

Engaged and/or burnt out? Finnish and South African doctoral students' experiences

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Abstract

Purpose – Doctoral students' ill-being in terms of stress, exhaustion and high levels of mental health problems has been well documented. Yet, the well-being of doctoral students is more than the absence of these negative symptoms. The number of studies exploring the combination of positive and negative attributes of doctoral students' well-being is limited. Therefore, this study aims to focus on exploring individual variation in doctoral students' experienced engagement and burnout across two distinct socio-cultural contexts in Finland and in South Africa.

Design/methodology/approach – A total of 884 doctoral students from Finland ($n = 391$) and South Africa ($n = 493$) responded to the cross-cultural Doctoral Experience Survey. The data were quantitatively analyzed.

Findings – Altogether four distinctive engagement–burnout profiles were detected, including engaged, engaged–exhausted, moderately engaged–burnout and burnout profiles. Differences between the Finnish and South African students were identified in profile emphasis. The profiles were also related to several study progress attributes such as drop-out intentions, time-to-candidacy and satisfaction with study.



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Originality/value – This study provides new understanding on doctoral students' well-being by focusing on both positive and negative attributes and exploring doctoral students' discrepant profiles with a cross-country design.

Keywords Doctoral students, Study engagement, Cross-country comparison, Study burnout, Study conditions, Study progress

Paper type Research paper

1. Introduction

Doctoral students' well-being in terms of stress, exhaustion and high levels of mental health problems compared to other academic employees have gained prominence as a central concern among policy makers, educational developers and researchers (Barry *et al.*, 2018; Van der Ven *et al.*, 2017). The well-being of doctoral students is, however, more than the absence of negative symptoms. Prior research on doctoral students' well-being, including our own (Corner *et al.*, 2019), have focused heavily on the negative attributes such as stress (Pappa *et al.*, 2020), depression (Levecque *et al.*, 2017; Peluso *et al.*, 2011), anxiety (Barry *et al.*, 2018; Liu *et al.*, 2019) or exhaustion (Hunter and Devine, 2016). The positive attributes of doctoral student well-being have been studied to a lesser extent (Barnes and Randall, 2012; Pyhältö *et al.*, 2019; Sverdlik *et al.*, 2018). There is a notable increase in small-scale qualitative studies (Vekkaila *et al.*, 2014; Corner *et al.*, 2019; Pappa *et al.*, 2020; Posselt, 2018) and variable-based survey studies (González-Romá *et al.*, 2006; Salmela-Aro and Upadhyaya, 2012; Schaufeli *et al.*, 2002a; Swords and Ellis, 2017) focusing on either negative or positive attributes of doctoral student well-being. Yet, the number of large-scale survey studies exploring the combination of positive and negative attributes of doctoral students' well-being, as well as studies exploring individual variation in such experiences, is particularly limited. This leaves us with an ill-informed understanding on students' individual support needs, and what it means to provide support and what kind of support will cultivate their well-being. In this study, we decided to address this gap by exploring individual variation in doctoral students' study engagement, and study burnout, in two distinctly different socio-cultural contexts, that of Finland and in South Africa. Students' study engagement (characterized by *vigor*, *dedication* and *absorption*) is seen as a hallmark of an optimal doctoral experience, while study burnout (comprising two main symptoms *exhaustion* and *cynicism*) is considered to present the opposite end. Such experiences play a major role in study progress in remaining resilient when facing challenges, and in doctoral degree completion. While study engagement has been associated, for instance, with the timely completion of doctoral studies, reduced drop-out intentions and reduced distress (Schaufeli *et al.*, 2002b; Stubb *et al.*, 2012; Humphrey *et al.*, 2012), study burnout is found to be related to an increased risk for suffering from mental disorders, prolonged studies and attrition (Stubb *et al.*, 2012; Ali *et al.*, 2007; Nagy *et al.*, 2019). Thus, study well-being that is realized in study burnout and study engagement can be considered as an important variable in the doctoral study experience. Though characterized by personal experience, neither study engagement nor study burnout is an individual trait. They are shown to change over the course of the degree, depending on student-programme dynamics (Stubb *et al.*, 2011). For instance, supervisory and researcher community support are reported to reduce the risk for suffering study burnout symptoms, including exhaustion and cynicism (Devine and Hunter, 2017; Corner *et al.*, 2019; Swords and Ellis, 2017). More recently, McAlpine *et al.* (2020) showed that a good balance between personal life and doctoral studies reduced the risk for suffering exhaustion and cynicism in doctoral studies (for similar findings, see also Levecque *et al.*, 2019). Sakurai *et al.* (2017) further pointed out that researcher community support, a positive

atmosphere and constructive advice based on shared expectations, contributed to overall levels of doctoral student study engagement. The findings imply that doctoral students' study engagement, as well as study burnout, can be either enhanced or diminished by the quality of the student-learning environment dynamics. Such dynamics exist across the nested contexts of doctoral education and hence can vary across individuals/programmes/disciplines, departments/faculties, universities and, it is argued, ultimately countries (Pyhältö *et al.*, 2019; McAlpine and Norton, 2006). Yet, our understanding of the influence of these contexts beyond the local is minimal (as also evidenced by Evans *et al.*, 2018; Posselt, 2018), and even less is known about individual variations in such experiences across countries. In this study, we focus on cross-national individual variation in doctoral student study engagement and study burnout at selected universities in Finland and South Africa. Both Finland and South Africa are seen as more peripheral within the broader global higher education landscape (Jöns and Hoyle, 2013). The choice of these two national contexts was both pragmatic (given the positionality of the researchers) and deliberate. While we acknowledge that doctoral education is imbedded into national and institutional contexts, cross-national studies (particularly those crossing the North–South divide) offer us an opportunity to study both socio-cultural determinants of the doctoral experience and invariants across countries. Studies of this nature are rare in doctoral education literature (Frick and Mouton, 2021), despite high-level campaigns for Africa–Europe knowledge partnerships (Kearney, 2012).

