Chapter 5

Talent Management of Doctoral Students: Focus on Well-being, or How to Deal with the Mental Health Crisis in Graduate Education

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Abstract

High turnover rates, delay and dissatisfaction among PhD students about the high efforts and low rewards are common problems in doctoral education. Research shows that many different factors are associated with the mental health crisis in graduate education, but these diverse aspects have not often been studied in relation to talent management and human resource management (HRM) strategies. Based on questionnaires and in-depth interviews, this chapter critically assesses the factors that influence doctoral students' well-being, using as theoretical framework the self-determination theory, concerned with the social and other conditions that facilitate or hinder human well-being and flourishing, and the job demands–resources model, an occupational stress model that suggests strain is a response to imbalance between demands on the individual and the resources he or she has to deal with those demands. These theoretical frameworks help to explore the perceived job demands and resources, and motivations of a sample of 25 PhD students in the Netherlands, in order to recommend adequate talent management strategies to improve PhD work conditions at universities and reduce the increasing levels of ill-being. The study proposes a collegial model, focussing on the enjoyment of work,

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instead of the current managerial model, which focusses on strengthening knowledge and skills, and stimulating performance-oriented behaviour. A differentiated approach is needed, offering customized talent development for each PhD student in order to respond to his or her specific qualities, improving general well-being. This radical shift in talent management is needed to counter the mental health crisis in doctoral studies.

Keywords: Talent management; higher education; university; academic talent; doctoral students; PhD candidates; PhD degree; graduate education; well-being; mental health crisis

Introduction

The ability to attract and retain top talent is a key issue for HRM at universities, given the highly competitive global environment. The composition and quality of academic staff is vitally important for the quality of education programmes and university research, as well as the reputation and competitive position of universities and institutions in the academic community (Lorange, 2006). Talent and performance management are now part of the strategic HRM agenda, as many universities move from a collegial to a managerial model (Smeenk et al., 2006), incorporating private-sector management practices. Since mid-1980, Western higher education institutions have become subject to the growing role of market forces and commercial values (Washburn, 2005), fuelled by the growing hesitance of governments to spend public money on public services such as higher education (De Boer et al., 2007), resulting in the corporatization and neoliberalization of academia (Gill, 2009; Olssen & Peters, 2005). Furthermore, universities are increasingly evaluated on their output, such as number and quality of publications (via citation indexes and peer review) and number of graduated students (De Boer et al., 2007; Teelken, 2012), which has led to increased pressure to raise the productivity (Werner, 2015). Although these private-sector strategies have become widespread, they have been much criticized (Benschop et al., 2018; Nkomo, 2009).

Due to the 'projectification' of academia (Ylijoki, 2016), the number of precarious jobs has grown, especially for early career researchers: large numbers of (post)doctoral researchers are hired for temporary positions (Spina et al., 2022). In the Netherlands, the number of promotions per year has more than doubled in 25 years, resulting in more than 5,000 promotions per year as of 2021, but only half of the around 36,000 PhD students have an employment contract at a university or teaching hospital (Rathenau Institute, 2022). These developments have important implications for early career researchers and for the criteria that are decisive for their retention (Benschop et al., 2018). Embarking on a career in academia after obtaining a PhD is challenging due to the limited number of stable job opportunities (Hnatkova et al., 2022). Only around 30% of Dutch PhD graduates continue to work at a university or learning hospital, and of the PhD

graduates under the age of 35 who work in academia, only 37% have a permanent contract, compared to 64% of young researchers outside academia (Rathenau Institute, 2022).

But Dutch PhD students already face difficulties during their doctoral studies. They are considered a specific hybrid population that sits between working and student populations (Devos et al., 2016). They are called 'students', but, at the same time, they often have a work contract (a doctorate grant of an external party, an employment contract of a university or learning hospital or a job outside of academia to support their living). Doctoral students are vital to shaping the scientific landscape and its future (Larivière, 2012; Vollmar, 2019). They are considered a relatively cheap labour force[1] who do most of the research work (Dijstelbloem et al., 2013) and by doing so help shape economic growth and technical innovations. PhD students contribute to a high number of publication output.[2] Most also have to fulfil teaching activities and supervision of theses, making a major contribution to academic education. Universities on their side get a bonus for each doctorate awarded; this turns especially externally funded PhD students into an earnings model (PNN, 2020). That is why these high efforts and low rewards for PhD students have been subject to criticism. It is not surprising that more than 60% of PhD students experience a high or very high workload (Rathenau Institute, 2022). Only about 75% of the employed doctoral students in the Netherlands successfully complete their PhD (Rathenau Institute, 2022); a high turnover rate, meaning an important loss of talent. Studies have noted that a substantial part of Dutch PhD students is struggling with mental health problems. It seems there are various bottlenecks for PhD students which can undermine their well-being.

