Personal resources conducive to educational success: high achieving students' perspectives

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Abstract
This study was explorative in nature and aimed at in-depth understanding of the personal resources students use to reach self-defined success. To gain an in-depth understanding of personal resources that benefit students' performance in the demanding context of honors education, we used qualitative methods.

Becoming successful in higher education demands a lot from students. Considering the Job Demands-Resources (JD-R) model, a model that is also applicable in education because of the similarities between work and study, it is expected that personal resources help students succeed in demanding situations. In this study, we explored which personal resources benefit students' performance in the demanding context of honors education. Using a preparatory digital questionnaire and semi-structured interviews, we asked 13 honors students of three Dutch Universities of Applied Sciences which personal resources had helped them to achieve success. The results suggest that the personal resources used varied among honors students. The most frequently mentioned resources could be grouped around five themes: self-directiveness, inquiry-mindedness, perseverance, social involvement, and motivation. Especially resources in the themes self-directiveness, inquiry-mindedness and perseverance were perceived as important facilitators for educational success, like passing

exams. The outcomes of this study may inform interventions to help students develop personal resources needed to handle high educational demands. Further research is needed to identify the most effective interventions.

Keywords: Personal resources; Job-Demands Resources model; high achieving students; honors education; wellbeing

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1. Introduction

In higher education, there is a growing pressure on students for efficiency and quick graduation, due to rising costs and high academic demands (Bettis et al., 2017; Dopmeijer, 2021; ISO, LSVb, & LKvV, 2014; Thomas, 2002). This pressure has led to more concerns about students' mental health (Dopmeijer et al., 2018; Hughes, Panjwani, Tulcidas, & Byrom, 2018). Yet, there is a growing group of students who are willing and able to do more than their regular program offers them and participate in (extra-curricular) honors programs. For example, in the Netherlands, in the period of 2004-2010, the number of honors programs at universities of applied sciences increased from almost none to 40 (Wolfensberger, 2015). Especially students who want to develop themselves through extra-curricular activities suffer a lot from the focus on efficiency within higher education (ISO, LSVb, & LKvV, 2014). Despite the high demands and expectations they are facing, a group of honors students is able to perform above average without experiencing so many mental health problems that they drop out. Although there is little research comparing the wellbeing of honors students and regular students, the higher degree of perfectionism among honors students (Pham, 2017) and the fact that cognitively abler students are less likely to be satisfied (Griffioen, Doppenberg, & Oostdam, 2018) give reasons to pay extra attention to the wellbeing of honors students.

Research among college students showed that personal resources—for example optimism, hope and self-efficacy—play an important role in dealing with high demands and can positively impact performance (Feldman, Davidson, & Margalit, 2015). However, it is yet unknown which personal resources high-achieving students use in reaching success in higher education. Further insights into the resources they use will help educational institutes optimize their guiding approach. Subsequently, a possible generalization to *all* students can be investigated. The intended consequence is that high-achieving students will be better able to continue their good performance, remain high achievers and stay in good mental health in a highly demanding educational environment.

1.1 The JD-R model as a theoretical basis for research into personal resources
Personal resources can be defined as "individuals' sense of their ability to successfully control and impact their environment, especially during challenging circumstances" (Hobfoll, Johnson, Ennis, & Jackson, 2003, p. 632). Another frequently used definition of personal resources is "cognitive-affective aspects of personality: developable systems of positive beliefs about one's self (e.g. self-esteem, self-efficacy, mastery) and the world (e.g. optimism, faith) which motivate and facilitate goal-attainment, even in the face of adversity or challenge" (Van den Heuvel, Demerouti, Schaufeli, & Bakker, 2010, p. 129). The first definition focusses on a person's sense of ability to control and impact the environment. The

second definition focuses more on goal-attainment. In order to combine the strengths of these two definitions, in this study we defined personal resources as *'developable, positive beliefs of aspects of one's own personality concerning the ability to control and impact the environment, which motivates and facilitates goal-attainment.'* Personal resources are considered to be malleable and state-like (Luthans & Youssef, 2007) and, therefore, they can be developed.

