my stress levels and balance, but it could be dangerous to get lazy and procrastinate". Interviewee 5 has a similar view:

# "I think if you have the **discipline**, it is very **beneficial** if you can **schedule** your **own time** when to **study**"

### Having a flexible schedule

One of the interviewees noticed that having a flexible schedule could increase work efficiency, because "you can decide for yourself when you would like to work, like what is your most efficient time of the day". Interviewee 5 argued that "It is important to have the space to plan your own appointments" and that he thinks it is good that the study load in his study program "is not very bound to certain moments".

### Personality

A factor that influences the study-life balance of an individual is their personality. This was already noticed in previous research, and all interviewees agreed that personality affects a student's study-life balance.

### Discipline

One of the commonly mentioned characteristics during the interviews was discipline. As mentioned in the flexibility aspect before, the students noticed that it is important to have the discipline to study. Interviewee 5 noticed that "*I procrastinate a lot and then the work all piles up*" and that "*It's probably all on me that I don't have the balance*".

### Self-control

Interviewee 1 stated that one of the most important things when it comes to maintaining study-life balance is the capability to manage yourself. Interviewee 5 had similar views and said that there should be support in university to learn how to set priorities and that *"it should be in the first year to set a good starting point"*. This interviewee acknowledged that:

# "It all comes down to setting priorities"

### Stress resistance

A few interviewees said that they are very stress-resistant, which leads to them not being so worried about their grades and

deadlines. One stress-resistant interviewee often thinks "It will be fine, we will see how it works out" and another interview said, "my personality and mindset lead to not being so stressed about deadlines and bad grades".

### Managing study-life balance

Finally, during the interviews, we noticed that students already developed various methods to manage their study-life balance.

### Scheduling your day

Multiple interviewees said that they schedule their day, because "Scheduling your day is a big benefit" (interviewee 1). Interviewee 5 stated: "Every day I write down my to-do list and I really try to do everything". Interviewee 1 does more or less the same, but also includes the time for each task: "I have a schedule where I type in what I'm going to do at which time, what my top priorities are and also what kind of sports I'm going to do that day". Furthermore, interviewee 5 noticed that not scheduling time to relax is a problem, because "during the time that is not scheduled I'm usually thinking, 'I should probably be studying'".

### Having a routine

Different students noticed that having a routine helps them with finishing their study work, while also keeping a healthy balance. Interviewee 2 noticed: "If I start really early at like 8 or 9, then I'm done at 6 and then I studied really well, and I can just eat dinner and then chill". Another student noticed that being out of the normal routine causes him to wake up later than usual, which also puts him out of his study routine. Interviewee 3 said that he routinely does his university work in the week and that he schedules "one day in the week where I go to a party or drink with friends or stuff".

### Reflecting on the day

We noticed that most of the participants also reflected on their day in some way. The methods used for this vary a lot. Interviewee 1, who, as mentioned before, keeps a time schedule, reflects on how many tasks were accomplished that day and if they were finished on time. Another interviewee said that she reflects on her day by talking to someone about the day. This sometimes makes her realize that she did nothing except for studying. Interviewee 4 likes to keep a journal to look back at how the day was going, which is helpful to realize how much was achieved during the day: *"I feel like I always need to do something more, but if I see that I've done quite a lot already then I feel like I actually did something"*. Another interviewee mentioned that he only thinks back when he did not achieve everything that he wanted to and how he will make up for it.

### Setting priorities

Another mentioned way to keep study and life balanced is by setting the right priorities. For example, not focusing on study enough might lead to an imbalance to the study side later, as interviewee 5 experienced. This interviewee thinks students might get distracted when they fail to set priorities:

"In the beginning, students see the endless possibilities and think they can do everything, and then at a certain

## moment you learn to set priorities"

### Procrastination

Lastly, the interviewees mentioned that procrastination should be avoided to succeed in managing study-life balance effectively. Procrastinating on studying leads to a student having to do all the work shortly before the exam period or deadline, at the expense of their study-life balance in that period. Interviewee 2 states to have achieved a good study-life balance, because of dividing the study work over the module, whereas some of her friends "start *l* week before the exam to even look at the stuff and then they get really stressed. Then they just have to work full nights and don't have a life at all anymore".

### 4.1.2 Study

In this section, the findings of students' perspectives on studyrelated factors which influence their study-life balance are elaborated. We noticed that participants mainly mentioned aspects related to work pressure and study performance as being stressing and leading to imbalance.

### Work pressure

Students are experiencing high work pressure for various reasons. Some participants put pressure on themselves, while others experience pressure caused by external factors.

### Workload

The interviewees experienced heavy workloads. As interview 5 said: "The pressure is too high for students" and interviewee 2 mentioned having studied for 11 hours per day during exam periods. However, this is not the same for everyone: "I don't think it's the system, because the workload that is given is doable" (interviewee 4). The workload seems to vary depending on the time of the year: "The modules take 10 weeks, and you don't have the same study load over the 10 weeks. Especially in the exams period it really increases" (interviewee 1). In addition, interviewee 3 not only noticed a difference between the start and the end of a module, but also between different modules. This interviewee stated that "some modules are very hard, and you don't do anything else besides studying" and "the other module was a little bit more relaxed because of more time between tests and less tests".

### Not being prepared for the heavy workload

In the section before this, we mentioned that students experience a heavy workload. One commonly mentioned possible cause for this is that students are often not prepared for high workloads when they make the step from high school to university. As interviewee 5 stated, this could cause for issues with study-life balance in the first few years of studying:

# "I can imagine that students have a **hard time** in their **first** and **second** year of **studies** and that after a while they

## will find the balance"

Another interviewee also noticed this, saying that "*The students* are often very young, and they have never worked so for them it's a big step from high school to university". Interviewee 4 and 2 both had similar experiences when going to university. The latter mentioned, "I didn't have the work discipline as I never had it in high school, so here it's really difficult for me".

### Living up to expectations

For some students, expectations appear to increase work pressure. Interview 2 mentioned that students see alumni from their study field achieving great success in their career and that they want to live up to that expectation, which puts pressure on them. Another participant noticed that the students are even younger now when they start studying, and the expectations keep getting higher. Also, "parents are expecting a lot" (interviewee 2).