1.1 Doctoral students' study engagement and study burnout

An engaging doctoral experience is characterized by experiencing *vigor*, *dedication* and *absorption* (Vekkaila *et al.*, 2014; Bakker and Demerouti, 2008; Schaufeli *et al.*, 2002b). *Vigor* is characterized by feeling energetic and having high levels of mental resilience. *Dedication* is illustrated by having a sense of pride, inspiration, enthusiasm and perceiving doctoral studies as meaningful. *Absorption* refers to being fully concentrated and absorbed in the task at hand (Schaufeli *et al.*, 2002b; Vekkaila *et al.*, 2014). The dimensions are shown to be highly correlated, but separate constructs (Schaufeli *et al.*, 2002b). However, it has been proposed that student engagement is best illustrated with overall engagement with studies (Tuominen-Soini and Salmela-Aro, 2014). Engaging doctoral experiences is shown to be realized by immersion in research, a feeling of time passing quickly, strong psychological involvement in research, combined with a sense of significance, enthusiasm, inspiration, pride and challenge and high levels of energy, which result in several positive outcomes during doctoral studies (Pyhältö *et al.*, 2017; Vekkaila *et al.*, 2016; Shing and Jung, 2014). Experienced study engagement has, for instance, shown to be associated with more timely completion of doctoral studies, increased research productivity, more adaptive perceptions on writing and reduced drop-out intentions (Castello *et al.*, 2016; Ali *et al.*, 2007; Humphrey *et al.*, 2012). An engaging doctoral experience is shown to be characterized particularly by experiences of dedication, while experiencing of vigor and absorption is emphasized to a lesser extent (Vekkaila *et al.*, 2014). Experienced study engagement is not a stable construct, but can vary across the doctoral journey, individuals and socio-cultural contexts (as is explored in this study).

Unfortunately, doctoral education does not always provide optimal learning environments for cultivating doctoral students' engagement. In fact, the opposite is often true. There is ample evidence that globally doctoral students experience extensive stress during their studies (Peltonen *et al.*, 2017; Evans *et al.*, 2018; Pappa *et al.*, 2020; University of California, 2017). For instance, approximately 40% of doctoral students at the University of California (US) reported feeling under constant strain, while 30% reported feeling unhappy

(University of California, 2017). Equally, at the University of Berkeley (US), about a fourth of the doctoral students reported reduced levels of life satisfaction (The Graduate Assembly 2014). In The Netherlands, comparable high levels of anxiety experienced by doctoral students have been reported (Van der Weijden *et al.*, 2017). Similarly, many doctoral students in both Finland and South Africa are found to suffer from high levels of stress, exhaustion, prolonged studies, financial problems, insufficient supervision and poor integration to the researcher community (Stubb *et al.*, 2011; Peltonen *et al.*, 2017; Pyhältö *et al.*, 2009; Academy of Science of South Africa (ASSAf), 2010; Herman, 2011a, 2011b). In their study on Finnish doctoral students in medicine, humanities and behavioral sciences, Stubb *et al.* (2012) found that about half of the doctoral students in their study experienced their relationship with their scholarly community as a burden. In South Africa, Herman (2011a, 2011b) completed a somewhat finer grained analysis, where students perceived the main obstacles to timely doctoral completion that relate to the scholarly community as difficulties in communicating with academics (22% – interestingly, this percentage was higher for females than males); quality of supervision (20%); and interaction with other doctoral students (17%). These results imply that doctoral students have an increased risk for developing study burnout resulting from extensive prolonged stress (McAlpine *et al.*, 2020). To develop study burnout, the following are necessary: first, *exhaustion*, characterized by a lack of emotional energy, and feeling strained and tired at doctoral studies; second, *cynicism*, comprising losing interest in one's studies and feeling that it has lost its meaning (Peltonen *et al.*, 2017; Corner, 2020; see also Leiter, 1993; Maslach, 2003; Maslach and Leiter, 2008). In full-blown burnout, both symptoms are to a great extent experienced. Prior research on undergraduate students have shown that an individual student may systematically display either low, moderate or high levels of all burnout symptoms, or increased levels of just one symptom (Salmela-Aro and Read, 2017; Salmela-Aro and Upadhyaya, 2012), implying that doctoral students may also use consistent discrepant profiles in terms of study burnout.

In this study, individual variation in the combination of study burnout and engagement among doctoral students in two socio-cultural contexts are explored to build multidimensional and fine-graded understanding on their well-being. Combining such negative and positive attributes of doctoral students' well-being raises the question whether the constructs are interrelated. In the literature, two main approaches have been applied to address the question: the bipolar (Feldman Barrett and Russell, 1998; Maslach and Leiter, 2008) and the bivariate approach (Shirom, 2011; Shraga and Shirom, 2009; Larsen and McGraw, 2011) on burnout and engagement. While the bipolar approach posits that burnout and engagement are opposite ends of the same continuum, and hence cannot be simultaneously experienced, the bivariate approach presumes that the constructs present two distinct (yet related) dimensions of the individual's affective study-related experiences. Following this line of thought, a doctoral student might simultaneously experience, for example, cynicism toward the researcher community and vigor toward their doctoral research. Applying a person-centered approach to doctoral students' well-being in terms of burnout and engagement allows us to explore the question more closely.