Personal resources are a component in the Job Demands-Resources (JD-R) model (Figure 1), a model that has frequently been used to explain the relation between personal qualities and performance (Bakker & Demerouti, 2017; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004). The JD-R model originates from the field of work and organizational psychology, and most research to the application of this model has been done in this context (Bakker, 2011; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Several studies have shown the effect of personal resources on engagement and work outcomes (e.g. Airilia et al., 2016; Huang, Wang, & You, 2016; Van den Heuvel et al., 2010). However, the exact position of personal resources within the model and their relation with other components of the model is still unclear, possibly due to the existence of different types of personal resources (Schaufeli, 2017). Although the JD-R model has been mostly applied in organizations, it may also be applicable to the educational context because of similarities between the two contexts, such as the structuring of work or educational activities and goal attainment.

Figure 1. The Job Demands-Resources model
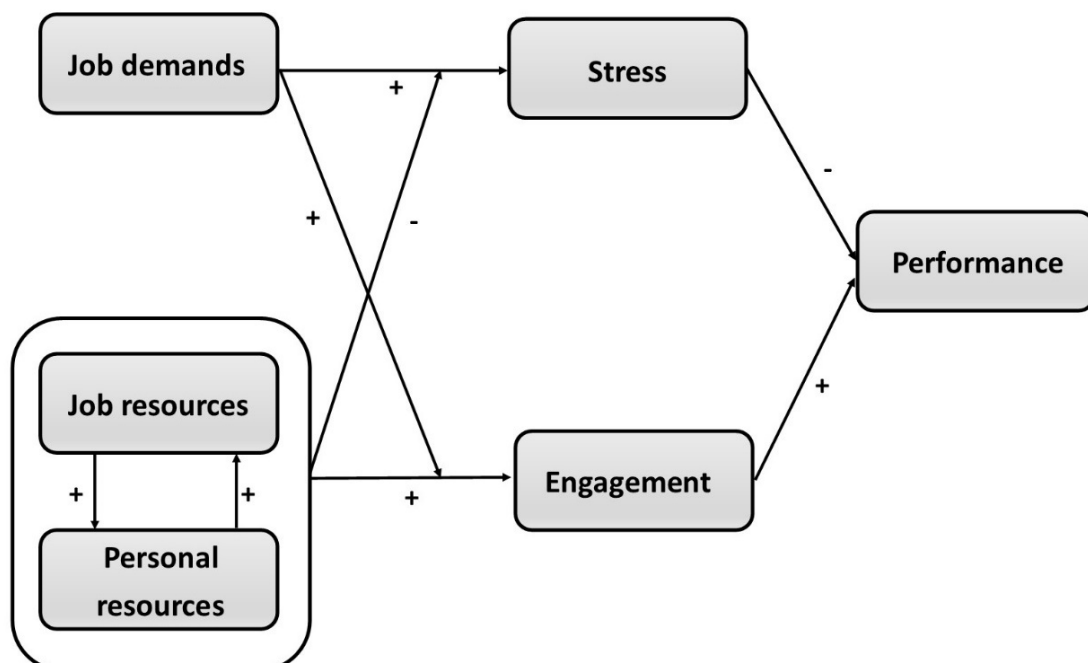
Source: visualisation based on Bakker & Demerouti, 2017

In short, the JD-R model states that presence of many job *and* personal resources leads, via engagement, to positive outcomes and that the presence of many job demands leads, via stress, to negative outcomes. The upper part of Figure 1 shows the health impairment process. In that line of reasoning, strong job demands (+) and lack of job and personal resources (-) lead to a negative process resulting in stress and poor performance. The lower part of Figure 1 shows the motivational process. In that line of reasoning, presence of many job and personal resources (+), possibly in combination with many job demands (+) in so-called active jobs (Bakker & Demerouti, 2017), lead to a process resulting in engagement and good performance. However, more research is needed to explore and test the interaction between job demands and personal resources (Bakker & Demerouti, 2017).