In this study, I will look into the different aspects that influence the well-being of Dutch PhD students, and the possible points for improvement, by means of a literature review, questionnaires and interviews. In this way, this research can help to better understand the systematic issues that exacerbate PhD students' well-being and help to address illnesses by indicating a variety of countermeasures against the mental health crisis in Dutch graduate education. As I will suggest, a shift in the focus of talent management of doctoral students is needed.

Previous Research

In countries where PhD students' mental health has been studied, there is a consensus that the PhD experience is difficult (Devos et al., 2016), characterized by constant peer pressure, frequent evaluations, poor status, heavy workload, high pressure to publish, deadlines, financial difficulties and many different activities

[1]A Dutch PhD student earns between €2,541 (first year) and €3,247 (fourth year) gross per month per July 2022, in addition to a holiday allowance (8% gross annual income) and an end-of-year bonus.

[2]Some estimates indicate that PhD students contribute to about a third of the publication output (Larivière, 2012).

to deal with (research, teaching and conferences). A number of factors affecting mental health and well-being of PhD students have been identified. In a comprehensive overview of 163 studies on PhD candidate well-being, Sverdlik et al. (2018) identified four main external factors (supervision, personal life, departmental structures and financial opportunities) and five main internal factors (motivation, writing skills, academic identity, self-worth and self-efficacy) that influence PhD well-being.

Much attention has been given to the relationship between the PhD student and the supervisor (discussed in Juniper et al., 2012). Indeed, supervision style, supervisor experience and frequency of supervision affect emotional exhaustion, burn-out, PhD thesis completion and intention to leave academia and are all potential areas of interest (Cornér et al., 2017). However, also other environmental and organizational factors were shown to affect PhD students' mental health and well-being, including university policies, training opportunities, career perspectives (Juniper et al., 2012), working environment, quality of working space, facilities, social relationships at work (Caesens et al., 2014), balance between personal and professional life (Juniper et al., 2012), work engagement versus 'workaholism' (Caesens et al., 2014) and type of motivation for the PhD thesis (Litalien & Guay, 2015).

A review of 17 studies from 1998 to 2018 in Europe and North America showed that PhD students' well-being affects their productivity in research, teaching, the quality of their education, their engagement in research and risk of dropping out. Dropout rates are high globally, typically between 30% and 60%, including in countries with a perceived high-performing research system (Litalien & Guay, 2015). A 2021 meta-analysis showed that 24% of nearly 24,000 doctoral students suffered from depression and 17% from anxiety. These numbers are very high in comparison to a normative population of the same age (Barry et al., 2018). 'Ill-being' is becoming the norm (Beasy et al., 2020). Evans et al. (2018) have described this situation as the 'mental health crisis in graduate education'. It is therefore necessary to systematically monitor the mental health of doctoral students, which most universities do. They have a duty of care to their PhD students and should create and maintain – potentially via changes in HRM policy and practice – an environment that supports PhD students' well-being.

The Dutch Case

In the Netherlands, the PhD Candidate Network Netherlands (PNN) conducted a survey among 1,600 PhD candidates between March and May 2020, showing that no less than 47% were at risk of developing a psychiatric disorder (i.e. depression or anxiety). In total, 39% showed severe symptoms of burn-out, and 40% experienced a high or very high workload. The PNN survey found international PhD candidates (around half of the total number in the Netherlands) to be more at risk of mental health problems compared to their domestic colleagues. Van der Weijden and Bergmans (2021) showed that PhD candidates who give informal care (almost 30%) to a loved one have a higher risk of developing mental health problems (i.e. feelings of constant strain, inability to overcome difficulties and

sleeping problems). These studies confirm that mental health problems during the PhD trajectory are widespread in the Netherlands.

The Dutch case is relevant for talent management in a globalized academic world, as internationalization and the new managerialism have resulted in the convergence of global academic human resource (HR) practices (Slaughter & Leslie, 1997). The formal criteria used to evaluate candidates are similar to those prevailing in the Anglo-American system; bibliometrics are leading in assessing the work of academics (Nkomo, 2009; Van Raan, 2005). The job market is highly international and very competitive in most disciplines. The structure and composition of the academic career system in the Netherlands can be viewed as a pyramid. The number of lower and temporary positions is high (PhD students and other staff members, such as lecturers), but the number of higher permanent academic positions decreases with each rising level (Van den Brink et al., 2013). As indicated earlier, only around 30% of Dutch PhD graduates continue to work at a university or university medical centre (Rathenau Institute, 2022). There seems to be an 'up-or-out' system (Phelan & Lin, 2001); a scientific career is embedded in a forward-looking system where only a particular type of researcher (i.e. one that maximizes research or teaching output) can move upward. If researchers do not step up, they will be dropped out of the system.