1.2 Contextualization of the study

1.2.1 *Doctoral education in Finland.* Finland is among the European countries that have the highest rates of doctoral degree holders per capita (OECD, 2014). The Finnish doctoral education system can be characterized as highly research-oriented, recently developed and publicly funded (Andres *et al.*, 2015).

Finland has adopted a nationwide graduate school system since 2011. Now all doctoral students belong to a doctoral school in their university, as well as to one of the university's doctoral programmes. A doctoral dissertation can be written either as a monograph or a summary of articles. Most doctoral students conduct article-based doctoral theses, including three to four peer-reviewed published international articles and a summary (that includes an introduction and a discussion to bring the separate articles together as a cohesive whole). There are no tuition fees, but funding for doctoral studies is not automatically provided by universities, projects or foundations for the doctoral students. Despite taking a stance toward a more structured system, doctoral studies are still highly research-intensive rather than course-centered: doctoral studies include only minimal course work, and doctoral research is started at the very beginning of studies (Niemi *et al.*, 2011). The employment rate of doctoral degree holders is high at 95.6% and the majority (about 38%) of recent doctoral graduates work at universities in Finland (Sainio and Carver, 2016).

1.2.2 *Doctoral education in South Africa.* South Africa produces doctorates at a much lower rate than in Finland, but it is one of the highest producers of doctorates on the African continent (OECD, 2014; Cloete *et al.*, 2015). In South Africa, the doctoral education system is highly research-oriented, discipline-based and funded by a combination of government subsidies and student fees (Cloete *et al.*, 2015). In STEM fields, it is more common for doctoral students to work on funded projects and on a full-time basis than in the Humanities and Social Sciences where the majority of doctoral students study on a part-time basis, receive little or no financial support and are often self-funded. There is no national graduate school system. Doctoral dissertations follow a variety of formats, including both monographs, a summary of articles or various permutations of these formats (Odendaal and Frick, 2017). Although professional doctorates are now included in the South African Higher Education Qualifications Sub-framework (South Africa, 2014), programmes continue to be mainly by research only, with no credit bearing coursework.

Despite major societal differences between the countries, there are also many similarities such as having research-intensive doctoral degree structures, theses formats allowed (monograph versus summary of articles, though in practice, article-based dissertation is more common in Finland than in South Africa), being among the highest producers of doctoral degrees per capita on a continental scale, having full- and part-time students and displaying similar funding profiles for STEM and Humanities and Social Sciences doctoral students. Moreover, in terms of doctoral students' well-being, in both countries, doctoral students are found to suffer high levels of distress, exhaustion, prolonged studies, financial problems, insufficient supervision and poor integration to the researcher community (Stubb *et al.*, 2011; Pyhältö *et al.*, 2009; Academy of Science of South Africa (ASSAf), 2010; Herman, 2011a, 2011b), although the origins of the problems between the socio-cultural contexts may vary. Pyhältö *et al.* (2015) showed that 35%–45% of Finnish doctoral students had considered attrition, while Cloete *et al.* (2015) reported high actual attrition rates amongst doctoral students nationally (22% in the first year of study, and over seven years, less than half of candidates eventually graduate). In both countries, low levels of doctoral employment in private sector is an issue (Cloete *et al.*, 2015; Sainio and Carver, 2016). Hence, Finland and South Africa are different enough to make comparison interesting, but also have enough similarities to make it meaningful with regard to doctoral students' well-being.

2. Aim of the study

This study aims to gain a better understanding of the individual differences in experiences of study engagement and study burnout among doctoral students by analyzing study engagement–burnout profiles among Finnish and South African doctoral students.

Moreover, the differences between the study engagement–burnout profiles, in terms of satisfaction with the studies, drop-out intentions, time-to-candidacy, study status, research group status, dissertation format, country of origin and gender were examined. The following general hypotheses were formulated based on earlier research:

- H1. Bipolar and bivariate (Shirom, 2011; Maslach and Leiter, 2008) experienced study engagement and study burnout profiles can be detected (Sakurai *et al.*, 2017; Stubb *et al.*, 2011; Peltonen *et al.*, 2017).
- H2. Reduced levels of study progress attributes, including reduced satisfaction with studies, increased levels of drop-out intentions and longer time-to-candidacy is likely to be related with profiles with increased burnout (Barnes and Randall, 2012; Ali *et al.*, 2007; Humphrey *et al.*, 2012).
- H3. Gender, dissertation format, research group status and country of origin are likely to be associated to the profiles (Carter *et al.*, 2013; Evans *et al.*, 2018; Mason *et al.*, 2020; Pyhältö *et al.*, 2009).

3. Methods

3.1 Participants

Altogether, 884 doctoral students (61% women; 39% men; mean age 37 years) from Finland ($n = 391$) and South Africa ($n = 493$) from three (one from FI and two from SA) multidisciplinary research-intensive universities participated in the study (see Table 1). Participants ranged in age from under 25 to over 50 years; the majority (52%) of them had an age under 34 years. Most of the respondents (59%) studied full-time. A majority reported working mainly on their own (75%) and 47% were conducting article-based dissertation. A total of 36% had considered dropping out at some point. We did not attend to student