Research using the JD-R model in an educational context is still limited (Ouweneel, Le Blanc, & Schaufeli; 2011); however, some studies have shown promising possibilities for transferring the model to the educational context. For example, quantitative research in higher education showed that the following personal resources were positively related to performance: *optimism*, meaning that somebody holds positive expectations (Hazan Liran & Miller, 2017), also in hard situations; *self-efficacy*, including belief in one's own capabilities (Chemers, Hu, & Garcia, 2001); *hope* (Gallagher, Marques, & Lopez, 2017; Hazan Liran & Miller, 2017), as defined by Snyder, Irving and Anderson (1991, p. 287) as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal directed energy) and (b) pathways (planning to meet goals)"; and *resilience*, the capacity to bounce back after disappointments (Hazan Liran & Miller, 2017). Furthermore, a study by Ouweneel et al. (2011) showed that university students who had developed more personal resources reported higher study engagement. Students who experienced study engagement, a positive affective-motivational state of fulfilment, got a boost in future performance (Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003; Salanova, Schaufeli, Martinez, & Bresó, 2010).

Almost all previous research to the application of the JD-R model in the field of education focused on testing hypotheses, and the results were mostly quantitative in nature. Knowing that feeling healthy and performing well are both important aspects of success (Meens, 2018), further exploration of how students define success and what personal characteristics affecting their success is needed. A qualitative approach to studying this domain was employed by Salanova et al. (2010), who used brainstorm sessions with students to identify facilitators and obstacles for success. However, the output of these brainstorm sessions was only used as input for a quantitative follow-up study, and this output was not reported. Another qualitative study in this domain was performed by Stelnicki, Nordstokke and Saklofske (2015), who asked students to mention five factors that helped them reach goals and five factors that keep them from reaching goals. They did not specifically focus on personal factors.

Our research builds upon these previous studies and offers a more in-depth understanding of personal resources high-achieving students use to reach success and how they talk about success. Because success is often defined quantitatively, our study adds more qualitative evidence to this concept. We interviewed students about their personal qualities in relation to the self-defined successes they had achieved. It is important to understand how high-achieving students are able to keep motivated and perform well, especially in highly

demanding situations like honors programs. A combination of a challenging honors environment and good performance may yield optimal students' results. It is possible that similar dynamics play a role here as in active jobs, where high demands ensure optimal use of resources (Bakker & Demerouti, 2017). In addition, insights gained into personal resources honors students use in reaching success may also benefit students who have trouble keeping themselves motivated in highly demanding situations in general. In this study, we sought to answer the following research question: What personal resources do high-achieving students perceive as contributing to their self-defined success?

1.2 Context: Bachelor's Honors Degree programs
This study aims to explore the personal resources students use to succeed within the context of honors programs in higher education in the Netherlands. From 1994, the number of Dutch honors programs has increased, both at research universities and universities of applied sciences (Jacobs et al., 2020; Van der Rijst & Wolfensberger, 2014). By 2020, almost all Dutch higher education institutions appear to offer such programs (Jacobs et al., 2020). The aim of these programs is to offer motivated and talented students a deepening or broadening educational program (Van Eijl, Wientjes, Wolfensberger, & Pilot, 2005; Wolfensberger, 2015). The most important similarities between these programs are their focus on students who are willing and able to do more than their regular program offers them and their emphasis on stimulating critical thinking and self-reflection, promoting student engagement and optimally preparing students for their future careers (Clark & Zubizarreta, 2008; Lamb, 2012; Scager, 2008; Van Eijl, Pilot, & Wolfensberger, 2010; Van Heugten, 2020; Wolfensberger, 2012). Honors is meant for the best and brightest students (Lamb, 2012). Although the definition of best and brightest may vary between institutions and honors programs, they share a common ground in selecting students by focusing on a high GPA and non-cognitive qualities like motivation (Banis-Den Hertog, 2016; Kool, 2016). Honors programs differ in organizational form, duration and content (Janssen & Gramberg, 2014; Van Eijl et al., 2010).

2. Method

2.1 Participating programs
All honors programs that participated in this study consisted of extracurricular activities, meaning that they require additional effort from their students—between 15 and 30 ECTS—on top of their Bachelor's program. This means an additional study load for students of 420-840 hours, spread over 1-3 years.

