



# Profiles of doctoral students' experience of ethics in supervision: an inter-country comparison

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Accepted: 17 August 2022 / Published online: 24 August 2022  
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## Abstract

The purpose of this study was to examine variation in doctoral students' experiences of ethics in doctoral supervision and how these experiences are related to research engagement, burnout, satisfaction, and intending to discontinue PhD studies. Data were collected from 860 doctoral students in Finland, Estonia, and South Africa. Four distinct profiles of ethics experience in doctoral supervision were identified, namely students puzzled by the supervision relationship, strugglers in the ethical landscape, seekers of ethical allies, and students with ethically trouble-free experiences. The results show that the profiles were related to research engagement, satisfaction with supervision and studies, and burnout. Not experiencing any major ethical problems in supervision was associated with experiencing higher engagement and satisfaction with supervision and doctoral studies and low levels of exhaustion and cynicism. Similar profiles were identified across the countries, yet with different emphases. Both Estonian and South African PhD students were overrepresented in the profile of students with ethically trouble-free experiences, while the Finnish students were underrepresented in this profile. The Finnish PhD students were overrepresented among the seekers of ethical allies. Profiles provide information that can alert supervisors and administrators about the extent of the risk of burnout or discontinuing of PhD studies based on students' negative experiences of the ethics in supervision.

**Keywords** Ethics in supervision · Engagement · Burnout · Doctoral studies · PhD · Doctoral students · Doctoral supervision

## Introduction

Supervision calls for pedagogical considerations of ethics as practiced in the student-supervisor relationship (Halse & Bansel, 2012). We have previously shown that Finnish PhD students' experiences of ethics in supervision predict research engagement, satisfaction with doctoral studies and supervision, burnout, and intentions to discontinue studies (Löfström & Pyhältö, 2020). This indicates that sustainable experiences of ethics in the supervision relationship may not only provide a buffer against attrition (Cloete et al., 2015)

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and mental health problems documented in the literature on PhD students (Levecque et al., 2017; Reevy & Deason, 2014) but could provide a resource allowing doctoral students to flourish (Shin & Jung, 2014; Vekkaila et al., 2018). In turn, negative experiences related to ethics in supervision may increase the risk of burnout and dropping out from doctoral studies (Jacobsson & Gillström, 2006). However, not much research is available on how doctoral students differ in their experiences of ethics in supervision and how these differences contribute to their research engagement, satisfaction, burnout, and intentions of discontinuing PhD studies. Even less is known about the variation in such experiences across different sociocultural contexts of doctoral education. This study provides insight into how doctoral students differ in their experiences of ethics in supervision and how these differences contribute to their research engagement, satisfaction, burnout, and discontinuing PhD studies and identifies variation in three distinct sociocultural contexts.

## Theoretical underpinnings

### Ethics in supervision

Ethics in supervision consist of components of normative principles about acceptable and nonacceptable behavior (ethics) and values that are essential in everyday practices, such as honesty and transparency (integrity) (Jordan, 2013). Here, we use the term *ethics in supervision* to encompass both dimensions in doctoral supervision. Supervision includes both expectations regarding moral positions and acting on those positions. Questions of ethics and integrity are simultaneously present in expectations regarding how research ought to be carried out and how the relationship between a supervisor and a doctoral candidate is construed. We operationalized ethics in supervision through a set of principles familiar from codes of conduct for researchers, such as the *Singapore Statement* (World Conferences on Research Integrity, 2010), and the *European Code of Conduct for Research Integrity* (ALLEA, 2017), and research ethics guidelines, such as the *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical & Behavioral Research, 1979) and the *Declaration of Helsinki* (World Medical Association WMA, 2013), to name a few. These principles include *respect for autonomy*, *beneficence*, *non-maleficence*, *justice*, and *fidelity*.

*Respect for autonomy* is a fundamental ethical principle and refers to the respect for individuals' right to make decisions concerning themselves (Kitchener, 1985, 2000). In doctoral supervision, this refers to providing sufficient space for the doctoral student to make choices regarding his or her research (Löfström & Pyhältö, 2014). The autonomy experienced by doctoral students is shown to be a substantial source of engagement (Vekkaila et al., 2013). This does not mean that supervisors should not guide doctoral students in finding proper directions and helping them to make informed choices in the research process. If doctoral students' freedom of choice or space to explore their own ideas are severely limited, or they feel that different options cannot be raised for discussion, it can infringe on their development in becoming independent researchers (Lee, 2008). There is evidence that students' ethical views develop when supervisors show respect for the students' own decisions regarding their research (Gray & Jordan, 2012). Furthermore, the lack of support that is experienced in the transition into an autonomous and independent researcher may expedite doctoral students' decisions to discontinue PhD studies (Leijen et al., 2016).