| Variables | Finland ($n = 391$) | | South Africa ($n = 493$) | |
|--|--------------------------|-----------|-------------------------------|-----------|
| | <i>N</i> | (%) | <i>N</i> | (%) |
| <i>Research group status</i> | | | | |
| Mainly on my own | 259 | 67.1 | 384 | 80.5 |
| Mainly in a research team or teams | 26 | 6.7 | 20 | 4.2 |
| As much on my own as in a research team or on my own teams | 101 | 26.2 | 73 | 15.3 |
| <i>Drop-out intentions</i> | | | | |
| Yes | 136 | 35.3 | 177 | 36.5 |
| No | 249 | 64.7 | 308 | 64.7 |
| <i>Form of dissertation</i> | | | | |
| Monograph | 88 | 23.2 | 344 | 72.0 |
| Summary of articles | 267 | 70.4 | 134 | 28.0 |
| I don't know | 24 | 6.3 | 0 | 0.0 |
| <i>Study status</i> | | | | |
| Full-time | 207 | 52.9 | 305 | 61.9 |
| Part-time | 174 | 44.5 | 181 | 36.7 |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| <i>Time-to-candidacy (years)</i> | 5.69 | 2.66 | 3.60 | 1.51 |

Table 1. Participants' research group status, expected time to candidacy, drop-out intentions, study status and time-to-candidacy

nationality because we suspect in the two countries a range of cultural-national perspectives are in play.

The purpose of the study was explained to all participants. It was emphasized that participation was voluntary. The study was initiated and carried out in close co-operation with the administration of the graduate schools of the universities in question. This co-operation included, among other things, several reviews of the research protocol by the university administration. In both countries, the participants gave their consent to participate according to the research ethics clearance procedures in the respective jurisdictions.

3.2 Measures

The data were collected by e-mail through an online survey in 2016 and 2017, from both Finnish and South African doctoral students. The *Cross-Country-Doctoral Experience* survey (prior versions; Pyhältö *et al.*, 2009, 2015) was used. The survey was available in Finnish and English. In this study, we use data from the *research engagement scale* (total 9 items) measuring dedication, vigor and absorption experienced in research work and, *experienced study burnout* (total 11 items), including *exhaustion* (6 items) and *cynicism*

| Scales | Factor 1 | Factor 2 |
|---|----------|----------|
| <i>Research engagement</i> (one-factor solution*, KMO = 0.93; Bartlett's test, $p < 0.001$) | | |
| F1: Engagement (9 items; eigenvalue = 6.03; alpha = 0.94) | | |
| I am enthusiastic about my doctoral research | 0.88 | |
| My doctoral research inspires me | 0.87 | |
| When doing my doctoral research, I feel vigorous | 0.86 | |
| I feel happy when I start working on my doctoral research | 0.85 | |
| I find the doctoral research that I do full of meaning | 0.81 | |
| When I conduct my doctoral research, I feel that I am bursting with energy | 0.78 | |
| Time flies when I'm doing my doctoral research | 0.69 | |
| I am immersed in my doctoral research | 0.63 | |
| When I am doing my doctoral research, I forget everything else around me | | |
| Burnout (two-factor solution*, KMO = 0.89, Bartlett's test, $p < 0.001$) | | |
| F1: <i>Exhaustion</i> (6 items, eigenvalue = 5.22, alpha = 0.84) | | |
| I feel burned out | 0.78 | |
| I often sleep badly because of matters related to my doctoral research | 0.78 | |
| The pressure of my doctoral dissertation causes me problems in my close relationships with others | 0.75 | |
| I brood over matters related to doctoral research a lot during my free time | 0.63 | |
| I feel overwhelmed by the workload of my doctoral research | 0.35 | |
| I often have feelings of inadequacy in my doctoral research | | |
| F2: <i>Cynicism</i> (4 items, eigenvalue = 1.67, alpha = 0.87) | | |
| I feel my doctoral dissertation is useless | | 0.92 |
| I have difficulties in finding any meaning to my doctoral dissertation | | 0.92 |
| I feel that I am losing interest in my doctoral research | | 0.77 |
| I used to have higher expectations of my doctoral research than I do now | | 0.50 |
| I often feel that I fail at my doctoral research | | 0.45 |

Note: *ML factoring with Promax rotation was used

Table 2.
Scales, items and
alpha values

(5 items) and *satisfaction with doctoral studies* (1 item) (Pyhältö, et al., 2015; Sakurai et al., 2017; see Table 2). The research engagement scale draws on the original study engagement inventory (Bakker et al., 2008; Salmela-Aro and Upadaya 2012), and the series of qualitative studies on doctoral students' engagement (Stubb et al., 2012; Vekkaila et al., 2014; Vekkaila et al., 2016) while the study burnout scale draws on the burnout-inventory originally developed by Maslach and Jackson (1981) which was adapted for doctoral students. All the scales were measured using a seven-point scale (1 = unsatisfied/strongly disagree, 7 = completely satisfied/fully agree). Over the ten years, the C-DES survey has been validated across seven European countries prior to the data collection (see Pyhältö et al., 2018) in South Africa. Before the data collection in South Africa, a native South-African senior researcher (one of the co-authors) reviewed the survey for culturally appropriate wording, and the survey was piloted with small sample of South African doctoral students. Only minor adaptations for the background questions were made. During the preliminary stage of data analysis, we also performed a series of exploratory factor analysis for both sub-samples separately and observed factorial structures very similar to each other and to the structures observed in previous studies using the same survey.

In addition, *drop-out intentions* (one item: yes/no), *research groups status* (alone/in a group/both), time-to candidacy (starting year versus estimated graduation), gender (female/male), dissertation format (monograph/article-based dissertation), study status (full-time/part-time studies) and country (FI/SA) were explored. It took 15–20 min to complete the survey.