The existence of such a system, limiting opportunities and alternatives for researchers in accordance with the available resources, increases the occurrence of certain patterns of behaviour. As a result, Dutch academic working environment is characterized by a competitive, individualistic culture, accompanied by a general lack of care: no interest, attention, involvement, help and support (Benschop et al., 2019). This includes not only basic things, like asking how someone is doing or giving someone a compliment, but also bigger things, like encouraging someone to take on certain tasks or responsibilities. This lack of care creates a cold working environment that encourages undesirable behaviour (Benschop et al., 2019). Recent research by the Dutch trade unions FNV and VAWO (2019) among more than a thousand university employees shows that half of them work in a department where there is or has been a socially unsafe working environment. Four out of 10 have personally experienced something in this context. PhD students are in a particularly vulnerable position, since they depend highly on their supervisor(s), which often means that they tolerate behaviour that otherwise is not tolerable (Benschop et al., 2019). Doctoral students face a great imbalance of power, which could affect their well-being.

With high levels of well-being theoretically required to achieve a PhD degree, it is no surprise that low levels of well-being can have a substantial impact on PhD students' degree progress, professional development, research productivity and personal lives (Schmidt & Hansson, 2018).

Most Dutch studies focus on single aspects of the work stress experienced by PhD students (e.g. the relationship with the supervisor or the heavy workload) and use questionnaires that do not show all aspects causing ill-being or investigate how to prevent it. To extend the scientific knowledge on this topic, I followed a qualitative approach, in addition to a quantitative one. The combination of these methods offers the opportunity to gain an in-depth understanding of the

circumstances of a sample of PhD students, in order to discover the possible points for improvement in talent management.

Theoretical Frameworks

For this, I adopt the World Health Organization's (WHO) holistic definition of mental health as 'the state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity' (WHO, n.d.). Mental health involves realizing one's own abilities, coping with the normal stresses of life, working productively and contributing to the community (WHO, n.d.). One aspect of mental health is the absence of mental health conditions – a term that covers psychological distress (fatigue, sadness, anger and moodiness), mental disorders (anxiety, depression, eating disorder and post-traumatic stress disorder) and (other) mental states associated with significant distress (burn-out and bore-out), impairment in functioning or risk of self-harm. Burn-out is not classified by the WHO as a medical condition, but as an occupational phenomenon. High levels of psychological distress are indicative of impaired mental health and may lead to the development of a mental disorder. In addition to the above-mentioned terms, I use the label 'ill-being' in this study as the opposite of well-being.

Since there is no standardized instrument to measure the well-being and experienced work stress of PhD students, I used two tested and valid models that both often appear in talent management literature: the self-determination theory (Ryan & Deci, 2000), concerned with the social and other conditions that facilitate or hinder human well-being and flourishing, and the job demands–resources model (Demerouti et al., 2001), an occupational stress model that suggests strain is a response to imbalance between demands on the individual and the resources he or she has to deal with those demands.

Although the job demands–resources model provides a general conceptual framework for understanding job burn-out and work engagement, it does not offer guidance on which specific factors are most critical. The self-determination theory helps to fill this gap by identifying the basic needs that are essential to the psychological well-being of individuals. The integration of the job demands–resources model with the self-determination theory in this study provides thus a general framework for understanding positive and negative job characteristics and identifies the core human needs that are vital to mental well-being.

Job Demands–Resources Model

The job demands–resources model explains how workplace factors affect employee well-being of employees (Alarcon, 2011). According to the model, each condition can be broadly classified as either a job demand or a job resource (Demerouti et al., 2001). Job demands refer to the physical, psychological, social or organizational aspects of the job that require sustained physical and/or psychological effort or skills and are therefore associated with psychological or physiological costs, such as work overload, time pressure, irregular working hours or

an unfavourable physical environment (Bakker & Demerouti, 2007). These job demands may tax an employee's resources when meeting the demands, require high effort and the employee fails to recover adequately. Job resources refer to the psychological, physical, social and organizational aspects of the job that are functional in achieving work goals, reduce job demands and the associated costs and/or stimulate personal growth, learning and development.