*Beneficence* refers to an intention to do good for others. In supervisory relationships, this entails supporting the doctoral student in developing increased competence and independence and ultimately gaining a doctoral degree. Failure to provide benefits to the doctoral student can be a consequence of insufficient content, pedagogical, and supervisory competence including confusion about role expectations (Jairam & Kahl, 2012; Parker-Jenkins, 2018).

The principle of *non-maleficence* is compromised when the doctoral student or his or her rights are harmed in one way or another. In supervisory practices, this may take place as misappropriation or exploitation of a doctoral student's work or through psychologically confounded relationships, involving a parent/child-like relations or an intimate relationship between a supervisor and a supervisee (Goodyear et al., 1992; Löfström & Pyhältö, 2014; Parker-Jenkins, 2018).

Supervisors use a range of strategies to level out the issues of power asymmetry in their pursuit of supporting doctoral students' well-being and development (Elliot & Kobayashi, 2018). However, asymmetrical power relationships can cause breaches of the principle of *justice* (Kitchener, 1985). Doctoral students may find it difficult to assert themselves in situations in which seniority and expectations of gratitude influence ownership, authorship, or workload (Löfström & Pyhältö, 2014; Yarwood-Ross & Haigh, 2014).

The principle of *fidelity* is a vital basis for sustaining any relationship. It includes keeping promises and treating others with respect (Kitchener, 1985; 2000). In supervision, breaches of fidelity involve failure to keep a supervision promise. The reasons for discontinued supervision may be fully comprehensible, such as a supervisor retiring, moving away, taking parental leave, or falling ill (Löfström & Pyhältö, 2014; Wisker & Robinson, 2013; Yarwood-Ross & Haigh, 2014), but sometimes less so, that is, outright neglect (Johnson et al., 2000). In either case, the doctoral student may experience abandonment. Supervisor unavailability is one of the most disruptive aspects for progression in the doctoral journey (McAlpine, 2012). Insufficient supervision increases the risk of discontinuing doctoral studies (Pyhältö et al., 2012).

These five ethical principles converge on three thematic dimensions: first, the dimension *ethical aspects in the research community, including social structures and programmatic aspects (FORM)*, encompasses the principles of autonomy, beneficence, and fidelity. Second, the dimension *fairness and adherence to common formal and informal rules as a means of ensuring equal treatment of doctoral students (RULE)* encompasses justice, non-maleficence, and fidelity. Third, the dimension *respect in personal relations (CARE)* encompasses autonomy and beneficence. Positive experiences of these dimensions contribute to engagement and satisfaction while negative experiences contribute to burnout and intentions to drop out (Löfström & Pyhältö, 2020).

Combining these dimensions of ethics in supervision raises a question about the interrelation between the constructs (for approaches related to burnout and engagement, see Shirom, 2011; Larsen & McGraw, 2011; Shraga & Shirom, 2009). If these dimensions are independent, one may score high on one and low on the other dimensions. For instance, a PhD student might simultaneously experience high levels of *fairness and equal treatment of doctoral students (RULE)* and lack of *respect in personal relations (CARE)*. Alternatively, they may be dependent, and a high score on one dimension would correlate with a high score on the other. Applying a person-centered approach to PhD students' experiences of ethics in supervision allows us to explore the question in more detail.

## Study engagement and study burnout

Study engagement has been suggested as being a hallmark of optimal doctoral experience, characterized by sense of *vigor*, *dedication*, and *absorption* (Vekkailla et al., 2018; see seminal work on work engagement by Bakker & Demerouti, 2008; González-Romá et al., 2006; Schaufeli et al., 2002). Such doctoral experiences encompass immersion in research, a feeling of time passing quickly, strong psychological involvement in research combined with a sense of significance, enthusiasm, inspiration, pride, positive challenge, and high levels of energy resulting in positive outcomes in post-PhD researcher careers (Shin & Jung, 2014; Vekkailla et al., 2018). Doctoral students who receive sufficient supervisory and research community support are more likely to experience higher levels of engagement than their less fortunate peers (Pyhältö et al., 2016).