### Self-inflicted pressure

As it seems, work pressure is sometimes also self-inflicted. Some students put pressure on themselves by setting goals for attaining high grades on exams. However, we noticed that this was different for the participants. Interviewee 3 and 4 are satisfied with their grade if they passed the exam: "I do my stuff, so I know I pass, but I don't need to do more or less so I don't stress myself out with that" (interviewee 3). Meanwhile, another interviewee is aiming to obtain his degree cum laude, which puts a lot of pressure on himself. Also, interviewee 2 aims to get good grades:

# "I already **passed** the exam, but I **wanted** to get a **better grade**, so I did the **resit**"

### Study performance

Participants mentioned that study performance plays an important role in their life as a student, and thus can affect their study-life balance. Students mainly experience pressure to perform and want to separate themselves from others to have a better position for their future career.

### Pressure to perform

Students experience a certain pressure to perform in their studies. One participant mentioned that a possible reason could be that "You're never really done with studying. You can always do more to get better grades". Another interviewee mentioned that she is sometimes scared that she is not able to get a sufficient grade.

One stated that a consequence of this pressure to perform is that students are "too nervous when they are in the exam that they actually don't get high grades" (interviewee 1). Interviewee 5 also mentioned that he missed out on something he later somewhat regrets not doing: "I did not join a very active student association, because my first priority was on university because of the pressure of getting the degree".

### Separating yourself from others

Students experience this pressure to perform, because they want to separate themselves from other students. As interviewee 2 mentioned: "*I just don't want to be an okay student, I want to be a good student*". Interviewee 1 had similar thoughts:

# "You can separate yourself from the other students because of

### your grades"

### Future career

Some of the participants mentioned that they think it would help them in their future career if they perform well in their studies. One participant said that she thinks she has better opportunities to get a good job later if she performs above average. Interviewee 1 stated similar expectations: *"In my opinion, it will help me make bigger and fast steps in work-life if I have better grades".* 

### 4.1.3 Social environment

The third big factor in a student's life according to the participants, is their social environment. In general, students experienced a relieve of stress during social interaction. The commonly mentioned connections in the interviewees' social environments, were friends, roommates, family and colleague students. Other interesting insights were provided by the international students, who have experienced moving to The Netherlands to study and thus had to adjust to a new environment.

### Social interaction

The interviewees acknowledged that social interaction is one of the most important aspects on the life end of study-life balance. Overall, the students viewed social interaction as something fun and positively contributing to a healthy study-life balance.

Interacting with other individuals was mentioned as being relaxing, relieving stress and it takes the mind off studies. Participants also enjoyed engaging in activities with their social environment, such as going out, partying together or joining activities from a study association. Interviewee 1 stated that *"talking to people you're studying with before and after the lectures or having lunch together is also some kind of chill moment"*.

One thing that did not go unnoticed, is that during COVID-19 social interaction has been limited. Interviewee 5 said, "*Normally I would have many social interactions, but now it's much more that I'm just sitting in my room doing nothing*". Also, this interview noticed that having fewer social interactions negatively influenced productivity, and that having social contact with others is important:

# "My social environment is really a stress reliever. I get energy from my social interactions."

Social interactions are, however, not always good to clear your mind, according to some participants. Interviewee 2 and 3 noticed that the topic university is frequently discussed during social interactions. Interviewee 2 said that it is *"stressing that when you would just chill with friends you talk about uni a lot"* and interviewee 3 noticed that *"it is different with friends, because they all study psychology as well, so we sometimes start talking about it so I don't completely forget it".* 

### New social environment

Being in a new social environment when moving out with your parents to study was a topic that frequently arose during the interviews. Especially the international students who moved away from their home country had interesting experiences with this.

### Adjusting to a new environment

Some international students recognized that they had to adjust to the new environment when moving to The Netherlands. Interviewee 4 noticed difficulties with a different language being spoken. According to interviewee 3, it could be stressful to move: *"I had the luck that I moved in together with people I already know for a year. Maybe when I had moved in with strangers, I would have more stress"*. Overall, interviewee 4 noticed that studies were affected by having to adjust:

"Especially in the **beginning** it was **hard** to **adjust** to how everything was here, and that also really **impacted** my **studies**"

### Being away from family

One other insight that interviewee 2 and 4 brought up, was that it can be difficult at times being away from their families. Interviewee 2 experienced that it is stressful to only seldom see family members due to university and that it is difficult "when you know that your family is gathering all together and you are far away". Also, this participant missed that it is not really possible now to "tell my mom that something is bothering me or

*tell her how my day was*". Interviewee 4 also notices not having family members to rely on and even described it as *"feeling way more lonely here"*.

# 4.2 Potential contribution of an app like VIGO to study-life balance

In the second part of the interview, the students were asked what they think the potential contribution of an app like VIGO could be to their and other students' study-life balance. Their overall perception and the usefulness of the app was discussed, feedback was asked on which drivers could be relevant for students and the interviewees put forward their own ideas for new features and improvements to make the app more suitable for students.

### **Overall perception**

Generally, students saw value the app VIGO when it was showed to them. Interviewee 4 said that *"if there was such an app, I would definitely want to use it"*, interviewee 2 could imagine that students would use this app and interviewee 3 thought that the app could be helpful for some people. There were a few aspects of the app that the students commonly mentioned, which are discussed below.

### The app gives insights

One interviewee who usually keeps a journal to reflect on her day, mentioned that such an app would give more insight than her journal does now: "*I never know how to organize it properly*, *so filling in data points instead of text could be pretty nice*". Another interviewee mentioned that he likes that the app gives insights into things you have control over and thus can change to make them better.