It is important to note that job demands are a normal, and arguably inevitable, part of work and are not necessarily problematic. Rather, it is the imbalance between demands and resources (i.e. high demands and low resources) that creates acute job stress and can lead to burn-out or ill-being if not corrected (Bakker & Demerouti, 2007). Therefore, job resources, which foster employee engagement and provide a buffer against the energy depletion caused by job demands, are a critical piece of the puzzle. According to Demerouti and Bakker (2011), job resources may be located at the macro, organizational level (e.g. salary, career opportunities and job security), the interpersonal level (e.g. supervisor and coworker support and team climate), the specific job position (e.g. role clarity and participation in decision-making) and at the level of the task (e.g. skill variety, task identity, task significance and autonomy and performance feedback).

Self-determination Theory

The self-determination theory by Ryan and Deci (2000), and more specifically the basic needs theory, conceptualizes certain psychological needs as essential for optimal functioning, growth and well-being. Three innate needs – competence, relatedness, and autonomy – drive goal-directed behaviours, and their satisfaction leads to increased intrinsic motivation, that is: engaging in activities without the presence of external rewards or constraints. Academic contexts that support PhD students' autonomy, competence and relatedness promote intrinsic motivation (Liu et al., 2014).

Competence refers to the feeling of success in one's endeavours, to experience mastery (Ryan & Deci, 2017) and PhD supervisors can support this need by providing academic support (i.e. for research techniques, academic writing, planning, etc.). Research shows that academic support is related to timely degree completion and satisfaction, and non-existent, little or poor academic support is related to dissatisfaction, longer completion times and dropout (Devos et al., 2015). Relatedness is about connecting with others, caring about others and feeling cared for (Ryan & Deci, 2017). Supervisors can fulfil this need by providing personal support (i.e. being friendly and understanding and reassuring in case of stress) which has been found to be related to PhD students' satisfaction. Conversely, supervisors' lack of interest is related to quit intentions and attrition. Autonomy concerns the experience of volition and freedom (Ryan & Deci, 2017), and to experience this need, autonomy support is necessary (i.e. giving the doctoral student space and opportunity to make his or her own choices, showing respect for his or her point of view and ideas). Perceived autonomy in the doctoral context is related to continuing the PhD, satisfaction and greater research self-efficacy (Mason, 2012).

The opposite, controlling behaviour, is perceived as negative (Devos et al., 2015). So the self-determination theory predicts that talent development is more likely to occur in environments that allow for autonomy and relatedness and affirm a sense of competence.

Taken together, research on the job demands–resources model and self-determination theory provide evidence that job demands are positively related to ill-being, whereas the satisfaction of core psychological needs serves a protective role against ill-being (Alarcon, 2011). Furthermore, supervisor autonomy support has been shown to foster the fulfilment of these core needs (Deci et al., 2001), thus helping to reduce ill-being.

Methods

Using the self-determination theory and the job demands–resources model as theoretical frameworks allowed me to explore the perceived job demands and resources, and motivations of a sample of PhD students in the Netherlands, in order to recommend adequate talent management measures.

To get a broad view of the different perspectives, I included students from all genders, different nationalities and from various fields of study, with different financial backgrounds (scholarship, employment at university, and external PhD students) and stages into their PhD. Specific selection criteria were the enrolment as a doctoral student in the Netherlands and the ability to speak either Dutch or English. The objective of this sampling strategy was to recruit PhD students who represent a broad spectrum of experiences and perceptions (Malterud, 2011). Ethical approval was obtained prior to the commencement of the study.

To recruit the PhD students, I emailed the graduate schools and PhD organizations of all Dutch universities, briefly informing them about the study and asking them to forward the participation request to their PhD students. Not all universities wanted to cooperate, due to a variety of reasons, including the 'sensitivity' of the subject or a dreaded overkill of research on this subject. Those PhD students who agreed to participate were invited to participate in an online interview via MSTeams. Participants received participant information sheets and consent forms prior to the interviews. In total, 25 semi-structured interviews were conducted in the second half of 2022 with 15 female, 9 male and 1 non-binary doctoral students from various universities and a variety of fields of research. A few days before the interview, the participants were asked to fill in an online questionnaire, measuring general well-being (using the General Health Questionnaire, see Goldberg, 1972), occupational burn-out (using the Maslach Burn-out Inventory, see Maslach & Jackson, 1981) and occupational bore-out (using the Work Bore-Out Scale, see Poirier et al., 2021). Table 5.1 shows an overview of the socio-demographic characteristics of the participants. During the interviews, the PhD students were encouraged to talk about concrete cases and incidents on the basis of anonymity, rather than in generalities. This allowed to describe a complex social phenomenon from the perspective of the people affected (Malterud, 2011).

Table 5.1. Socio-demographic Characteristics of Participants.