Problems in the supervisory relationship and lack of faculty support appear to be related to increased risk of burnout (Peluso et al., 2011). PhD burnout resulting from extensive and prolonged stress has two main symptoms, namely *exhaustion* characterized by a lack of emotional energy and feeling drained and tired of doctoral studies and *cynicism* comprising feeling that one's research has lost its meaning and distancing oneself from the work and members of the research community (Maslach & Leiter, 2008). Research environment attributes, such as sufficient supervisory and research community support, sense of belonging, and good work-environment fit, have been found to be associated with reduced burnout risk and increased levels of engagement among doctoral students (Hunter & Devine, 2016). Burnout entails negative consequences including reduced research productivity, reduced engagement, reduced interest in research, study prolongation, and increased risk of discontinuing doctoral studies (Ali & Kohun, 2007; Pyhältö et al., 2018; Rigg et al., 2013).

Little is known about individual differences in doctoral students' experiences of the ethics in supervision, and how these differences are related to supervision arrangements and student well-being or a lack thereof. The theoretical underpinnings and results from earlier studies in Finland (e.g., Löfström & Pyhältö, 2020) inspired us to hypothesize that the underlying structures concerning the experiences of ethics in supervision may be the same across different cultural contexts as similar problems have been described elsewhere (see Muthanna & Alduais, 2021). Therefore, we set out to identify profiles of doctoral students' experiences of ethics in supervision and their association with engagement, burnout, and intentions to drop out in the historically diverse but culturally and regionally relatively similar contexts of Finland and Estonia, in comparison to the culturally and regionally rather different context of South Africa.

These countries have in common high levels of attrition and distress and exhaustion in addition to prolonged studies, insufficient supervision, and poor integration of doctoral students into the research community (ASSAf, 2010; Herman, 2011; Leijen et al., 2016; Stubb et al., 2011; Vassil & Solvak, 2012). There is evidence that 35–45% of Finnish doctoral students have considered discontinue studies (Pyhältö et al., 2016). In South Africa, the attrition rate amongst doctoral students is 22% nationally in the first year with less than half of candidates graduating within 7 years (Cloete et al., 2015). In Estonia, the reported attrition in the phase prior to planning our study was 34% (Vassil & Solvak, 2012). Outcomes such as exhaustion and attrition have been shown to be related to negative experiences of ethics in supervision (Löfström & Pyhältö, 2020). These shared problems in doctoral education and differences in the settings make it relevant to study the chosen countries from the perspective of ethics in supervision and

compare the results in order to understand universal and context-specific aspects of doctoral students' experiences of the ethics in supervision. Following the above, we posed the research questions:

- 1) How do Finnish, South African, and Estonian PhD students experience the ethics in supervision, engagement, burnout, and satisfaction with supervision and doctoral studies?
- 2) What kind of profiles do experiences of the ethics in supervision, engagement, burnout, and satisfaction with supervision and doctoral studies constitute among Finnish, South African, and Estonian PhD students?
- 3) Is there a relationship between the experiences of ethics in supervision profiles and supervisory arrangements (frequency of supervision, number of supervisors, and individual or group supervision)?

As profiles of doctoral students' experiences of the ethics in supervision have not been identified before using a broad set of key variables of importance in the doctoral experience, we were interested in the profiles as such in the comparative context set out for our study.

## Method

### Contexts

In Finland, doctoral studies are research-intensive rather than course-centered, and research generally begins immediately (Pyhältö et al., 2012). In Estonia, the recent reform of doctoral studies introduced a substantial amount of course work to the curriculum and regardless of the emphasis put on research, the first year of a doctoral program is often devoted to course work, leaving less time for research activities. In South Africa, doctoral studies are research oriented. Although professional doctorates are now included in the South African Higher Education Qualifications Sub-framework (Council on Higher Education, 2014), doctoral programs continue predominantly to be by research only, with no credit-bearing coursework.

### Tuition fees

In Finland, doctoral education is publicly funded, and there are no tuition fees for students. However, there is no automatic funding for studying at the doctoral level. Students apply for competitive funding from a number of foundations that support research or find employment at the university on various projects, or outside the university (Pyhältö et al., 2011). In addition, in Estonia, doctoral education is publicly funded (Lepp et al., 2016). Since 2012, every student who is granted a doctoral study place receives a grant for 4 years. Recently, several Estonian universities have introduced a policy by which they grant doctoral students an income comparable to the average salary, but the Estonian data were collected in 2016, before this policy came into existence, and the grant was substantially smaller. Consequently, there has been a tradition of finding additional employment in or outside the university. In South Africa, the doctoral education system is funded by a combination of government subsidies and student fees (Cloete et al., 2015). Many students

are already employed when enrolling for a doctorate or are soon usurped into academic positions. However, in humanities, arts, and social sciences, many students receive little or no financial support, while funded full time doctoral study is more common in STEM.