### Awareness

Multiple participants stated that the app would make them more aware on various aspects. Interviewee 3 thinks that the data could give a good overview of study-life balance for people who experience problems with this. Another student stated that *"it* creates awareness of where your energy goes to and where it goes wrong with your balance". Furthermore, one interviewee noticed that reflecting on your day could make it easier to see the good, thus that it could make you feel better if you see that there were positive aspects in what initially felt like a bad day. Lastly, interviewee 2 stated that it was important to become more aware:

### "I think awareness is the first

### step to change"

### Sharing data with professors

After explaining that VIGO enables managers to see the aggregated data from their teams, the students mentioned that it would be useful if professors would get the aggregated data from students. One interviewee stated that "*The professors didn't really know how much we sacrificed for this module and I think when they see what we do they are more able to change*" (interviewee 3). Another participant shared this opinion and said that it would be useful for professors to get the data to make changes based on these insights.

### Drivers

VIGO currently evaluates the user's day based on six drivers: energy, space, challenge, support, result and growth (see *Figure* 2, p.3). The students were asked if these drivers are also relevant for students.

### Energy

The students were all positive that energy is a relevant driver for students, because "*it's useful to know if the student is energetic or not*" (interviewee 2) and "*how fit you are to learn is important*" (interviewee 3). Interviewee 2 also noticed that it might be useful for students to monitor why they would or would not be energized to get insight whether it is because of study work or because of factors from their personal life.

### Space

Space is the driver that seems the least relevant for students, according to what they said. The sub-drivers were found to be the least relevant. According to interviewee 2, it depends on the study whether or not it would be relevant and interviewee 3 stated that "university space could be an influencing factor but most of the time you sit in your room, therefore I don't know if space is so important for studies". Another interviewee mentioned that the driver space is now "only about work, but I think it should also be about space to do other stuff besides studying".

### Challenge

The driver challenge seems relevant for students, because "challenge is important in studies" (interviewee 4) and "as a student you want to be challenged" (interviewee 2).

### Support

Multiple participants stated that support is also an important driver for students. Interviewee 3 stated that it is useful to monitor if you get support from the university and from family. Interviewee 4 also mentioned that monitoring support by family and friends would be insightful.

### Result

Result was found to be a very important driver, especially for grades that a student receives (interviewees 2 and 3). One thing that could be added, according to interviewee 5, is monitoring daily result: "*I think stuff can be added to results as well, like did I get the most out of my day*". Another insight from interviewee 5 was that it could be interesting to include the progress a student has made in his or her studies.

### Growth

The students supported the driver growth, because "you grow with your study" (interviewee 2) and "when you don't learn anything from it, I think you won't be as productive" (interviewee 3).

#### Ideas for improvement

The students came forward with ideas on what other features would be interesting to include and how to improve an app like VIGO to make it suitable for monitoring study-life balance.

### Activities

Two participants mentioned that it would be useful to monitor the activities that one did on a day. Interviewee 2 argued that noting whether or not you did sports on a day could lead to interesting insights. Interviewee 1 argued that a possible way to include this would be to connect the app to other apps on your mobile device, such as running apps. Furthermore, interviewee 1 shares the view of interviewee 2:

# "It would be **useful** if I could also **monitor** the **activities** I did in

### a day in the **app**"

### Monitor study-life balance

One of the main functionalities of the app that students would be interested to see, is that it can monitor also the life side of their study-life balance. Currently, VIGO is aimed at employees and thus focused on monitoring only drivers that are relevant for work. However, the students stated that "for study-life balance, there is much more included than only university work. So besides doing the university things in the app, the other stuff should be included as well" (interviewee 5).

### Social environment

One common suggestion given by the students was to include a driver for social environment: "Maybe something could be added on social life, that you can reflect if you put effort in your social life that day" (interviewee 2). Interviewees 4 and 5 also stated that it would be interesting to monitor the social environment, as it plays a big role in achieving a healthy study-life balance.

### Productivity

Another insight that was thought to be useful, is productivity. Interviewee 1 suggested that rating productivity of your day could lead to interesting insights combined with, for example, the activities you did in a day. Interviewee 1 also said:

> "If the app would **track** my **productivity** and give **suggestions** on how to make this day as **productive** as possible, it would be my **daily**

### app"

### Making the app more personal

It was mentioned that the app could be a bit more personal and adapted to the user's needs. One technically advanced, but useful feature would be that the app learns from the user, according to interviewee 1. This could provide for multiple interesting insights. The app could then act more as a buddy, where it suggests that you do stress-relieving activities when it notices that you have had a bad day. Another improvement recognized by interviewee 1, would then be that the app could learn "what works and what doesn't for productivity and give suggestions based on that". The last idea interviewee 1 had regarding this learning combined with monitoring the activities you did in a day, is that users could be shown what their perfect day would look like regarding productivity, happiness and study-life balance.

An overview of the perspectives of the interviewees on the potential contribution of an app like VIGO to study-life balance is displayed in the following table:

		1	interviewees on view		
	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4	Interviewee 5
Overall opinion					
Useful	-	Could imagine it being used	Could be helpful	Would definitely want to use	-
Gives insights	-	-	Gives insights in drivers	Organized method	-
Awareness	-	Awareness is the first step	VIGO gives an overview	Awareness of balance and reflection	Awareness of energy and balance
Share data with professors	Professors can make changes based on insights	Only useful if they would care about the data	Makes professors aware of the work of students	-	-
Drivers					
Energy	-	Makes sense	Important	Useful	-
Space	-	Differentiate per study	Not so relevant	Environment instead of space	Should include more aspects
Challenge	-	Would include	Important	Important	-
Support	-	Important	Would include	-	Results per day
Growth	-	Important	Important	Important	-
Ideas					
Activities	Monitor activities for the day	Include activities done in a day	-	-	-
Study-life balance (SLB)	Measure SLB in general	-	-	-	SLB is more than university
Social environment	-	Reflect on social life in a day	-	Include social environment	Monitor social interaction
Productivity	Rate/monitor productivity	-	-	-	-
More personal	Adapted to your own needs	-	-	-	-

### 5. DISCUSSION

# Interpretation of the students' perspective on study-life balance

Looking at the findings of the perspectives of students on studylife balance, we see that study-life balance is a complex concept. In the conducted interviews, students identified many factors that influence their study-life balance. Furthermore, there are many relations to be found between these factors, making study-life balance seem like a large and complex concept, covering a big variety of factors which are all related to each other, forming one large coherent entirety. We could even argue that, due to the many cohesive factors involved, study-life balance comes close to a representation of everything present in a student's life.