Gender	Female	15
	Male	9
	Non-binary	1
Age	20–24	1
	25–29	13
	30–34	10
	35–39	0
	40–44	1
Enrolled as PhD student	First year	8
	Second year	6
	Third year	2
	Fourth year	3
	Fifth year or more	6
Study field	Agricultural sciences	1
	Arts and humanities	3
	Behavioural and social sciences	7
	Law	2
	Medical and health sciences	3
	Natural sciences	4
	Technical sciences and engineering	5
University	Erasmus University Rotterdam	1
	Leiden University	3
	Radboud University Nijmegen	3
	Technical University of Eindhoven	2
	Twente University	2
	University of Amsterdam	7
	University of Groningen	1
	University of Utrecht	4
	VU Amsterdam	1
	Wageningen University	1
Main funding source	Employed at university	17
	Externally financed (scholarship)	3
	External PhD student	5

Results

Mental Health

The results of the questionnaires seem to confirm the mental health crisis in Dutch graduate education: of the 25 participants, 80% has at least two symptoms indicating psychological distress (poor concentration, sleeping problems, worrying and losing confidence), and 68% even has an increased risk of developing a psychiatric disorder (i.e. anxiety and depression). Nine respondents had 10 or 11 of the total 12 symptoms (36%), which means a very poor mental health. Only three respondents did not indicate any of the symptoms (12%).

Of the same respondents, only six participants had no significant risk of burn-out (24%). Eleven respondents suffered a moderate level of burn-out (44%), reporting, for example, poor concentration, headaches or irritability. Eight had scores that indicate a high level of burn-out (32%), reporting, for instance, persistent tiredness, procrastination or social withdrawal. One person even had the maximum score, indicating a severe burn-out, which means chronic sadness, social isolation, chronic mental or physical fatigue and/or the desire to 'drop out' (which can lead to suicidal tendencies).

In addition to burn-out, 36% of the interviewees suffered (sometimes at the same time) from a bore-out: 20% on a moderate level and 16% on a high level. The consequences of bore-out on mental health are about the same as those of burn-out. These numbers are quite alarming. Most previous research on PhD students focussed specifically on burn-out, but it seems that attention must also be paid to bore-out, as an underrated problem.

Job Demands Versus Resources

Looking at the job demands–resources model, I can point out some of the stressors that cause this ill-being, echoing earlier studies (Mackie & Bates, 2019; Schmidt & Hansson, 2018; Vilser et al., 2022). More than 85% of the participants stated that they do not feel rightly rewarded for their efforts. Almost all interviewees mentioned a number of work-related responsibilities (besides working on their thesis) and non-work-related tasks as major stressing demands. Regarding the latter, stress is mainly caused by social obligations, finding time for leisure activities, care work and household tasks (mainly for women) and coping with a relocation (mostly for internationals). One PhD student stated:

> I barely had one-to-one contact with my supervisor, and the contact we did have often took place outside the university, even outside working hours. The research department organised a lot of social activities and my supervisor is quite an extrovert, so she was often the linchpin of these events. I felt obliged to participate, firstly to get to speak to her about my research project, and secondly to make a good impression on her and the other faculty members. Sometimes events took place at her house and went on until the wee hours. If you weren't there, you missed out on things and weren't taken into account as a PhD student.

Even though this situation seems particular, other respondents also pointed out the importance of participating in social events for networking, improving one's position as a PhD student and future career development. PhD students also have to improve their network on a work-related level by attending lectures or conferences.

The other work-related duties that cause stress, and limit the time available for the actual PhD research, differ per PhD student (those who work at the university versus those working elsewhere). PhD students who work at a university describe tasks that are not directly related to their own PhD project as extra stressing demands, for example, helping others on their research, giving feedback or contributing to papers. One doctoral student stated:

> I started to get a lot of pressure from my supervisor to deliver results, but lab experiments take some days. So I was basically working Monday to Saturday in the lab, and then on Sunday analysing the results to present them on Monday morning. Some team members had left, so I was also finishing their experiments. I was delivering a lot of work, but not feeling that I was progressing myself, because I was just finishing experiments for other people.

Others feel like they have too many teaching or student supervision tasks: 'My contract says 10 percent teaching, but actually I am doing more than 20 percent. So this is an obstacle regarding my personal research project. The faculty is asking more of me than they should'. It seems that most PhD students work structural, unpaid overtime.

Doctoral students receiving a scholarship indicate that writing the interim reports is a major effort, and external PhD students who have a job outside of academia experience difficulty in balancing the time between the PhD project, job-related work and switching off properly during their free time. One PhD student stated:

> In theory, I would work on my project in the evenings and on weekends. In practice, I have a high-demanding law job, which means that I am working more than 60 hours a week, and I don't have any time for my research. So when I have a deadline and I have to deliver something, I cancel all social activities, because I need that time to read or to write on my PhD research.