### Supervision arrangements

In Finland, doctoral students are expected to have two named supervisors. One of these is generally a full professor. It is common that doctoral students take part in research seminars organized by a supervisor (Pyhältö et al., 2012). In Estonia, doctoral students must have at least one named supervisor at the professorial level, but if the supervisor is less experienced, the doctoral program committee commonly assigns a senior supervisor to support the process. A similar practice of teaming up inexperienced supervisors with more experienced ones is in place in South Africa, although a supervisor does not need to be at a professorial level. Given the current lack of suitably qualified supervisory capacity in a variety of fields, inexperienced supervisors are often allocated to students, and single student-supervisor dyadic arrangements are still common (Cloete et al., 2015).

### Types of doctoral dissertation

In both Finland and Estonia, a doctoral dissertation can be written either as a monograph or as an article compilation, with the latter being more prevalent in many fields. The articles are usually co-authored with the supervisors and sometimes with other senior researchers (Lepp et al., 2016; Pyhältö et al., 2012). In South Africa, doctoral dissertations follow a variety of formats, including both monographs and publication-based theses, or various permutations of these formats (Odendaal & Frick, 2017).

### Participants

The data were collected at four universities in 2016 and 2017 as independent surveys. The universities included two in Finland, one in Estonia and one in South Africa. All four have an international profile and play important national and regional roles. All are research universities, but they are at different stages of building up their research profiles. The response rate in each country was 25–26%. The data set consisted of 860 doctoral students with a mean age of 37.59 (Table 1). The largest subset, namely the Finnish data, are representative of age and disciplines, with women slightly overrepresented among the respondents.

Participation in the study was voluntary and based on informed consent. No incentives were offered. No personal identifiers were collected. In Finland and Estonia, an ethics review is not required for anonymous survey research involving healthy volunteer adults (Finnish National Board on Research Integrity, 2019; Estonian Code of Conduct for Research Integrity, 2017). In South Africa, an ethics review was conducted according to the ethical code of conduct of the university.

### Survey

We utilized the *Ethical Issues in Supervision Scale* (Löfström & Pyhältö, 2020), which contains 15 Likert-type items reflecting breaches of five ethical principles, namely respect

**Table 1** Characteristics of doctoral students

Variables	<i>N</i>	%
Country		
Finland	511	59.4
Estonia	86	10.0
South Africa	263	30.6
Gender		
Female	537	64.2
Male	299	35.8
Full or part-time		
Full time	413	54.4
Part time	342	45.1
Type of dissertation		
Monograph	290	34.7
Article-based	509	60.9
Not decided	36	4.3

of autonomy, beneficence, non-maleficence, justice, and fidelity. The items address exploitation, misappropriation, lack of collective culture, lack of well-being, supervision competence, narrowness of perspective, imposition of supervisor's views and values, inadequate supervision, abandonment, inequality, and unfair authorship.

Items from the *Doctoral Experience Survey* (Pyhältö et al., 2011, 2016) were included to measure burnout (exhaustion and cynicism, drawing on Maslach et al., 2001) and engagement (originally adapted from Schaufeli et al., 2002) (Pyhältö et al., 2018). These items utilized Likert-type response scales (1 = fully disagree, 7 = fully agree).

Additional background items with various response scales from the *Doctoral Experience Survey* included: number of primary supervisors (one supervisor/two supervisors/no supervisor/other individual or entity); intention to drop out (yes/no); supervision model (whether the student received supervision mainly individually/in a group/or both); frequency of supervision (daily/weekly/once a month/once in 2 months/once in 6 months/less frequently); satisfaction with (a) doctoral studies and (b) supervision (1 = very dissatisfied, 7 = very satisfied); considering changing supervisor (yes/no); actual change of supervisor (yes/no).

## Analyses

After an initial screening of data, exploratory factor analyses (EFA) were performed to investigate the factor structure of the three scales: ethical issues in supervision, exhaustion, and engagement. We carried out a series of EFAs with maximum likelihood extraction and both orthogonal and oblique rotations. We based the decision about the number of factors to retain on both the eigenvalues of the factors and the theoretical salience of the rotated factors (see Table 2 for scales used for EFA and their factor scores). The factor structure is similar to the three-factor structure in Löfström and Pyhältö (2020), in which the five theoretically informed ethical principles converged into three thematic dimensions. The analyses of the burnout scale and the engagement scale supported a two-factor and a one-factor solution, respectively (see Table 2).