3.3 Analysis

After screening for outliers and normality, we conducted a series of exploratory factor analysis (EFA) using ML extraction and both varimax and direct oblimin rotations to determine the underlying structure of the variables measuring research engagement and experienced study burnout. Results suggested that one factor solution for research engagement scale should be retained. As for the experienced study burnout scale, the results of EFAs indicated that two factors, cynicism and exhaustion, should be retained.

To examine doctoral students' engagement and burnout profiles, we performed a series of K-means cluster analyses using research engagement and cynicism and exhaustion scale/subscale scores as constituting dimensions were performed. Two-, three- and four cluster solutions were tested and evaluated based on both statistical criteria and the interpretability of the results. Based on this, a four-cluster solution was selected. Repeating the same procedure using Finnish and South African sub-samples separately gave practically the same results. Fisher analysis of variance and Gabriel's and Games–Howell's test were performed to investigate the differences between profiles on satisfaction with studies and time-to-candidacy. Chi-square test along with Cramer's V were used to examine the differences between the profiles on gender, dissertation format, research group status and country of origin. Differences between the profiles were further examined with post hoc Chi-square tests with Bonferroni correction.

4. Results

4.1 Doctoral student profiles

Four distinctive student profiles were detected (see Figure 1.). The first one culled from our analysis was the *Engaged* profile. The students displaying an engaged profile experienced high levels of vigor, dedicational and absorption, combined with low levels of experienced exhaustion and cynicism toward the studies. It was the most common profile among the doctoral students, with a 36.9% ($n = 326$) sample share. The second profile, the *Engaged–*

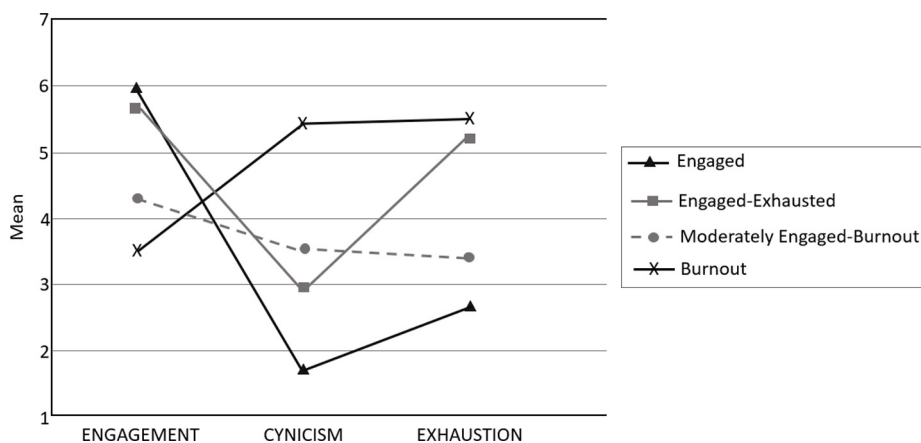


Figure 1.
Doctoral students’
study engagement–
burnout profiles

exhausted profile, presented a quarter (24.3%, $n = 215$) of the doctoral students in the sample. The engaged–exhausted profile holders displayed relatively high levels of both engagement and exhaustion, while suffering only moderate levels of cynicism. The third profile resulting from our analysis was a *Moderately engaged–burnout* profile. Doctoral students displaying this profile (21.9%, $n = 194$) reported moderate levels of engagement, exhaustion and cynicism. A minority of the students displayed a *Burnout* profile (16.9%, $n = 149$). The students of this profile displayed high levels of both exhaustion and cynicism, combined with a moderate level of engagement. Accordingly, the results support our *H1* with distinct clusters of experienced engagement and burnout profiles visible.

4.2 Relation of profiles and satisfaction with studies, time-to-candidacy and drop-out intentions

One-way ANOVAs were performed to identify the differences in satisfaction with studies and time-to-candidacy between the profiles. The result revealed significant differences between the groups on both variables (see Table 3).

Pairwise comparisons done with Gabriel’s test indicated that the differences in the profiles’ display of satisfaction with studies appeared between engaged and engaged–exhausted profile holders ($p < 0.001$, $d = 0.46$), between group engaged and moderately engaged–burnout profiles ($p < 0.001$, $d = 0.87$), between group engaged and burnout profiles ($p < 0.001$, $d = 1.70$), between group engaged–exhausted and moderately engaged–burnout profiles ($p > 0.01$, $d = 0.35$), between engaged–exhausted and burnout profiles ($p < 0.001$,

| Variables | Engaged ($n = 326$) | | Engaged– exhausted ($n = 215$) | | Moderately engaged–burnout ($n = 194$) | | Burnout ($n = 149$) | | F |
|---------------------------|--------------------------|------|--|------|--|------|--------------------------|------|-----------|
| | M | SD | M | SD | M | SD | M | SD | |
| Satisfaction with studies | 5.43 | 1.28 | 4.83 | 1.37 | 4.39 | 1.12 | 3.20 | 1.35 | 107.27*** |
| Time-to-candidacy | 4.27 | 2.29 | 4.35 | 2.22 | 4.94 | 2.33 | 4.64 | 2.47 | 3.20* |

Table 3.
Means and standard
deviations of the
profiles on
satisfaction with
studies and time-to-
candidacy

Notes: * $p < 0.05$; *** $p < 0.001$

$d = 1.20$) as well as between those students who displayed moderately engaged–burnout and burnout profiles ($p > 0.001$, $d = 0.96$). Overall, the comparison consistently showed that experiences of higher levels of engagement and displaying fewer burnout symptoms were related to higher levels of satisfaction with the studies. As for time-to-candidacy, the Games–Howell test revealed that the differences occurred between the engaged and moderately engaged–burnout profile groups ($p < 0.05$, $d = 0.29$). Engaged profile holders reported slightly shorter time-to-candidacy compared to those who displayed the moderately engaged–burnout profile.