From the theory, we identified three groups of factors influencing stress levels of students: study-related factors, social environment and personality (see *Figure 1*, p.3). Comparing these factors to the findings of the interviews, shows that these three factors were mentioned by students as playing a role in their study-life balance.

Firstly, we unfolded these three contributing factors. The most mentioned factors within study-related activities were study performance and perceived study pressure. For social environment, the interviewees indicated that social interactions and being in a new environment were factors that play a big role. The identified personality characteristics that influence study-life balance, were mostly discipline, self-control and stress resistance. From these three groups of factors, study-related activities and social environment are in the control of the students. Ultimately, they have the choice whether or not they go to university to participate in study-related activities and if they want to strive for good grades in university, causing self-inflicted pressure. Besides, students have control over the amount of time they spend on social interaction such as parties and events, which, if too much, could cause a study-life imbalance. Contrarily, students do not have this immediate control over their personality characteristics. Although it could be possible to change these characteristics over time, we could argue that this is rather a process of change than a single choice.

Besides these three factors, we discovered more factors that influence a student's study-life balance. Students stated that they choose to participate in non-study related activities, mainly student citizenship activities, physical activity and sometimes a part-time job besides their study. Due to another identified factor which can play a big role in students' lives, financial pressure, some individuals might involuntarily have to get a part-time job to cover their expenses. Having a part-time job can be timeintensive, and thus make it more difficult for a student to achieve a good study-life balance. Lastly, we discovered that students already have developed methods to manage their study-life balance, such as scheduling their day, reflecting on the day, establishing a routine and setting clear priorities. We could argue whether or not students do this consciously to improve their balance. However, it does help them finishing their study work whilst also participating in social activities and non-study related activities. Thus, ultimately these methods do support with achieving of balance. These six impact factors in total, of which four choice related, lead us to the following model of study-life balance, where the initial three factors are displayed in grey:



Figure 3. Study-life balance model with its identified contributing elements

# Interpretation of the potential contribution of an app like VIGO to study-life balance

When presented the app VIGO, the students were overall mostly positive about its potential contribution to their study-life balance. Most of the currently included drivers were found to be useful to monitor.

One of the main concerns was that these factors predominantly monitor drivers associated with work-related activities. We argue that these could be adjusted to be suitable for study-related activities. However, the students expressed that they would prefer to be able to monitor all study-life balance related factors.

Comparing this to the current version of VIGO for employees, we can see a difference in needs. Whereas employees want to measure work-related drivers, students would prefer to measure other drivers as well to get a complete overview of their studylife balance. A possible reason for this is that students struggle to achieve a good balance due to the many influencing factors in their lives and, therefore, would benefit from having an overview of these factors.

### **Theoretical implications**

The literature mainly focused on factors that influence stress levels of students and not so much on study-life balance influencing factors. Although the most influencing groups of factors influencing stress also influence study-life balance, we see that study-life imbalance is not per se a consequence of stress. Students do not necessarily experience stress when their balance is off and whether or not a student experiences stress, is also dependent on, for example, their personality. In comparison, research on work-life balance stated that stress naturally leads to work-life imbalance (e.g. Fleetwood, 2007; Aryee et al., 2005). We identify a difference between study-life balance and worklife balance here, since it was found that stress does not necessarily lead to study-life imbalance. However, being stressed can be a good indicator of a study-life imbalance.

Additionally, comparing the study-life balance model (*Figure 3*) to the original model (Figure 1, p.3), we can conclude that we found some new elements. Although financial pressure was mentioned in research before (e.g. Wright, 1967), we found that it actually plays an important role in the study-life balance of those who are in an uncomfortable financial situation. Besides, non-study related activities, especially student citizenship activities and part-time jobs, are elements that have not been thoroughly discussed in literature. We argue that participating in extra activities has an influence on study-life balance, because the more elements that have to be balanced, the more difficult the balancing becomes. Lastly, the methods that students currently use to manage their balance are a new addition to research on study-life balance. Although the effectiveness of these methods is influenced by factors such as personality characteristics, we have found that these methods could potentially improve the study-life balance of students.

### Limitations

We identify a few limitations within this research. The first limitation is that all interviewed students study at the same university (University of Twente). Due to the fact that the educational model is not the same at all universities, a consequence of this limitation is that the findings gathered on the work pressure and workloads at the university could be experienced differently by students from other universities. However, since trends and other research show that students are experiencing high workloads, we do not expect students from other universities to experience significant differences than the participants of this research.

Another limitation of this research is that, due to lack of time, the influence of personality on study-life balance is not thoroughly explored. In this research, only a few characteristics regarding personality have been applied to the concept of study-life balance. However, we assume that personality is a big influencing factor of study-life balance.

The third limitation regards the way the app VIGO was experienced by the students participating in this research. The app and dashboard were explained using screenshots, and for the face-to-face interviews, the app was shown on a smartphone. Participants thus evaluated the usefulness of the app based on screenshots of the app and explanation on what the app does. Although we think the students still clearly understood the possibilities and possible implications of such an app, they would have probably had a better view on this if they would have used the app for some time.

### **Future research**

Since we found that the concept study-life balance is so complex with all its coherent influencing factors and that the concept study-life balance or work-life balance for students is not thoroughly researched yet, we think there are many possibilities for further research on this topic.

Once study-life balance and its influencing factors have been explored further, it would be interesting to conduct quantitative research collecting data on which factors have the most influence on a student's study-life balance.

How a student's personality influences his or her study-life balance could also be researched more thoroughly. We assume that there are relationships to be found between a person's personality type (assessed with, for example, a Myers-Briggs Type Indicator test) and his or her ability to manage study-life balance.

Multiple students indicated that they would prefer a more personalized approach when it comes to an app that contributes to their study-life balance. Besides, some interesting insights could be derived from the app learning from the user. Since we assume this would be a technical challenging goal, future research could explore the possibilities of using, for example, machine learning to make such an app learn from the user's input.