**Table 2** Ethical issues in supervision, burnout, and engagement scales and their factor structures

Scales	Factor 1	Factor 2	Factor 3
Ethical issues in supervision (*three-factor solution, KMO = .92; Bartlett's test $p < .001$ )			
F1: <i>FORM</i> (8 items; eigenvalue = 5.62; alpha = .81)			
I receive supervision when I need it	.84		
I can negotiate about central choices regarding my dissertation with my supervisors	.64		
My supervisors encourage me to explore alternative viewpoints in my research	.57		
My supervisors encourage doctoral students to collaborate with each other	.51		
If my supervisors cannot advise me, I am usually left without help	-.48		
I have been left without supervision at some point during my doctoral studies	-.43		
My supervisors regard it important that everybody who is mentioned as an author in an article or similar, actually has contributed sufficiently	.43		
I can tell my supervisor if a personal matter affects my work with the dissertation	.35		
F2: <i>RULE</i> (4 items; eigenvalue = 1.36; alpha = .76)			
My supervisors treat the doctoral students in a fair way		.81	
My supervisor favors some of the doctoral students		-.50	
My supervisors express critical comments on my research in a friendly manner		.50	
I feel that my supervisor has exploited my thoughts or products in an unfair way		-.35	
F3: <i>CARE</i> (3 items; eigenvalue = .99; alpha = .53)			
My dissertation reflects the choices of my supervisors rather than my own choices			.61
I have learned to hide viewpoints that differ from those of my supervisors			.61
The progress of my dissertation is hindered by the fact that my supervisors make me do the work of others in the research group			.34
Burnout (*two-factor solution, KMO = .89, Bartlett's test $p < .001$ )			
F1: <i>Exhaustion</i> (seven items, eigenvalue = 5.02, alpha = .85)			
I often sleep badly because of matters related to my doctoral research			.77
I feel burned out			.76
The pressure of my doctoral dissertation causes me problems in my close relationships with others			.70



**Table 2** (continued)

Scale	Factor 1	Factor 2	Factor 3
I brood over matters related to doctoral research a lot during my free time	.68		
I feel overwhelmed by the workload of my doctoral research	.65		
I often feel that I fail in my doctoral research	.46		
I often have feelings of inadequacy in my doctoral research	.35		
<b>F2: Cynicism</b> (four items, eigenvalue = 1.72, alpha = .84)			
I have difficulties in finding any meaning to my doctoral dissertation		.91	
I feel my doctoral dissertation is useless		.90	
I feel that I am losing interest in my doctoral research		.78	
I used to have higher expectations of my doctoral research than I do now		.50	
<b>Engagement</b> (one-factor solution, KMO = .93, Bartlett's test $p < .001$ )			
<b>F1: Engagement</b> (nine items, eigenvalue = 6.04, alpha = .94)			
I am enthusiastic about my doctoral research	.87		
When doing my doctoral research, I feel vigorous	.86		
My doctoral research inspires me	.85		
I feel happy when I start working on my doctoral research	.85		
I find the doctoral research that I do full of meaning	.79		
When I conduct my doctoral research, I feel that I am bursting with energy	.79		
Time flies when I'm doing my doctoral research	.75		
I am immersed in my doctoral research	.71		
When I am doing my doctoral research, I forget everything else around me	.64		

\*ML factoring with Promax rotation was used

Doctoral student profiles of ethical experiences in supervision were identified through K-means cluster analysis performed on the three *Ethical Issues in Supervision* subscale scores (*FORM*, *RULE* and *CARE*). We performed several analyses with one to five clusters and selected a four-cluster solution, which was the best model both content-wise and in terms of parsimony. For inter-country comparisons, we used one-way analysis of variance (ANOVA) and suitable post hoc tests. Due to the differences in our subsample sizes, we used Gabriel's test when we assumed that variances of three groups were homogenous and Tamhane's T2 when this assumption was not supported by the data. We also used chi-square tests to detect any differences there might be in the student composition based on gender, format of doctoral dissertation, and supervisory arrangements as well as the differences between the countries in proportions in the profiles of ethical experiences.

The ethical experience profiles were analyzed in relation to experiences of engagement and burnout, satisfaction with supervision and doctoral studies, and intentions to drop out through ANOVA, again along with Gabriel's and Tamhane's T2 multiple comparison tests and chi-square test. We determined the magnitude of the effect sizes (Cohen's *d*) referring to Cohen (1988): small ( $d=0.2$ ), medium ( $d=0.5$ ), and large ( $d=0.8$ ) effect size.

## Results

There were differences between countries concerning the doctoral students' experiences in all three dimensions of ethics in supervision, engagement, burnout, satisfaction to supervision, and satisfaction to doctoral studies (see Table 3).