Most PhD students interviewed feel that all these demands are not balanced by the resources. They believe that the interpersonal resources (mainly the relationship with the supervisor) should be improved. One doctoral student stated:

> I couldn't talk to my supervisor about my doubts. After the literature review, I found out that there was little reason to do this research and I came up with another idea, but discussing this was impossible. My supervisor started ignoring me and forced me to just do it. Our relationship was terrible, and I thought about dropping out.

Also, the organizational resources (salary, career opportunities and job security) are poorly rated:

> The pressure to say yes to all kinds of different tasks instead of working on your own research project, I think that is problematic. Especially regarding the low wages. To keep writing research proposals to raise money, the pressure to publish, fixed-term contracts: what the hell are we doing? Why do we do this? I'm too cynical to work in academia, so I'm not going for an academic career after my PhD.

Also on the task level, there is need for improvement:

> I would like to have more freedom to make my own choices. I sometimes give my opinion on things, but my supervisors usually push their vision. I am always getting the short end of the stick. Even though I think their feedback is not always relevant or constructive, I have to do what they say to make any progress.

The mismatch between demands and resources is causing a lot of stress for PhD students:

> My supervisors didn't help me enough in that first year to get my research project on track, so then at some point I just collapsed. I forgot my stuff, I was crying all the time, I couldn't put myself to work. So one day I called in sick. I had a burn-out, and it took me 1.5 years to come back.

Compared to private sector work, the university system seems less attractive, especially in terms of career promotion opportunities (low number of vacancies and demand for mobility), as well as job security (fixed-term contracts and scarce funds) and the work culture (competitive, pressure and lack of care). As one doctoral student put it:

> As a PhD student, you are at the bottom of the hierarchy, you are not really involved in the decision-making. That's actually good, because it's very hierarchical as you go up. So I don't feel like I belong in academia, it's a very competitive world. Lots of ass-kissing, favouritism, elbowing for the rare opportunities there are. I don't like that at all. It's not for me.

Basic Psychological Needs

When looking at the basic psychological needs that are required for optimal functioning, growth and well-being, following the self-determination theory, it seems that the needs of relatedness and autonomy are not being met in most cases. One

third of the interviewed PhD students feels isolated due to the individuality of the research project. Some do not feel at home at university, and there are certain barriers that obstruct the respondents from feeling that they belong to a larger community where they can find support. One PhD student stated:

> I was subtly left out by the other PhD students in our team. I've never had a fight or something, but people just ignored me. Of course, that hurts, and I didn't understand why. I felt really lonely, and I had no one to turn to within our research team.

Some of the respondents struggle with networking and exchanging experiences with their fellow PhD students because they have little to no contact with their institute. This is mainly the case for external doctoral students:

> My supervisor advised me to talk to peers to improve my project, but I don't know any other PhD students. And I don't know how I could meet them, since as an external PhD student I am excluded from participating in the events of the Graduate School.

On some levels, most of the respondents experience a lack of guidance, which makes them feel lost, especially in the first stages of their project (writing a proposal or a scholarship application, choosing methods and theoretical frameworks). But there is too little autonomy on other levels, mostly at the end of the process, which makes them frustrated. As one recent PhD graduate put it:

> When I now look at my dissertation, I see it's the work of the supervisors. They dictated a lot of the thesis, especially at the end. There was pressure to meet the requirements, the end date of my contract came closer. So I gave in, and it's now obviously their project, not mine.

Unsurprisingly, the hierarchical dependence on the supervisor is experienced by many as annoying, especially when the PhD student does not feel the space to express his or her own ideas. The peer-review process is also seen as troublesome and time-consuming, since most supervisors and dissertation committees let their PhD students wait for a long period of time. Some interviewees report struggling to incorporate the feedback as the expectations are too high, the feedback off-topic or too ambivalent. Both cases – too much or not enough autonomy – undermine the motivation of PhD students, causing a lower sense of well-being.

Most PhD students do feel capable of delivering a high-quality research project. The main issue almost all identify is the time period in which they are supposed to finish up: half of the interviewees do not feel like they have sufficient time to work on their PhD project, and they do not think they will complete it in time. Some say their PhD project is too complex, others that it simply is too ambitious. However, most feel like the project design itself is fine, but the planning too tight, given the extra tasks they have to fulfil. So, their basic need for competence seems to be met, but the stress factor hindering this is time:

> I am convinced that the PhD trajectory is actually intended to prepare you for an academic position, and that means that it must also give you the opportunity to develop all the skills that are required. It is practically impossible to do a research project in four years, teach on the side, work on your personal development as a scholar, and create the network that is needed to further your career.