2.2 Participants
Purposive sampling was used to gain maximum variation in participants and gather a wide range of perspectives. In order to get a broad picture independent of an institution, students from three different Dutch Universities of Applied Sciences, all of which have had honors programs for a longer period of time, were approached. Students from different Bachelor's programs were invited to participate by their honors coordinators or honors ambassadors in person, by phone, via email, or using social media platforms. The main requirement was being enrolled in an honors program for at least half a year. From the three Universities, 13 students (n= 3, 4 and 6, respectively) volunteered to participate in our study. Their age varied from 19 to 27 years (M = 22.54, SD = 2.06) and the male-female ratio was almost

equal (6 male, 7 female). They were enrolled in different Bachelor's and extracurricular honors programs and had been participating in their honors program for six months to four years. All participants signed an informed consent form and were ensured that participation was voluntary, all data would be processed confidentially, and no plausible harm to participating individuals could arise from this study. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

2.3 Data collection
Data was collected using a preparatory questionnaire and semi-structured interviews (n=13), face-to-face, and via Skype, spread over a period of four weeks (April-May 2016). Each interview lasted between 20 and 36 minutes. (M= 28, SD= 5.45) All interviews were executed by the first author (JM).

We distributed a short digital preparatory questionnaire to allow the participants to get acquainted with the subject and investigate personal opinions and experiences. The participants' responses provided us with demographic background information like age, gender, and their affiliate Bachelor's and honors programs. The questionnaire was also used to get insight in directions of response on the question about personal characteristics that helped them reach success.

Our main topic "What helps students succeed?" was elaborated into a topic list for the semi-structured interviews. The topic list was tested using two pilot interviews, which helped us revise the questions and choose words that fit honors education and student jargon. Data from the two pilot interviews were excluded for further analysis. The interview questions were based on the five-step STARR method (situation, task, actions, results, reflection; Kraal, 2008). The participating students were asked to mention three situations where they considered themselves successful. These could be situations from inside and outside education. For each successful situation, they were asked to describe (1) the *situation* they were in, (2) the *task* at hand, (3) the a*ctions* they were taking to turn it into success, (4) the *results* of their actions, and (5) their r*eflection* on the experience. The starting question was: "Can you describe a situation where you experienced success? What was this situation like?" We deliberately asked open-ended questions about situations that were not necessarily linked to (honors) education. Subsequently, the students were asked to explain their roles in these situations and specify which of their characteristics or features helped them reach this success. They were also asked to what extent they were satisfied with the results of their actions. After clarifying students' answers by asking elaborative questions on the three examples they gave, we used their answers to the preparatory digital questionnaire to determine in which (other) situations they had used the personal resources they mentioned. In the interviews and questionnaire, personal resources were called personal characteristics or features to match students' language use. Finally, the researcher summarized the interview results and asked the students to confirm that the overview of characteristics or features that helped them succeed was complete. The interviews were audiotaped and transcribed verbatim.

2.4 Strategy of analysis

All transcripts were analyzed in three stages of open, axial, and selective coding (Boeije, 2010). The first stage involved inductive open coding using ATLAS.ti. The first six interviews were independently coded by two researchers (JM and MH). Coding discrepancies were discussed until consensus was reached on all codes pertaining to personal resources (see appendix A). Because of large consensus among the two researchers, the remaining interviews were coded by one researcher (JM). In line with Guest, Bunce and Johnson (2006) we estimated that 12 interviews would be needed to reach data saturation, or in terms of Varpio, Ajjawi, Monrouxe, O'Brien and Rees (2017) "information power". Analysis of the first eight interviews yielded many new codes, whereas analysis of the remaining five interviews yielded almost no additional codes, implying that sufficient information power was reached and no further data collection would be required. In the second stage of coding, axial coding, two researchers (JM and MH) related the codes and identified patterns and concepts in the data, which yielded 23 categories. In the final stage of selective coding, the two researchers (JM and MH) combined the categories into overarching themes. A third researcher (NM) was consulted when consensus was not attained on a theme or when it was hard to find the right term. During the coding process, the chosen themes were revised several times. Because the third author was so familiar with the terminology of research into personal resources, it was ensured that the terms chosen were in line with other studies. The resulting coding scheme was then discussed by all five researchers until consensus was reached.

3. Results

All participants (n=13) completed the digital questionnaire and were interviewed afterwards. The results are presented on the basis of the main themes we found. Each theme is illustrated by a participant's quote.