Because the cell sizes are unequal, but the homogeneity of variance assumption was supported by the data, we used Gabriel's post hoc test here for pairwise comparisons when we assumed that the variances of the groups included in the comparison were equal which was supported by the data. According to Gabriel's test, Finland differed from Estonia ( $p < 0.01$ ,  $d = 0.30$ ) and South Africa ( $p < 0.001$ ,  $d = 0.30$ ) on the dimension *ethical*

**Table 3** Means, standard deviations, and ANOVA results by country: differences on ethical issues in supervision, engagement, burnout, satisfaction to supervision, and satisfaction to doctoral studies

Variables	Finland, $n = 511$		Estonia, $n = 86$		South Africa, $n = 263$		F
	M	S.D	M	S.D	M	S.D	
Ethical issues in supervision							
FORM	4.83	1.13	5.19	1.28	5.17	1.12	9.78***
RULE	5.67	1.15	5.92	1.14	5.91	1.17	4.70**
CARE	2.45	1.18	2.09	1.20	2.43	1.18	3.47*
Engagement	4.96	1.20	4.93	1.24	5.31	1.22	7.73***
Burnout							
Exhaustion	3.46	1.36	3.78	1.20	4.10	1.40	19.54***
Cynicism	2.62	1.52	2.47	1.52	2.35	1.38	2.90
Satisfaction with supervision	5.20	1.64	5.23	1.81	5.57	1.61	32.02***
Satisfaction with doctoral studies	4.48	1.36	4.95	1.59	5.10	1.51	16.92***

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

issues in the research community; including social structures and programmatic aspects (*FORM*) in that the students exhibited lower scores, that is, a less positive experience. On the dimension *fairness and adherence to common formal and informal rules as a means of ensuring equal treatment of doctoral students (RULE)*, the South African experience differed slightly from that in Finland ( $p > 0.05$ ,  $d = 0.21$ ) with higher scores, that is more positive experiences, while the Estonian score was in the middle indicating no statistically significant differences when compared to the results from the other two countries. On the dimension *respect in personal relations (CARE)*, Estonian doctoral students scored slightly lower, that is, more positive experiences, when compared to Finnish ( $p < 0.05$ ,  $d = 0.30$ ) and South African ( $p < 0.05$ ,  $d = 0.29$ ) PhD students.

South African doctoral students reported higher scores in engagement than their Finnish ( $p < 0.001$ ,  $d = 0.29$ ) and Estonian ( $p < 0.05$ ,  $d = 0.31$ ) colleagues. While the doctoral students from the three countries differed neither on cynicism nor drop out intentions, there was a difference between Finland and South Africa in exhaustion. South African students reported more exhaustion than their Finnish colleagues did ( $p < 0.05$ ,  $d = 0.46$ ). However, Finnish doctoral students were less satisfied with supervision than South African students were ( $p < 0.001$ ,  $d = 0.23$ ) and showed a lower satisfaction level in doctoral studies than both South African ( $p < 0.001$ ,  $d = 0.43$ ) and Estonian students ( $p < 0.01$ ,  $d = 0.32$ ).

In a joint cluster analysis, we identified four doctoral students' profiles according to their experiences of ethics in supervision (Fig. 1).

Profile 1: *Students puzzled by the supervision relationship* (referred to as the *puzzled*) ( $n = 160$ , 18.6%) had relatively high values on the *FORM* and *RULE* subscale scores, thus expressing an absence of ethical problems in terms of supervision arrangements, availability of supervisory support, and experiences of just and fair treatment. Nevertheless, they experienced challenges with the supervisory relationship, such as issues with the adequacy of the supervisory support and facilitation of independence.

Profile 2: *Strugglers in the ethical landscape* (referred to as *strugglers*) ( $n = 96$ , 11.2%) expressed experiences of exploitation, misappropriation, lack of collective culture, lack of well-being, low supervisor competence, narrowness of perspective, imposition of