### **Practical recommendations**

This research could make students aware of possible factors that influence their study-life balance. If students want to manage and achieve a healthy study-life balance, we recommend them to set priorities and manage their time by using, for example, a time schedule. Furthermore, reflecting on their day can be a good way to become aware of what factors positively and negatively influenced their study-life balance.

For universities, it would be interesting to explore possibilities on how to support their students in achieving a good study-life balance. Such possibilities could include educating students on how to manage their time by, for example, scheduling their day and setting priorities. Other possibilities would be to educate students on specific study-life balance influencing factors, such as how to manage their personal finances to limit the financial pressure that students experience.

For VIGO or other parties who would be interested in developing an app or other tool which contributes to study-life balance, we would recommend taking the findings of this research into account. Students would like to be able to monitor the activities they did in a day, their productivity, their social environment, and their study-life balance in general. Furthermore, students would prefer a personalized approach with suggestions based on their own data.

### 6. CONCLUSION

Students are experiencing increasing amounts of stress and high work pressure. They have difficulties achieving a good study-life balance, due to the many different coherent influencing factors on this balance, of which the most important ones are their studies, their social environment, the activities they do besides their study, financial pressures and their personality.

Some students already try to manage their study-life balance by using various methods, mainly to schedule their time and reflect on their day. An engagement app like VIGO, if personalized for students to monitor study-life balance, could be a good step towards creating awareness and making students conscious to manage their study-life balance, with the goal to reduce their stress levels, improve their well-being and performing better at university.

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# 9. APPENDIX

### Table 3. Quotes students' perspectives on study-life balance

pic	First order open coding	Second order open coding	Quote	Interviewe
Study-life balance	nterference			_
11	Uni is interfering with chill time		It's difficult to separate uni work from chill time so it's interfering with each other	Interviewee 2
	Feeling guilty		Yeah, if I know that I still have to do something and then I'm chilling then I'm feeling guilty	Interviewee 4
	Feeling guilty about studies		yeah I don't know how to actually plan for my free time without feeling guilty that I'm missing something out in the studies	Interviewee 4
	Hard to tell when you're done		it's hard to say at some point okay I'm done for today and then I just relax	Interviewee 2
	No life		Yeah, for these few months it was only university and no life	Interviewee
	Personal life is affected	Study interfering with personal life	Yeah I think my personal life is affected if I'm stressed out by my study life, because if I'm stressed out because of uni or after studying I'm no in a very good mood usually	t Interviewee
	Studying anxiety		Evertime I'm actually doing something that's just my personal life, I still get that studying anxiety that I'm probably procrastinating on something.	Interviewee
	Thinking about study		I feel like my most of my day is spent thinking about my study instead of actually putting like okay just this day is for my study and this is for my life.	Interviewee
	Can't do other stuff besides uni		The main thing is that it is difficult to do other stuff besides university stuff sometimes	Interviewee
	Doesn't interfere if uni is put first		But I don't think my uni life is affected by my personal life because I usually put uni first	Interviewee
	Personal life is impacted	Personal life interfering with study	So definitely my personal life was like something that impacted my study.	Interviewee
	Suffering		The only moments when it was really stressing, was when one of the things I did didn't go well, then the other stuff also suffered from that	Interviewee
Extr	a activities			
	Doing extra activities counts up		I also wanted to do too much. In my board year, I want to do a committee besides it. It just all counts up very quickly.	Interviewe
	Encourage extra activities		The university should take into account that students do a lot besides their study and also for sure encourage it and adapt the study program to it.	Interviewee
	Extra activities fill your mind	Extracurricular activities	I actually couldn't say if I didn't have work, the honours program and all this stuff whether I would study more. The only thing is that you hav less on your mind.	<sup>e</sup> Interviewee
	Personal development besides study		You do your study because of your future career and there are many students who want to develop themselves also besides their studies.	Interviewee
	Space for extra activities		I think a part of it is awareness and that there should be space for it and take this into account in your study program.	Interviewee
	Value in extra activities		I think mainly extracurricular activities. These are the things that apparently students see more value in.	Interviewee
	Gym		When I'm at the gym I'm completely focused on what I'm doing at the moment and I love it when I'm completely exhausted and put everythin in it and then I forget university in that moment	<sup>g</sup> Interviewe
	Gym		Yeah, for example if I go to the gym then I feel like I have a few hours of not thinking about it	Interviewee
	Gym doesn't clear mind		if you're in the gym you think about school of course, because you are just with yourself.	Interviewe
	Me time		Yeah, so not having that me time that I could before and just have some physical activity because that also helps me with the studying and feeling better	Interviewe
	Sports	Physical activity	I do sports to relax and to get my mind free	Interviewee
	Sports		when I do sports I don't think about it [university work]	Interviewee
	Sports in a group		sports together in a group, like when I was rowing it was also really nice, because if you're doing sports in a group you don't think about school	Interviewe
	Volleyball		Yeah, if I go to volleyball as well, then I can completely relax	Interviewee
	Volleyball or the gym		if I have something planned, for example volleyball or the gym, then I know yeah this time is only for sports and I don't think about studying.	Interviewee