When students talked about their successes, they reported different resources for reaching them. Table 1 shows the most dominant themes of personal resources arising from student responses, i.e. themes that emerged in the answers of at least five different respondents: self-directiveness, inquiry-mindedness, perseverance, social involvement, motivation, leadership skills, promotion focus, resilience, ambitions, and perceived self-efficacy. The second column shows the number of respondents who mentioned resources within these themes, and the third column shows the personal resources pertaining to these themes (see Appendix A for the full list of themes). The five themes mentioned by the largest number of different respondents are further explained and illustrated by quotes. It should be noted that a respondent may refer to multiple personal resources belonging to one theme in several examples of success.

The specific situations students described as successful situations, where they had used their personal resources, pertained to different topics, levels, and contexts. Students were not restricted in their definition of success and were therefore able to decide for themselves which situations they regarded as successful. Some of the contexts they mentioned were organizing things, grabbing chances, sports successes, and educational success. Educational successes were described at different levels, for example passing an exam or gaining admission to the honors program.

Table 1. Most frequently occurring themes and personal resources

Theme	Number of respondents that mentioned resources within this theme	Personal resources within this theme
Self-directiveness	13	Sense of purpose, Systematic, Planning, Pro-active, Realistic
Inquiry-mindedness	11	Analytical, Critical, Eager to learn, Curious, Reflective
Perseverance	11	Discipline, Perseverance
Social involvement	10	Being nice, Helpful, Interested, Social, Team player
Motivation	10	Enthusiastic, Intrinsic motivation
Resilience	9	Resilience
Promotion focus	6	Adventurous, Open-minded
Ambitions	6	Ambitious, Being different
Perceived self-efficacy	6	Authentic, Independent, Self confidence
Leadership	5	Leading

3.1 Self-directiveness

A theme that has frequently been addressed, as is shown in Table 1, is self-directiveness. The name of this theme self-directiveness contains two aspects: goal-oriented (directive) and related to actions of the person (self). Students mentioned, for example, situations where goal setting, task planning or pro-active skills were important for reaching successes in education, like passing an exam or getting a good grade. The following quote illustrates the way a student makes plans to reach her goals:

"Often by working in a structured manner, by making and carrying out a plan. And then, when I take a look at a regular examination week, well, then I think of the exams I've to prepare for, the chapters I've to study. Okay, I'm able to study that in about five days. And then I'll get started."

3.2 Inquiry-mindedness

Students also mentioned situations where eagerness to learn, curiosity, and critical and analytical skills were important. These are coded within the theme of inquiry-mindedness. Students' drive to gain a deeper understanding or to learn more helped them reach their goals. Personal resources in this theme were mostly related to reaching successes in education, like passing an exam or getting a good grade. The following quote exemplifies this:

"Since childhood I've always been curious. I've always been willing to explore things and I do notice that when I'm working on something or just reading a book […] I often wonder, for example during coaching [conversations]: 'Where does it come from?'. Yes, that you really need to know where it has originated from. I've always had that in me, even when I was

little. I always needed to know why it was called like that or why we named it like that, where it originated from."

3.3 Perseverance

Another theme of resources that has frequently been addressed by students refers to having perseverance and discipline to continue a task until it is successfully completed. Students talked about situations where they kept practicing and took responsibility in finishing their assigned tasks. Almost all situations pertained to education, like passing an exam, and achieving parts of an educational program. One of the participants expressed the situation as follows:

"Take that course, for instance. Yes, I found it very difficult [to understand] and halfway through the course I took the initiative to get further clarification, and I did the same throughout the exam week. That's why I got a good grade. […] Yes, with perseverance, I just go, yes, I don't actually stop, like I can't let go of something until I fully understand it. Yes, perseverance just means to keep going. It has to be that way, it's a part of it."

3.4 Social involvement

Students' social involvement also played an important role as a resource for reaching success. Students experienced being friendly and helpful to others. They organized a social environment that helped them reach their goals or supported others in reaching their own goals. Resources in this theme were supportive for reaching goals in their educational career, like gaining access to a higher level of education and organizing and setting up activities. As the following quote shows, building and maintaining sincere relationships is considered important:

"And those talks touch me! It's not a one-way conversation we use to have in coaching. But I also learned a lot from them, so it was mutual. Even if they were not really aware of it […] For me it's important to show interest in other people, a genuine interest, not like asking how someone is doing and then rushing by. But that you really take the time and sit down and ask 'How are you?' And then you'll notice that it already affects people."