Conclusion

The results of the questionnaires not only confirm the mental health crisis in Dutch graduate education but indicate an even more alarming situation than the existing studies already did: 80% of respondents in this study had two symptoms indicating psychological distress, compared to 66.5% in the PhD survey of the PNN, and 68% of respondents has an increased risk of developing a psychiatric disorder, compared to 47% in the PhD survey of the PNN. Although burn-out seems to be less prevalent (32% of respondents had scores that indicate a high level of burn-out, compared to 39% in the PhD survey of the PNN), bore-out appears to be a significant problem that has been largely overlooked in earlier studies.

It seems clear from the results of the interviews that most respondents experience their PhD project as high strain work: they have an extremely high workload (high demands), limited autonomy and not enough organizational resources, which leads to their high stress levels and eventually to burn-out. As a result, these PhD students do not feel like they have the space and time to develop their talents, although the work itself is challenging enough to learn new things. A minority of participants in this research experiences relatively low demands. This does not help the PhD students to develop their talents either and can lead to bore-out.

Discussion and Recommendations

Universities have a responsibility regarding their PhD students' mental health and well-being, since they make up the future talent pool for academia: appropriate interventions need to be deployed. Suggestions and practical implications to increase well-being were made in previous research. Some focus on the mental health of the PhD students; building resilience, teaching them to meditate, to think positively or to develop effective coping strategies (Creed et al., 2020). Others look at their physical health and advise organizing health labs or fitness classes (Haynes et al., 2012). Ideas to improve their feeling of relatedness include creating networking workshops or mentoring programmes with postdocs (Vilser et al., 2022), writer's groups (Beasy et al., 2020), support groups (Panayidou & Priest, 2021) that help PhD students to connect and exchange their experiences or peer coaching (Fried et al., 2019; Skaniakos & Piirainen, 2019). Mentoring programmes and support groups can also help to tackle work-related efforts, such as problems with time and project management, as well as

with the scientific approach of the project (Vilser et al., 2022). This improves the sense of competence of PhD students.

Most of these interventions are focussed on improving performance, thus continuing the current managerial model in academia, by strengthening knowledge and skills, and stimulating performance-oriented behaviour. They reinforce the up-or-out system, built on contract-based employment and performance-related promotion, in which only competitive PhD graduates with an emerging track record of publishing in leading journals are offered tenure-track positions (Heffernan, 2022). Universities seem to have an exclusive understanding of talent, focussing on the very few outstanding individuals who are provided with more developmental and promotion opportunities than the other employees (Meyers, 2016). The constant evaluation of productivity and production draws doctoral students into a 'winner takes all' race for status, making them – following the neoliberal logic – individually responsible for their career advancement and well-being (Berg & Seeber, 2016).

Given the high demands pursuing a PhD degree already puts on doctoral students, this up-or-out system is further undermining their well-being. It leads to work overload, a lack of recognition of their work and mental stress, and it is a sign of bad 'employership' on behalf of the universities. Therefore, universities should create a work environment in which high job demands are in balance with the job resources, and optimal learning and development are central. Resources should be increased and demands reduced, notably by offering better working conditions and constructive supervision, so that doctoral students experience less work stress, improving their well-being, which will of course have a positive influence on their research output as well.

Recommendations for Talent Management

Most of the above-mentioned interventions to increase the well-being of doctoral students are focussed on improving individual performance, thus continuing the current managerial model in academia, by strengthening knowledge and skills (including through training) and stimulating performance-oriented behaviour. But given the ill-being this causes, the functioning of PhD students could better be influenced applying a more collegial model, focussing on the enjoyment of their work (Boxall & Macky, 2009). The collegial model implies increasing the intrinsic motivation of PhD students and their involvement in the work and the organization, even though they are only temporarily employed at (or connected to) the university. This means that they have a say in the goals and the execution of their research, that they have the autonomy to realize this, that it is jointly evaluated whether these goals are achieved and that the work is arranged in such a way that it makes learning primal (Thunnissen & Bos, 2019).

Therefore, it is important to also look at the relationship between the PhD student and their supervisors, as previous research has done. Supervision is one of the key relationships in supporting PhD students to completion (Orellana et al., 2016). A supervisor's behaviour towards a PhD student has a direct effect on their performance, productivity, job satisfaction, motivation and engagement in the workplace

(Mathafena & Hewitt, 2018). There are potential well-being outcomes in supervisors validating their PhD students through effective feedback and social and emotional care (Collins, 2021). Part of this social care is the valuable role supervisors play as gatekeepers to wider research networks, which can further embed the feeling of relatedness (Douglas, 2020). So on an organizational level, supervisors and other responsible university staff need to get training on how to provide effective feedback to PhD students and how to coach them in their professional development, helping to create a good leadership culture.