A Chi-square test along with Cramer’s V and a series of post hoc Chi-square tests with Bonferroni correction was performed to detect the differences between profiles in drop-out intentions. The distributions of the profiles and the results of the test are presented in [Table 4](#).

[Table 4](#) shows that the more engaged ($\chi^2(1)=9.89$, $p < 0.001$) the doctoral students were, the less they harbored drop-out intentions, and the members of the burnout profile had considered dropping out more often than the members of other profiles ($\chi^2(1)=11.23$, $p < 0.001$). The results supported $H2$ by showing that doctoral students’ profiles differ from each other in terms of satisfaction with studies, time-to-candidacy, drop-out intentions and time-to-candidacy.

4.3 Relation of profiles and gender, dissertation format, country of origin, study status and research group status

We used a Chi-square test along with Kramer’s V and further Chi-square post hoc tests with Bonferroni correction to examine the relation between profiles and gender, dissertation format, research group status and country of origin. We found no statistically significant differences between the profiles on research group status (see distribution in [Table 1](#)). However, the profiles were related to gender, dissertation format, research group status and country of origin. The distributions of the profiles and the results of the tests resulting in statistically significant differences are presented in [Table 5](#).

As indicated in [Table 5](#), females were more typically engaged in their doctoral studies ($\chi^2 = 7.14$, $p < 0.05$), but also suffer more probably from study burnout than males ($\chi^2(1) = 12.60$, $p < 0.01$). Students preparing a monograph were slightly over-represented ($\chi^2(1) = 12.98$, $p < 0.01$) in the engaged–exhausted profile, but at the same time, they were under-represented ($\chi^2(1)14.23$, $p < 0.01$) in the moderately engaged–burnout profile.

South African students constituted a clear majority of the engaged–exhausted profile ($\chi^2(1) = 40.06$, $p < 0.001$) and burnout profile ($\chi^2(1)=10.49$, $p < 0.01$), whereas in

| Profile | Drop-out intentions | |
|---|-------------------------------------|------------------------------------|
| | Yes | No |
| Engaged ($n = 318$) | $n_o = 47$, $n_e = 114$ (14.8%) | $n_o = 271$ $n_e = 204$ (85.2%) |
| Engaged–exhausted ($n = 212$) | $n_o = 78$, $n_e = 76$ (36.8%) | $n_o = 134$ $n_e = 136$ (63.2%) |
| Moderately engaged–burnout ($n = 192$) | $n_o = 75$, $n_e = 69$ (39.1%) | $n_o = 117$ $n_e = 123$ (60.9%) |
| Burnout ($n = 148$) | $n_o = 113$, $n_e = 53$ (53.2%) | $n_o = 35$ $n_e = 95$ (23.6%) |

Table 4.
Drop-out intentions
by profile

Notes: n_o : observed count; n_e : expected count; $\chi^2(3, 870) = 167.63$, $p < 0.001$, Cramer’s V = 0.44

| Profile | Gender | |
|---|---|---|
| | Male | Female |
| Engaged (<i>n</i> = 318) | <i>n</i> _o = 144, <i>n</i> _e = 126 (45.1%) | <i>n</i> _o = 175, <i>n</i> _e = 55 (54.9%) |
| Engaged–exhausted (<i>n</i> = 212) | <i>n</i> _o = 83, <i>n</i> _e = 83 (39.5%) | <i>n</i> _o = 127, <i>n</i> _e = 127 (60.5%) |
| Moderately engaged–burnout (<i>n</i> = 192) | <i>n</i> _o = 75, <i>n</i> _e = 75 (39.5%) | <i>n</i> _o = 115, <i>n</i> _e = 115 (60.5%) |
| Burnout (<i>n</i> = 148) | <i>n</i> _o = 39, <i>n</i> _e = 58 (26.4%) | <i>n</i> _o = 109, <i>n</i> _e = 90 (89.8%) |

$\chi^2(3, 870) = 14.97, p < 0.01$, Cramer's *V* = 0.13

| Profile | Thesis format | | |
|---|---|---|---|
| | Monograph | Summary of articles | I don't know |
| Engaged (<i>n</i> = 318) | <i>n</i> _o = 151, <i>n</i> _e = 159 (47.8%) | <i>n</i> _o = 158, <i>n</i> _e = 148 (50.0%) | <i>n</i> _o = 7, <i>n</i> _e = 9 (2.2%) |
| Engaged–exhausted (<i>n</i> = 212) | <i>n</i> _o = 128, <i>n</i> _e = 105 (61.2%) | <i>n</i> _o = 78, <i>n</i> _e = 98 (37.3%) | <i>n</i> _o = 3, <i>n</i> _e = 6 (1.4%) |
| Moderately engaged–burnout (<i>n</i> = 192) | <i>n</i> _o = 71, <i>n</i> _e = 94 (38.2%) | <i>n</i> _o = 109, <i>n</i> _e = 87 (58.6%) | <i>n</i> _o = 6, <i>n</i> _e = 5 (3.2) |
| Burnout (<i>n</i> = 148) | <i>n</i> _o = 82, <i>n</i> _e = 74 (56.2%) | <i>n</i> _o = 56, <i>n</i> _e = 401 (38.4%) | <i>n</i> _o = 8, <i>n</i> _e = 24 (5.5%) |