3.5 Motivation

Intrinsic motivation and having enthusiasm are also personal resources that helped students reach successes. These were part of the theme motivation. The participants mentioned events that motivated them because they really enjoyed doing them. They were even more motivated when they were trying to accomplish goals that contributed to a larger purpose. The goals, or successes, students talked about were mostly related to their educational careers. The following quote exemplifies a student's motivation as a means for reaching a larger educational goal:

"I really wanted to complete the gymnasium[1] and I was really motivated for that, so I learned the equivalent of two years of Greek within two months. Just with the help of supporting classes and simply through being motivated and enjoying what I was doing […] First of all, I had a high level of intrinsic motivation to accomplish it. I think that it won't work when such high expectations are imposed by others […] I don't feel any pressure from my parents or my

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[1] A Dutch level of secondary education, called 'preparatory university education' including Greek and/or Latin language education.

environment, but it's just something that I really want. And then it's easier to put the time and energy into it."

4. Discussion

This study focused on personal resources that help high-achieving students in honors education perform well in a highly demanding environment. Students described successes and gave examples from inside and outside (honors) education. The most frequently mentioned resources could be clustered around the themes of self-directiveness, inquiry-mindedness, perseverance, social involvement, and motivation. Resources, particularly those in the themes of self-directiveness, inquiry-mindedness, and perseverance, were perceived as being important for achieving success in education, like good grades and passing an exam.

The themes of personal resources we identified matched resources in studies on the JD-R model, for example "motivation" (Bakker, & Demerouti, 2017), "social" (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007) and "self-directiveness". In addition, some other themes of personal resources we identified were previously described in literature concerning the characteristics of talented students and students in honors programs, like, for example, "having a drive to achieve" (Van Heugten, 2020), "motivation" and "perseverance" (Scager, 2008). Due to the explorative nature of this study, the themes of personal resources and types of success have deliberately not been defined in advance. In other words, the data have been leading in determining categories. Perhaps this has resulted in us sometimes using different terms than in other studies.

However, some of the themes we identified as personal resources were framed differently in research using the JD-R model; for example, "social involvement" has been described as the job resource "social support". Because different components of the JD-R model can interact (for example job and personal resources), it is not surprising that the same resource can be considered a personal as well as a job resource. It will be interesting to unravel the complex interplay between students' personal resources, the educational environment and available job resources, and its relation to achievement. In other words, how the use of personal resources requires action from the students to match with the educational environment and job resources in this environment, and how that interplay can facilitate and support their success.

To gain more insight into the processes underlying students' use of personal resources, we compared our results with those of previous studies on this topic. The first theme of personal resources is *self-directiveness*, which is a new concept. Self-directiveness is a combination of self-directedness (you steer yourself) and directiveness (goal-oriented). The combination of these concepts fits best with the data in this study. Personal resources within the domain of self-directiveness relate to the concept of self-regulated learning. The relation between self-regulation and educational achievements and success has been studied a lot (e.g. Zimmerman & Schunk, 2001). Self-directiveness is also closely related to the concept of hope, a concept that is more common in research using the JD-R model. Hope was defined by Snyder et al. (1991, p. 287) as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal directed energy) and (b) pathways (planning to meet goals)." Our finding that resources in the theme self-directiveness have helped students reach success confirmed findings from other studies, like research on hope (e.g. Feldman et al., 2015) showing an interaction between levels of hope and academic

achievement and research on self-regulated learning showing an interaction between self-regulatory skills and achievement (Heikkilä & Lonka, 2006). In line with this, our study showed that students most frequently employed self-directiveness to be successful in achieving parts of their educational program. The application of hope has been studied a lot in organizational contexts, as an aspect of psychological capital (PsyCap) (e.g. Luthans, Avolio, Avey, & Norman, 2007), and sometimes it has been transferred to educational contexts as well (e.g. Carmona-Halty, Salanova, Llorens, & Schaufeli, 2018). Luthans, Avey, Avolio and Peterson (2010) showed that it is possible to enhance students' hope with interventions specifically designed for this purpose, in this case a two-hour group intervention for university students.