Universities should also improve the working conditions. Doctoral students need more time, to work and to participate in professional training, to have contact with colleagues and to reflect (Ellström, 2001). A radical suggestion would be that universities free up funds for contract extensions, since the majority of Dutch PhD students need 5.1 years to complete their PhD (VSNU, 2019), even though 90% of employee-PhD students have a contract of four years or less (PNN, 2021). This way, PhD students can continue their PhD research, without being on unemployment benefits or having to take another job after their contract has ended.

In addition, more transparency is needed about the conditions of employment: universities often offer a contract for 1 or 1.5 years, with the prospect of an extension of 2, 2.5 or 3 years after a positive evaluation (PNN, 2021). Sometimes they offer a contract for one year with a possibility of renewal, without any further specification as to how long and under what conditions. This creates very opaque situations in which PhD students hardly know what they are getting into or where they stand after starting their research project. These precarious working conditions and a lack of long-term prospects affect the well-being of employees negatively (Rönnblad et al., 2019).

Dutch vacancies for PhD positions also lack transparency when it comes to the job demands. Only in a quarter of cases, it is clear whether a PhD student is expected to fulfil educational obligations (PNN, 2021). In practice, most PhD students (certainly PhD candidates employed by universities) are involved in higher education. Only half of all vacancies mention the existence of an evaluation moment (an evaluation that a PhD student usually has to pass positively, otherwise an employment contract is often unilaterally terminated prematurely). In addition, information about elementary conditions such as the applicable collective labour agreement, the salary and the scope of employment is often not indicated. Without this information, individuals cannot make a good career choice. On the contrary, transparent organizational communication fosters employee engagement, which leads to contextual performance behaviour and reduced turnover intention (Jiang & Shen, 2020).

Therefore, the engagement of PhD students within the organization is very important, considering them relevant stakeholders, not temporary staff members who are on the lowest rung of the scientific ladder. It is not enough for universities to focus on improving the resilience of individual doctoral students or to ameliorate the relationship with their supervisor: the working culture needs to change. A shift is required from the managerial model to the collegial model. Universities need to start investing in everyone's talents, also those of PhD students, and expand their focus beyond performance and output, creating a talent- and

learning-minded culture which supports creativity, open communications, effective knowledge management and is built on core values as respect and integrity (D'Annunzio-Green, 2008). Doctoral supervisors should prepare PhD students for a career outside of academia through professional development and career counselling (Dufty-Jones, 2017). Grounded in strength-based theories, which focus on a person's abilities rather than their limitations (Thunnissen & Bos, 2019), a differentiated approach is needed in which the individual value and excellence of PhD students are taken into account, offering customized talent development for everyone. An inclusive, differentiated talent policy makes it possible to respond to the specific qualities of each PhD student, improving their general well-being. This radical shift in talent management is urgently needed to counter the mental health crisis in doctoral studies.

Limitations of the Study and Recommendations for Further Research

The findings of the questionnaires and interviews are not representative of PhD students in general, due to the relatively small sampling method. The number of participants of different funding types (having a scholarship, employment at university or external employment) varied. It should also be considered that I only investigated the perspective of the PhD students while looking at job demands, resources and motivations. Perspectives of the supervisors, colleagues, family and friends are missing, although they have a great influence on the development of talent (Thunnissen & Bos, 2019). This focus on the individual is due to the fact that the theoretical frameworks are based on the individual. Future research should therefore compare perspectives of both PhD students and their social environment.

It is also important to mention that the interviews varied greatly in richness of detail, which is also mirrored in the time range of the interviews. This could be influenced by the satisfaction with the PhD trajectory (PhD students who are unhappy with the situation mention more challenges). As the participation in the interviews was voluntary, participation out of interest or discontent with the prevalent university system might have biased the results.

The temporal context of the study period should also be noted: most PhD students started or were conducting research during the Covid-19 pandemic, which affected their perception of job demands and resources (virtual lectures, home office and social distancing). This means the found effects may have been strengthened by the Covid-19 pandemic. However, even prior to the pandemic, precarity and ill-being of PhD students had already become an issue of public debate, and a major concern in the Netherlands and many other countries.

For further research, it would be interesting to see how the precarity of PhD positions undermines attempts to increase diversity in academia. Only those from privileged backgrounds can afford prolonged precarity. Women may be disproportionately affected, especially when they are considering having children. And to improve the bargaining power of PhD students, exact numbers of their research output and their part in teaching and supervising at university are needed. Further research should try to quantify their contribution, so that their importance

can no longer be minimized by university policymakers. Assuring and improving the quality of science and education should be a strong motivation to reduce the precarity of PhD positions.

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