$\chi^2(6, 857) = 29.89, p < 0.001$, Cramer's *V* = 0.13

| Profile | Country of origin | |
|---|---|---|
| | Finland | South Africa |
| Engaged (<i>n</i> = 318) | <i>n</i> _o = 157, <i>n</i> _e = 144 (48.2%) | <i>n</i> _o = 169, <i>n</i> _e = 182 (51.8%) |
| Engaged–exhausted (<i>n</i> = 212) | <i>n</i> _o = 55, <i>n</i> _e = 95 (25.6%) | <i>n</i> _o = 160, <i>n</i> _e = 120 (74.4%) |
| Moderately engaged–burnout (<i>n</i> = 192) | <i>n</i> _o = 131, <i>n</i> _e = 86 (67.5%) | <i>n</i> _o = 63, <i>n</i> _e = 108 (32.5%) |
| Burnout (<i>n</i> = 148) | <i>n</i> _o = 48, <i>n</i> _e = 66 (32.2%) | <i>n</i> _o = 101, <i>n</i> _e = 83 (67.8%) |

$\chi^2(3, 884) = 87.75, p < 0.001$, Cramer's *V* = 0.31

| Profile | Study status | |
|---|---|---|
| | Full-time | Part-time |
| Engaged (<i>n</i> = 319) | <i>n</i> _o = 175, <i>n</i> _e = 188 (54.9%) | <i>n</i> _o = 144, <i>n</i> _e = 131 (45.1%) |
| Engaged–exhausted (<i>n</i> = 212) | <i>n</i> _o = 130, <i>n</i> _e = 125 (61.3%) | <i>n</i> _o = 82, <i>n</i> _e = 87 (38.7) |
| Moderately engaged–burnout (<i>n</i> = 192) | <i>n</i> _o = 101, <i>n</i> _e = 113 (52.9%) | <i>n</i> _o = 90, <i>n</i> _e = 78 (47.1%) |
| Burnout (<i>n</i> = 148) | <i>n</i> _o = 106, <i>n</i> _e = 86 (73.1%) | <i>n</i> _o = 39, <i>n</i> _e = 59 (26.9%) |

$\chi^2(3, 867) = 17.62, p < 0.001$, Cramer's *V* = 0.14

Table 5.
Gender, thesis
format, country of
origin and study
status by profile

Notes: *n*_o = observed count; *n*_e = expected count

the Finnish sample, students were a minority in the moderately engaged–burnout profile ($\chi^2(1) = 54.67, p < 0.001$). Doctoral students with a full-time study status were slightly over-represented ($\chi^2(1) = 40.06, p < 0.001$) in the burnout profile. With, perhaps, the exception of research group status, the results support our hypothesis that

gender, dissertation format, research group status, country of origin and study status were likely to be associated to the profiles.

5. Discussion

5.1 Limitations of the study and suggestions for further study

While our study supported some of the other research linked to doctoral students' experiences of burnout and engagement, it shared certain methodological shortcomings common to the field. The cross-sectional design and the use of observational data imply that it is not possible to discern causal relationships. The causal relationships of interest are to identify variables that impact on study progress via doctoral student well-being (that was measured in this paper by engagement–burnout profiles). However, one of the strengths of our study was that the measures used for engagement and burnout functioned across these socio-cultural contexts (i.e. similar profiles were detected in both contexts though the emphasis between them were different). This could be attributed to two factors: first, the measures used draw on a long line of theoretically grounded research on doctoral student well-being across the varied contexts and disciplines, and second, careful piloting conducted by a researcher expert in the topic, familiar with the context and having good access to the given university. Yet, one should be careful in making conclusions about the reasons contributing to the profiles, which might be more socio-culturally embedded, particularly with regard to personal–doctoral experience interactions. Accordingly, further (qualitative) studies are needed to gain better understanding on factors contributing to doctoral student well-being.

The gold standard for investigating causal relationships is a randomized experiment. The following variables, explored in this study, are possible candidates for use as treatment if it was possible to allocate doctoral students to treatment or control groups at random: allocating students to a research group or not; allocating students to a specific dissertation format; allocating students to a specific country of study; and allocating students to either full-time or part-time studies. Experiments with people are difficult to arrange in real life and thus future studies will likely have to rely on quasi-experimental designs. We recommend creative natural experiments (where the variables mentioned vary between contexts because of external influences) and, especially, matched sampling techniques as a start.

5.2 Findings in the light of previous literature

The literature cited above highlights the prevalence of doctoral student stress and burnout, whilst emphasizing the importance of student engagement as a means of counteracting these negative experiences. Our study explored doctoral students' well-being profiles in terms of experienced study engagements and study burnout in three research-intensive multidisciplinary universities in two distinctly different socio-cultural contexts (in Finland and in South Africa). To the best of the authors' knowledge, this is the first study exploring doctoral students' discrepant profiles with a cross-country design.

We detected four burnout–engagement profiles, including engaged, engaged–exhausted, moderately engaged–burnout and burnout profiles among the respondents. The same profiles emerged when we used the national sub-samples separately. The most dominant doctoral student well-being profile was the engaged student profile. Over a third of the participants displayed the profile. It can be presumed that students with the engaged–exhausted profile were highly committed to their doctoral studies, but at the same time overwhelmed by the workload/task, resulting in their experience of exhaustion, but not yet experiencing cynicism. The students with the moderately engaged–burnout profile were

already showing reduced levels of engagement and moderate levels of both exhaustion and cynicism. Burnout is suggested to develop gradually, typically proceeding from exhaustion to cynicism (Leiter, 1993). Accordingly, the students entertaining these profiles have an increased risk for developing burnout, but the moderately engaged–burnout profile holders are experiencing more advanced stages of the symptoms. The existence of such profiles also suggests that experiencing study engagement and study burnout symptoms are not exclusive but can co-exist as part of the individual doctoral experience. It can at least be speculated that highly engaged doctoral students are also more likely to experience exhaustion because of their high investment in their studies. Accordingly, our findings on the profiles supported the bivariate model (Shirom, 2011) on burnout–engagement relationship by suggesting that experiences of engagement and burnout can at least to some extent co-exist among doctoral students.