Parts of *inquiry-mindedness* can be found in previous research on personal resources, like reflective behavior (Mastenbroek, 2014). Inquiry-mindedness, however, is more than just reflective behavior. It seems to be an overarching theme of qualities that are important in education and lead to success, such as curiosity (e.g. Kool, Mainhard, Jaarsma, Van Beukelen, & Brekelmans, 2018), reflective behavior (e.g. Mastenbroek, 2014), and critical thinking skills (e.g. Ernst & Monroe, 2004). Curiosity, for example, seems to be related to faster learning, recognition of opportunities for personal growth, and perceived overall happiness (Vracheva, Moussetis, & Abu-Rahma, 2019). Stimulating students' inquiry mindedness is an important topic in higher education, and has been recommended by the HBO-raad in the Netherlands (today called The Netherlands Association of Universities of Applied Sciences) (HBO-raad, 2009) and a large-scale empirical study in Flanders (Verburgh, Schouteden, & Elen, 2013). Inquiry mindedness can be seen as a basic attitude higher education students should have. Since the students in our study also expressed the importance of having inquiry mindedness to succeed in education, more attention should be given to fostering inquiry mindedness in students.

Perseverance and persistence are closely related concepts, which are interchangeably used and can be seen as kinds of task commitment (Scager et al., 2012). For example, there are repelling negative experiences in achieving a goal, sticking to one's goal in spite of discouragement, difficulties or obstacles, and feeling capable of reaching one's goal (Eysenck, 2013). According to the students in our research, perseverance contributes to achieving educational goals. Moreover, it is not yet clear where perseverance fits into the JD-R model. Is it, for example, a resource on its own, a result of motivation, or a mediator in the relation between motivation and success? Because of possible links between perseverance, self-directiveness, and/or motivation, it would be interesting to further investigate the relation between these personal resources.

The overarching theme of personal resources in the domain of *social involvement* needed a broad definition, although all resources we identified have in common that students organize or influence their own social interactions. According to the JD-R model, however, job resources also comprise social aspects of a job or task, which is called "social support" (Llorens, Bakker, Schaufeli, & Salanova, 2006). Although (aspects of) this job resource has been frequently used and studied (e.g. Karatepe & Olugbade, 2009; Llorens et al., 2006), our study highlights the importance of considering the person as a whole, an individual who actively engages in social interactions and organizes his or her social environment. It would

be interesting to further explore the relation between social factors that are part of the environment and personal actions and willingness to engage in social relationships.

Another theme of personal resources we found in this study was *motivation*. According to the JD-R model, motivation is often seen as a result of job resources (Schaufeli, 2017). Similarly, more general research on motivation showed that motivation acts as a facilitator or stimulator of performance (Deci & Ryan, 2008). Our results add a different perspective on motivation to the JD-R model. Students actively manage and use their motivation, and, therefore, motivation acts as a personal resource. This is in line with the proposition of Bakker and Demerouti (2017), who stated that motivated people show behavior that leads to higher levels of resources. The perspective that motivation not only depends on other factors (a dependent variable in the JD-R model), but can also be used actively (an independent variable), makes it interesting to explore how teachers can facilitate and encourage students in developing, renewing, and using this personal resource.

To help students perform well, keep them motivated, and prevent from burning out in a highly demanding educational situation as honors education, it seems recommendable to support them in using and developing personal resources from at least the themes of self-directiveness, motivation, social involvement, inquiry-mindedness, and perseverance. More generally, when looking for ways to enhance student learning and promote and support their development and wellbeing, it is important to consider job demands and job resources as well.

4.1 Limitations
Although this study was performed carefully, there are some limitations that need to be considered. First, this study was performed in the context of honors programs at three Dutch Universities of Applied Sciences (UAS). In the binary Dutch educational system, there is a distinction between the more professionally focused UAS and research Universities, which influences composition of the UAS population, compared to other countries. Additionally, honors programs differ in content and structure. Future research on honors programs in different countries and different types of education is needed to explore whether the results of this study can be generalized.

In this study, we intended to specifically explore personal resources of high-achieving students, functioning in a demanding environment of their honors program. It would be interesting to include non-honors students in a regular Bachelor's program and to explore whether they use different discourse strategies to explain their successes and the personal resources they use than those reported by honors students. As Stelnicki et al. (2015) assumed, high-achieving students might use different words in explaining success. A comparative study on moderately achieving students would be a good addition to our study. In this way, it can become clear whether the insights gained in this specific group can lead to benefits for regular educational programs, in line with the recommendation of Huijts and Kolster (2020).