Financial situation				
	Buy books		And you also have to buy the books for the module to get good grades. And the books are like a couple of hundred euros every module.	Interview
	Financial		besides from the study work load, I would see the financial as the biggest part.	Interviev
	Financial pressure		And also the financial pressure is present. Every year we study extra now just costs €2000 without even counting cost of living.	Interview
	Money problems	Financial pressure	to the three dimensions you mentioned I also would definitely add money problems in the general case	Interview
	Not able to pay		I think that when you're not able to pay the house where you can live that is a lot of stress.	Interview
	Wellbeing		If you constantly have this stress that you have to pass courses because of financial pressure, then you make choices at the expense of your wellbeing	Interview
	No time to work		When I have days or weeks when I have to do a lot for university, I think I won't have any time to work and have a private life. So I don't thin I would have a lot of time for it.	<sup>ik</sup> Interview
	Stress	Part-time job besides study	And then you need to work and also study and then also friends, I think that's a lot of stress.	Interview
	Work for financial resources		Maybe also how the person is doing financially because a lot of students might not have financial resources to study and they need to work a lot. Maybe something like that also impacts, that could be a little factor	Interview
	Not for everyone		I don't know if it's one of the main, but maybe a little sub thing that could be there because it's definitely not for everyone	Intervie
	Pressure is released	Varies per student	I'm in the situation where I don't have to work [for the money], which is also that a lot of pressure is released.	Intervie
	Stressed	vanos por student	Yeah, for me there is no pressure but I know that some people are like always yeah they just look at every euro they spend and I think that they're really stressed from that as well	Intervie
Flexibility				
	Allows activity besides study		I think a fixed schedule would be a problem for people who want to be active besides their studies.	Interview
	Better time scheduling		It's more flexible and you can schedule your time better.	Intervie
	Efficiency	Having a flexible schedule	you can decide for yourself when you would like to work, like what is your most efficient time of the day.	Intervie
	Not bound to certain moments	Having a nexible schedule	what I think is good about IBA is that we of course have to study a lot sometimes, but it is not very bound to certain moments	Intervie
	Plan your own appointments		I think it is important to have the space to plan your own appointments.	Intervie
	Study when you want to		For university you usually have to wake up early but now I can sleep as long as I want because I can do stuff in the evening	Intervie
	Beneficial if you're disciplined		I think if you have the discipline, it is very beneficial if you can schedule your own time when to study.	Intervie
	Don't procrastinate	You need discipline	A flexible schedule helps me manage my stress levels and balance, but it could be dangerous to get lazy and procrastinate, but I didn't experience that until now.	Intervie
	Only for free time		I like that [flexibility] as well, but only for my free time, not for my study time	Intervie
Personality				
	Balance		Yeah, definitely. It's probably all on me that I don't have that balance. (Personality)	Intervie
	Discipline	Discipline	It's just me that I'm not really disciplined with the planning and stuff like that	Intervie
	Procrastination	Discipline	So I procrastinate a lot as well then it all piles up and then I feel bad and I feel guilty and then I feel like I need to be doing something else instead of relaxing	Interview
	Self-confidence	Self-confidence	Yeah, another thing thing that could be included is like self-confidence and that as well because some people are not confident they also feel like they cannot do their studying and that impacts, like how they see themselves impacts how they do their work	e Interview
	Managing yourself	Self-control	Yes, the personality and how you are capable to manage yourself	Interview
	Setting priorities	Sen-control	If there is support regarding setting priorities, it should be in the first year to set a good starting point.	Interview
			Yes, that influences it. I'm not easily stressed as a person and I often think "it will be fine, we'll see how it works out".	Interview
	Influence		res, that initialities it. This not easily suessed as a person and rohen time. It will be line, we it see now it works out .	intervie.
	Influence Personality and mindset	Stress resistance	my personality and mindset leads to not being so stressed about deadlines and bad grades	Interview

Managing b	balance			
	Making a time schedule		I have a schedule where I normally type in the times what I'm going to do at which time, what my top priorities are of the day and also what kind of sports I'm going to do today.	Interview
	Making a to do list	Scheduling your day	Yeah, definitely, every day I write down my To Do List and I really try to do everything	Interview
	Scheduling	Scheduling your day	I think the problem for me is that during the time that is not scheduled I'm usually like I should probably be studying	Interview
	Scheduling is beneficial		Scheduling your day is a big benefit.	Interview
	Start work earlier		if I want to meet with friends in the evening, then I start work earlier, so I get my stuff done	Interview
	Going out once a week		in the week I try to do my uni stuff and I have one day in the week where I go to a party or drink with friends or stuff	Interview
	Routine is beneficial	Having a routine	I'm out of my routine so I'm also a bit out of my routine for studying so if I'm not doing that, then I'm also waking up late, just not in the routine	Interview
	Start early to finish early		Yes, usually if I start really early at like 8 or 9 and then I'm done at 6 and then I studied really well and then I just eat dinner and then chill	Interview
	Check accomplishment		I look at it and see how much I have accomplished and if I was in time	Interview
	Reflecting how much I did		I feel like I always need to do something more but if I see that I've done quite a lot already then I feel like okay I actually did something	Interview
	Talking about what I did		I usually talk to my boyfriend and tell him what I did during the day but sometimes I then realize that I literally only studied	Interview
	Think about how to fix mistakes	D. G. dia and the last	I don't think about what I could have done different, but rather how to fix the mistakes I made.	Interview
	Thinking I didn't do enough	Reflecting on the day	Not that often. I only think about it when I was not able to do something that I wanted, for example, when I realize that I didn't manage to do so much university stuff today, I now have to do way more tomorrow, because the deadline is coming	Interview
	Writing a journal		I always like to look back at how it was going so I'm always like have like a journal like now I'm writing it on my iPad and just write things down but it's always really not organised	Interview
	Choosing		But I think I did have the study-life balance, because in the end I still finished my studies with a grade 7 on average, and that's something I chose for then.	Interview
	Endless possibilities	Setting priorities	And in the beginning students might think oh there are endless possibilities, I can do everything, and then at a certain moment you learn to set priorities	Interview
	Importance		want to do a lot, but I know what is important for me at the moment, which is finishing my studies	Interviev
	Prioritizing		But I think many students should develop the skill of prioritizing	Interview
	Setting priorities		It all comes down to setting priorities	Interview
	Issues with procrastinating		sometimes I go online and look for like ways to actually how could I improve this so I look up like how to be more disciplined or how to stop procrastinating	Interview
	Spread the work	Procrastination	I think it's okay [the study-life balance], because I divide the work over the module	Interview
	Start 1 week before exam		I have friends who start 1 week before the exam to even look at the stuff and then they get really stressed. And they just have to work full night and then don't have a life at all anymore.	ts Interview