Moreover, the result implies that experiences of study well-being is at least partly situated and dependent on the activity at hand, i.e. for instance, while doctoral students may be highly engaged in their doctoral research, they may simultaneously experience cynicism toward the research community because of a lack of recognition. Almost one-fifth of the students displayed a burnout profile characterized by a combination of reduced engagement and high levels of exhaustion and cynicism. The finding is in line with the previous research on doctoral students' well-being, suggesting that doctoral students suffer from elevated levels of distress and negative mental stages (Barry *et al.*, 2018; Evans *et al.*, 2018; Levecque *et al.*, 2017).

The profiles were emphasized differently depending on their country of origin: Finnish students experienced more engagement and suffered less self-reported burnout than their South African counterparts. The fact that similar profiles of study well-being (though with different emphasis) were detected in two countries implies that the profiles are invariant while the number of students displaying the different profiles is determined by the socio-cultural attributes. While we can only speculate on the possible reasons for the lower self-reported levels of experienced study well-being among the South African doctoral students, there are some possible contextual factors that can be considered in providing a tentative explanation. The students may be experiencing more distress because of financial obligations; pressure caused by limited time to complete the degree; insufficient supervisory capacity resulting in less-than-ideal supervisory practices; and the lack of a co-ordinated national graduate school system (as is the case in Finland) may all increase the student burnout. The detailed report on the doctoral context in Cloete *et al.* (2015) serves to substantiate this possible explanation.

The profiles detected were associated with several study progress-related attributes, including satisfaction with studies, drop-out intentions and time-to-candidacy. Overall, showing higher levels of engagement and suffering less on exhaustion and cynicism were associated with more timely completion, lower risk for dropping out from studies and higher levels of satisfaction with the studies. This implies that experience study well-being is associated with the doctoral study progress, which is in line with the results of previous studies on the interrelation between the doctoral students' study well-being and the progress (Sverdlik *et al.*, 2018). The profiles were also related with the gender and the dissertation format. Females reported both higher levels of engagement and burnout (a finding similar to that of Evans *et al.*, 2018). A speculative reason for increased levels of burnout might be that some women found it harder to find work–life balance because of family duties than males did (McAlpine *et al.*, 2020). Moreover, those conducting article-based dissertations were less likely to suffer from burnout symptoms. A reason for this might be that the articles are often co-authored, which provides more writing support and integration in the research community. This kind of cognitive apprenticeship may normalize the stressors and challenges inherent to academic practice while offering support and mentoring to deal with

these issues (Posselt, 2018). In addition, articles constitute rewarding milestones in long and demanding doctoral journey (Hakkarainen *et al.*, 2014), which may reduce risk for developing burnout.

5.3 Educational implications

The results showed that investing in buffering study burnout and in promoting study engagement to enhance doctoral students' progress is probably beneficial for doctoral student progress (as is also suggested by Eisenberg *et al.*, 2016 and Posselt, 2018). Interestingly, our results also suggested that writing article-based dissertations might be more beneficial with regard to doctoral student well-being compared to writing a monograph, which has not been reported elsewhere in the literature. Our results imply that such means should be individually engineered, because of the varied student profiles. Accordingly, the first step in developing institutional support system for the doctoral student study well-being is to carry out the research-based diagnosis on student populations. Such information allows designing more well-fitted means for promoting it in an evidence-based manner, rather than a one-size-fits-all approach within institutions and across academic levels (Eisenberg *et al.*, 2016). Moreover, effects of such efforts should be frequently evaluated, to identify and cultivate the most appropriate means to support doctoral students.

It is also important to acknowledge that doctoral students' study well-being is not unidimensional. For example, a student can simultaneously experience high levels of engagement and exhaustion depending on the context and task at hand. This means that not only the stressor and sources of engagement can vary, but also the different forms of burdening can co-exist with positive or even optimal mental stages such as engagement. Accordingly, the means for promoting doctoral students' well-being needs to be considered as well. For example, cynicism toward the research community caused by a lack of recognition cannot be fixed by reducing workload, while it is likely to be effective in reducing exhaustion caused by it. This means that in addition to developing different strategies for supporting the students, it is important to recognize and use different sources of such support ranging from students themselves to institutional policies and systems.

Our cross-national study has enabled us to consider socio-cultural determinants of the doctoral experience, as well as invariants across the two countries represented in our sample. We would agree with Evans *et al.* (2018) and Posselt (2018) that support from the academic community (including peers and supervisors) may improve engagement and alleviate the negative stressors associated with doctoral student burnout. Our data furthermore highlighted the need to consider gender as a key variable in developing fit-for-purpose support policies and practices in both national contexts. The extent and format of doctoral support may furthermore vary between individual students and across disciplines and institutions.

Our data suggests that the Finnish policy and practice mechanisms of establishing graduate schools and promoting publication-based dissertations are examples of best practice that could also increase support of South African doctoral students with the aim of increasing their engagement and decreasing burnout. How South African institutions are dealing with a high level of doctoral student diversity might in future be a useful case study for the Finnish institutions to consider as their doctoral population diversifies in line with increased institutional internationalization and more general population trends in the country.

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