This study was explorative in nature and aimed at understanding the personal resources honors students use to reach success. To gain an in-depth understanding, we opted to use a qualitative research design with a limited number of respondents. Even though data

saturation was reached, future research inclusive of larger-scale quantitative surveys is warranted. This would allow, for example, the investigation of relations between the personal resources we found and study success.

Another limitation may be that students were asked to reflect on previous experiences. Although this was specifically intended and inherent to the use of a reflection tool like STARR (Kraal, 2008), the fact that students talked about success experiences from probably a long time ago might have influenced the results. It could have been more difficult for them to recall details about specific personal resources they had used in reaching success. At the same time, the students had a choice about what successes they wanted to talk about, and it is therefore likely that they chose examples that they could still remember a lot about.

4.2 Future research and practical implications
It might be worthwhile for higher educational institutes to investigate how students develop and use personal resources within their educational programs. Personal resources are state-like and therefore can be developed (Luthans & Youssef, 2007). We recommend further research on interventions to foster students' personal resources and help them cope with stressors in a highly demanding educational context. These interventions should focus on developing either one specific resource or a group of connected resources, such as PsyCap that consists of the four personal resources: optimism, hope, self-efficacy, and resilience (e.g. Feldman et al., 2015; Van Wingerden, Bakker, & Derks, 2016).

Our next recommendation for further research is based on the similarities between the personal resources we found in this study and personal resources in organizational contexts. It might be useful to explore the transfer of effective organizational interventions to educational settings. The insights then gained within the context of higher education can possibly be translated back into the organizational context, so that it enables higher-level mastery in the organizational context. For example, Van Wingerden et al. (2016) used an intervention to increase personal resources of healthcare professionals. This intervention seemed to foster work engagement and in-role performance and, therefore, it may also be applicable to healthcare students in an educational context. Similarly, an intervention to increase personal resources of teachers of primary schools that had also a positive effect on work engagement (Van Wingerden, Derks, & Bakker, 2017) can be further developed to be used in a teacher training program.

Finally, we need to increase awareness. In line with other studies (e.g. Chemers et al., 2001; Gallagher, et al., 2017), this study shows that using personal resources is conducive to educational success. If we can help students become more aware of their personal resources, the way these personal resources can be used in reaching success, and other factors that affect their performance according to the JD-R model, they will be better able to monitor their learning processes and create a learning environment where they can function optimally. It is also important to increase teachers' awareness of the added value of stimulating personal resources in students and creating an optimal learning environment, by offering "job resources" and challenging "job demands".

4.3 Conclusion

This study was designed to explore personal resources of high achieving students in higher education, because they experience increasing pressure to succeed in education (Bettis et al., 2017; ISO et al., 2014; Thomas, 2002). Personal resources like self-directiveness, inquiry-mindedness, perseverence, social involvement, and motivation were reported to support students in becoming successful in a highly demanding environment. Increasing the use of evidence-based interventions, for example those which are sucessfully used in organizational contexts, could foster high-achieving as well as other students' personal resources and help them cope with the growing demands of higher education.

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Appendix A: Code overview mentioned personal resources and themes

Theme	Number of fragments mentioned	Personal resources
Self-directiveness	58	Sense of purpose, Systematic, Planning, Pro-active, Realistic
Inquiry-mindedness	50	Analytical, Critical, Eager to learn, Curious, Reflective
Perseverance	39	Discipline, Perseverance
Social involvement	30	Being nice, Helpful, Interested, Social, Team player
Motivation	24	Enthusiastic, Intrinsic motivation
Leadership	13	Leading
Promotion focus	12	Adventurous, Open minded
Resilience	12	Resilience
Ambitions	10	Ambitious, Being different
Perceived self-efficacy	10	Authentic, Independent, Self confidence
Communication	8	Effective communication, Verbally strong
Perfectionism	8	Perfectionism
Intelligence	6	Intelligence
Out-of-comfortzone	5	Dare/courage
Creative	4	Creative
Do-er	4	Do-er
Solution-focused	4	Solution-focused
Calm	3	Calm
Humour	3	Humour
Optimism	3	Optimism
Thinker	2	Thinker
Meaning making	1	Gratitude
Responsible	1	Responsible