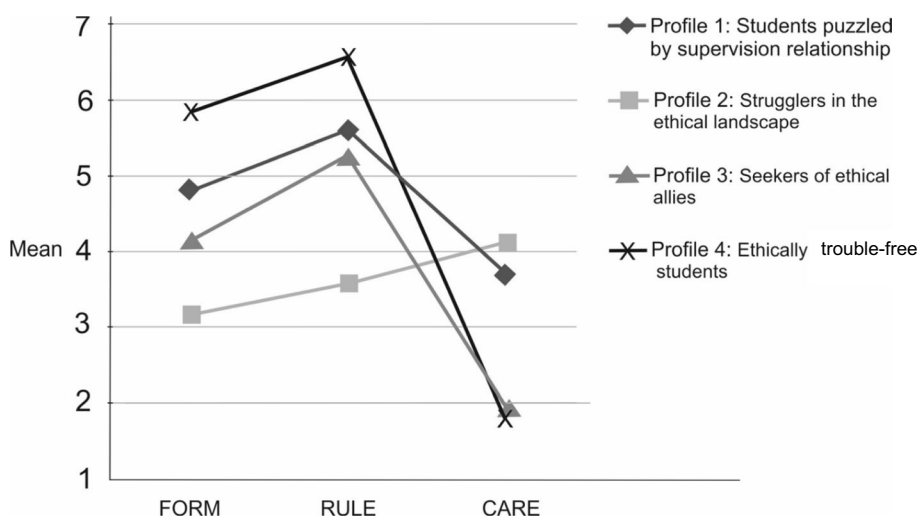


Fig. 1 Ethics in supervision profiles

supervisor's views and values, inadequate supervision, abandonment, inequality, and unfair authorship. This profile stands out as having consistently the most negative experiences on all dimensions of the ethical landscape of supervision. We wish to remind the reader that low values, that is, an absence of problems, for the CARE variable indicate positive experiences.

Profile 3: *Seekers of Ethical Allies* (referred to as *seekers*) ( $n=192$ , 22.3%) had relatively high average scores on RULE but struggled somewhat with FORM. They expressed the view that there was a general absence of ethical problems in terms of supervision arrangements, availability of supervisory support, and experiences of just and fair treatment, but their experience with the ethical landscape was not entirely positive. Ethical problems are likely to be located at the structural and organizational levels and in the relationships within the research community. They feel taken care of in terms of the adequacy of the supervisory support, experiencing that their supervisors do care about their well-being and development. The profile suggests that supervisors are sufficiently experienced to be allies in any ethical confrontations with other parties.

Profile 4: *Students with ethically trouble-free experience* (referred to as the *trouble-free*) ( $n=412$ , 47.9%) had the highest scores on both FORM and RULE subscale scores and a low average score on the CARE subscale score, indicating an absence of ethical problems in terms of supervision arrangements, availability of supervisory support, and experiences of just and fair treatment. They feel taken care of in terms of the adequacy of the supervisory support, and their experience is that supervisors do care about their well-being and development.

The results of ANOVA tests revealed significant differences between the four profiles in engagement, exhaustion, cynicism, satisfaction with supervision, and satisfaction with doctoral studies (Table 4).

As a point of departure, we assumed that students in the four profiles diverge in their experiences of satisfaction with supervision and doctoral studies, engagement and burnout, and intentions to discontinue PhD studies. We performed ANOVAs with Gabriel's or Tamhane's T2 post hoc test. Pairwise comparisons with Tamhane's T2 indicated that differences in engagement appeared between profiles. The *puzzled* and the *strugglers* ( $p < 0.05$ ,  $d = 0.35$ ); the *puzzled* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.57$ ); the *strugglers* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.87$ ); and the *seekers* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.60$ ) differed from each other in engagement. Overall, the *trouble-free* were more engaged than the other profiles, but also the *Puzzled* deviated in a positive way. The effect size was large in the difference between the *strugglers* and the *trouble-free*.

As for exhaustion, Gabriels's test indicated that differences appeared between the *puzzled* and the *strugglers* ( $p < 0.001$ ,  $d = 0.51$ ); *puzzled* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.61$ ); *strugglers* and the *seekers* ( $p > 0.001$ ,  $d = 0.73$ ); *strugglers* and the *trouble-free* ( $p < 0.001$ ,  $d = 1.05$ ); and the *seekers* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.34$ ). The *strugglers* exhibited the highest levels of exhaustion, and the *trouble-free* the lowest, with the *puzzled* and the *seekers* placing in between with relatively similar levels of cynicism. The effect size was large in the difference between the *strugglers* and the *trouble-free*.