Work p	pressure			
	11 hours of studying		It's basically 11 hours of studying [during exam periods]	Interviewee
	Workload is doable		Yeah I don't think it's the system because yeah the workload that is given is like doable	Interviewee
	Everything piles up		I recognize it [study-life balance problem] with myself. Especially in the busy times when everything is piled up.	Interviewee
	Heavy workload		I recognise the heavy workload.	Interviewee
	Less tests is more relaxed		the other module was a little bit more relaxed because of more time between tests and less tests	Interviewe
	Pressure is high	Workload	The pressure is too high for most students.	Interviewe
	Study load varies		The modules take 10 weeks, and you don't have the same study load over the 10 weeks. Especially in the exams period it really increases.	Interviewe
	Study load varies		If it's the beginning of the module I usually just take some hours of the day for university But when there are exams, basically the whole day is evolving around university.	<sup>y</sup> Interviewe
	Study is very busy		I personally sometimes recognize it myself because some modules are very hard or you have a lot of stuff to do and you don't do anything else besides studying.	Interviewe
	Students have a hard time		I can imagine that students have a hard time in their first and second year of studies and that after a while they will find the balance.	Interviewe
	Never had work discipline		And when I came here I didn't have the work discipline as I never had it in high school. So here it's really difficult for me.	Interviewe
	No experience working		most of them haven't worked or had part-time jobs or something. And I can imagine that for them its really tough	Interviewe
	Getting used to high workload	Not proposed for high workload	Because if you're used to a high workload then it's I think easier than if you are not used to it	Interviewe
	Students have never worked	Not prepared for high workload	the students are often very young and they have never worked so for them it's a big step from high school to university because the topics get more difficult, the study load gets higher	Interviewe
	Never had to do anything		I never really had to do anything for school [high school]	Interviewe
	High school was easier		I think for my whole Abitur [high school] I studied as much as I study for one exam now	Interviewe
	Achievement		you can see how people with our study background are founding companies and getting richer and richer and then people just want to achieve similar things	Interviewe
	Expectations got higher	Living up to expectations	I would say the students get even younger when they start studying, and then the expectations got higher	Interviewe
	Fulltime job		it's kind of my fulltime job now to be a student, so I expected it to be a lot more.	Interviewe
	Parents expect a lot		I think also parents are expecting a lot.	Interviewe
	Not doing more than passing		So I always do my stuff so I know I pass, but I don't need to do more or less so I don't stress myself out with that, because I think there's mon to life than just good grades and university	e Interviewe
	Pass is fine	Salf in flinted announ	Usually during studies and exam then I think a pass is fine but for my thesis I want to get a good grade but I still procrastinate	Interviewe
	Setting high goals	Self-inflicted pressure	I'm aiming for cum laude, which of course puts a lot of pressure on myself	Interviewe
	Resit to score higher		because then you're doing the resit to achieve a higher grade.	Interviewe
	Resit to score higher		I already passed the exam, but I wanted to get a better grade so I did the resit	Interviewe
Study perfor	rmance			
	Better grades		Yes, I think it is because you're never really done with studying. You can always do more to get better grades.	Interviewe
	Expectation		I see it more as my job at the moment to be a student, because that's kind of what I'm expected to do	Interviewe
	Nervous in exam	Pressure to perform	they are too nervous when they are in the exam or something that they actually don't get high grades	Interviewe
	Not able to do it	r lessure to perform	I think also sometimes I'm scared that I will not be able to do it.	Interviewe
	Pressure		I did not join a very active student association, because my first priority was on university because of the pressure of getting the degree.	Interviewe
	Pressure to perform		I think mainly the pressure to perform	Interviewe
	Good student	Separating yourself from others	I just don't want to be like a okay student, I want to be a good student,	Interviewe
	Separate yourself	Separating yoursen nom others	you can separate yourself from the other students because of your grades	Interviewe
	Better opportunities	Future career	I think I have better opportunities to get a good job later if I'm not just below average or average all the time	Interviewee
	Bigger steps if grades are good	r uture career	in my opinion, it will help me make bigger and faster steps in work life if I have better grades	Interviewee

ial environment				
Social interaction	on			
	Activities		When they [study association] had activities I went there and then with my roommates going out, going shopping, partying a lot	Interviewee 2
	Friends		[doing stuff with friends is] relieving stress a lot because my friends are also all students so they also all have to study and especially with IBA friends we can compare how much we have studied yet and how prepared we are	Interviewee 2
	Interactions increase productivity		During this corona crisis, there's no social interaction. Normally I would have many social interactions. But if I look at my own productivity now, it's much more that I'm just sitting in my room doing nothing.	Interviewee
	Relaxing		Yeah, then I know I can just relax and it takes off my mind from my study (social interaction)	Interviewee 4
	Hanging out with roommates	Social interaction	I also like hanging out with roommates, it's the best thing to just come down and opening up a beer	Interviewee
	Social interaction		social interaction with people that are not studying with you is also something which is really beneficial	Interviewee
	Get energy from social interactions		My social environment is really a stress reliever. I get energy from my social interactions.	Interviewee 5
	Talking about uni is stressing		what's also stressing is that when you would just chill usually with friends you kind of talk about uni a lot	Interviewee 2
	Taking to people is a chill moment		Talking to people you're studying with before and after the lectures or having lunch together is also some kind of chill moment.	Interviewee
	Talking about uni		But with friends it's different, because they all study psychology as well, so sometimes we start talking about it so I don't completely forget it.	Interviewee
Being away from hon	ne			
	Adjusting		Especially in the beginning the social life, it was hard to adjust how everything was here and that also really impacted my studies	Interviewee 4
	Different language	Adjusting to new environment	A different language being spoken here as well	Interviewee
	Moving could be stressing	Adjusting to new environment	I had the luck that I moved in together with people I know already for a year. Maybe when I had moved in with strangers I maybe would have more stress	Interviewee
	Cannot go home		if you study and live in Enschede and you're from somewhere else in the Netherlands you cannot just go home for a night which is also pretty stressful.	Interviewee
	Not seeing family		Because of the uni I don't see my family that much, it's a bit stressful sometimes	Interviewee
	Missing family gatherings	Being away from family	when you know that your family is gathering all together and you are far away that's I think stressing me out a bit	Interviewee
	Feeling lonely		Yeah, you feel way more lonely here. You have only people that are not family to rely on	Interviewee 4
	reening ionery			

pic	First order open coding	Second order open coding	Quote	Interviewee
The app				_
Overall	perception			
	Could imagine it being used		I could imagine students using this, especially if you talk about it at unis and show it to people.	Interviewee 2
	Helpful	The app would be used	Yeah, I think the app could be helpful for a couple of people.	Interviewee 3
	Definitely want to use		If there was such an app I would definitely want to use it What I like about this app is that it gives insights into things you do have control over, like the support you could talk with people that make	Interviewee 4
	Gives insights	Gives insights	the day maybe a little bit better	Interviewee 3
	It's an organised method		I never know how to organise it properly. So filling in data points instead of text could be pretty nice	Interviewee 4
	Awareness is good		I think awareness is the first step to change	Interviewee 2
	Could give an overview		I think for people who have problems with study-life balance, it could help them to get an overview and get started. But I don't think for me personally, because I don't have this problem so often.	Interviewee 3
	Awareness of causes of imbalance	Awareness	it would help me to see what's causing my imbalances and I can see there's, for example, one thing that's influencing it is always like really low, this is something I can change	Interviewee 4
	Makes you aware of the good things		Yeah, relatively it could have been a good day but there was only one thing that was bad, but reflecting makes it easier to see the good.	Interviewee 4
	Being aware of good things		Yeah so they can see if that maybe how they felt about the day wasn't bad because you can see yeah this was good, this was good. That would be interesting.	Interviewee 4
	Awareness of energy and balance		I think it creates awareness of where your energy goes to and where it goes wrong with your balance	Interviewee 5
	Sharing the insights with uni		The factors that are included now would be useful to share with university so, for example, professors can change things based on these insights.	Interviewee 1
	Professors should care about it	Sharing data with professors	if you could make sure that the professors would be caring about the data then it would make sense	Interviewee 2
	Professors could adapt to students		The professors didn't really know how much we sacrifice for this module and I think when they see what we do they are more able to change.	Interviewee 3
	Drivers			
	Monitoring energy makes sense		Energy would make sense because it's useful to know if the student is energetic or not	Interviewee 2
	Monitor energy influencers	Energy	I think then you would have to see like students have to differentiate the factors why they would not be energized. And not because of the study work but because of factors from their personal life.	Interviewee
	Energy is important		Energy should definitely be kept in, how fit you are to learn is important	Interviewee 3
	Energy would be useful		Energy would be useful, because I feel like a lot of students don't have energy.	Interviewee 4
	Space driver is different per study		Space also depends on the study because we have to study a lot on our own. So if that's differentiated between the studies then space would also be good	Interviewee 2
	Space is not so relevant		Space, I don't know, because the university space could be an influencing factor and most of the time you sit on your room, therefore I don't know if space is so important for students	Interviewee 3
	Wouldn't leave space in	Space	So space is the only thing I would put out or is not so important.	Interviewee 3
	Change space to environment		Yeah maybe instead of that it could be like more like environments so instead of the space because when you work you have your workspace and but in University it's always a very changing environments	Interviewee 4
	Space should include more aspects		For example, in space it is only about work, but I think it should also be about space to do other stuff besides studying.	Interviewee 5

### Table 4. Students' perceptions on an engagement app

Challenge should be included		Challenge is also good because as a student you want to be challenged	Interviewee 2
Challenge is important	Challenge	Challenge is I think very important that you know what you do and stuff	Interviewee 3
Challenge is important		Challenge is important in studies.	Interviewee 4
Support driver is important		Support is also important	Interviewee 2
Support should be included	Support	Support also, when you for example don't feel like you get support from the university or you don't get supported by your family	Interviewee 3
Support should be included		I think support should also be there, for example from friends or family	Interviewee 4
Results one of the most important		Results and grades are also important, one of the most important.	Interviewee 2
Include results for grades	Result	Results I think also, that you have a good grade	Interviewee 3
Results of the day		I think stuff can be added to results as well, like did I get the most out of my day.	Interviewee 5
Growth is important		Growth [is] also [important], because you grow with your study	Interviewee 2
Growth is important	Growth	And growth yeah, when you don't learn anything from it I think you won't be as productive	Interviewee 3
Growth is important		growth I think is important in studies as well.	Interviewee 4
Should include activities		It would be useful if I could also monitor the activities I did in a day in the app	Interviewee 1
Connection to other apps	Activities	Another thing would be that the app could maybe connect to other apps, such as fitness apps. I could imagine that doing some sports or like running could improve your day	Interviewee 1
Including activities would be interesting		I would agree [that it would be interesting to include activities you did on a day]. For example, sports.	Interviewee 2
Monitor study-life balance		I think it would be more interesting if the app would measure study-life balance in general.	Interviewee 1
Work-life balance	Monitor study-life balance	But work-life balance is only one thing in the Energy driver. I would make a new driver from that, because it's much bigger	Interviewee 5
Study-life balance	Montor study-me balance	For study-life balance there is much more included than only university work. So besides doing the university things in the app the other stuff should be included as well.	Interviewee 5
Add something on social life		Maybe something could be added on social life, that you can reflect if you put effort in your social life that day	Interviewee 2
Include social environment	Social environment	Social environment would be a nice thing to include, because for example if some people aren't really feeling like themselves in their study, that could also impact their studying	Interviewee 4
Social		I think social should be included, like how do you engage with people	Interviewee 5
Rating productivity	Productivity	It would be nice if you could rate the productivity of your day. Then you could, for example, get the insight that waking up at 7am leads to a more productive day	Interviewee 1
Monitor productivity		If the app would track my productivity and give suggestions on how to make this day as productive as possible, it would be my daily app	Interviewee 1
Should be more personal		I think the app should a bit more personal and really adapted to your own needs	Interviewee 1
The app could act as a buddy		Maybe the app could act more as a buddy. It could like suggest you to do some stress relieving activities when it sees that you have had a bad day.	Interviewee 1
Insights on your perfect day	Make it more personal	Also, if you would fill in the activities you did in a day, an interesting insight for the dashboard could be, for example, what your perfect day would look like.	Interviewee 1