We used Tamhane's T2 to examine the differences between the groups on cynicism and found statistically significant differences between the *puzzled* and the *strugglers* ( $p < 0.05$ ,  $d = 0.41$ ); the *puzzled* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.88$ ); the *strugglers* and the *seekers* ( $p < 0.01$ ,  $d = 0.45$ ); the *strugglers* and the *trouble-free* ( $p < 0.001$ ,  $d = 1.18$ ); and the *seekers* and the *trouble-free* ( $p < 0.001$ ,  $d = 0.77$ ). The *strugglers* exhibited the highest levels of cynicism, and the *trouble-free* the lowest, with the *puzzled* and the *seekers* placing in

**Table 4** The differences between profiles in engagement, exhaustion, cynicism, satisfaction with supervision, and satisfaction with doctoral studies

Variables	Puzzled ( <i>n</i> = 160)		Strugglers ( <i>n</i> = 96)		Seekers ( <i>n</i> = 192)		Trouble-free ( <i>n</i> = 412)		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Engagement	4.83	1.20	4.35	1.49	4.79	1.21	5.46	1.02	33.78***
Exhaustion	4.05	1.24	4.75	1.51	3.72	1.30	3.28	1.27	39.08***
Cynicism	2.99	1.39	3.66	1.82	2.91	1.53	1.90	1.06	65.85***
Satisfaction with supervision	5.27	1.16	3.05	1.41	4.34	1.65	6.30	.95	228.38***
Satisfaction with doctoral studies	4.56	1.23	3.23	1.39	4.21	1.36	5.36	1.23	86.61***

\*\*\* *p* < .001

between with relatively similar levels of cynicism. The effect size was large in the difference between the *puzzled* and the *trouble-free*.

Tamhane's T2 indicated that in satisfaction with supervision all the profiles differed significantly from each other. The *trouble-free* were more satisfied than the *puzzled* ( $p < 0.001$ ,  $d = 0.97$ ), the *strugglers* ( $p < 0.001$ ,  $d = 2.70$ ) and the *seekers* ( $p < 0.001$ ,  $d = 1.46$ ). The *puzzled* were more satisfied with supervision than the *strugglers* ( $p < 0.001$ ,  $d = 1.72$ ) and the *seekers* ( $p < 0.001$ ,  $d = 0.65$ ). The *seekers* were more satisfied with supervision than the *strugglers* were ( $p < 0.001$ ,  $d = 0.84$ ). The effect sizes were large in the difference between the *trouble-free* and the *puzzled* and the *seekers* and between the *puzzled* and the *strugglers*.

Gabriel's test suggested that the *trouble-free* were more satisfied with their doctoral studies than the *puzzled* ( $p < 0.001$ ,  $d = 0.65$ ), the *strugglers* ( $p < 0.001$ ,  $d = 1.62$ ), and the *seekers* ( $p < 0.001$ ,  $d = 0.89$ ). The *puzzled* were more satisfied than the *strugglers* were ( $p < 0.001$ ,  $d = 1.01$ ), and the *seekers* were more satisfied than the *strugglers* were ( $p < 0.001$ ,  $d = 0.71$ ). The effect sizes were large in the difference between the *trouble-free* and the *strugglers* and the *seekers* and between the *puzzled* and the *strugglers*.

For comparisons on intentions to drop out and more detailed aspects of supervision, chi-square test was used (see Table 5). More often, the *strugglers* harbored ideas of dropping out and had considered a change of supervisor more often than the other profiles. The *seekers*, however, had the highest rate of actually changing supervisor. Gender and model of supervision were not statistically significantly related to profile membership.

The representation of students from the three countries varied in the four profiles. The chi-square test we used to examine the differences between countries showed ( $\chi^2[6, N = 860] = 24.094, p < 0.001$ ) that Estonian doctoral students were underrepresented among the *puzzled* (observed count = 7/expected count 16) and slightly overrepresented among the *trouble-free* (52/41). Finnish students were under-represented in the *trouble-free* profile (214/249), while at the same time overrepresented in *seekers* (132/114). South African students were underrepresented among the *seekers* (42/59) and overrepresented among the *trouble-free* (146/126).

## Discussion

The results show four profiles of doctoral students' experience of ethics in supervision. To our knowledge, this is the first study identifying profiles that combine experiences of supervision and ethics among PhD students in a cross-national design. The results indicate that the ethics in supervision profiles are distinct, yet related dimensions of the ethics in supervision experiences. Despite contextual differences in emphases, the same structure holds for the full data set, further strengthening the validity of the identified profiles beyond a single context, and at the same time suggests that despite cultural differences the underpinning structure of experiences of supervision in ethics are the same across the contexts. Had this not been the case, we presume it had been revealed in the results as we compared culturally and regionally relatively similar contexts (Finland and Estonia), and culturally and regionally rather different contexts (Finland/Estonia and South Africa). The profiles can help institutions to analyze the ethical landscape of doctoral education and to identify challenges. The profiles can provide information about the extent of the risk zone of burnout or dropout based on negative experiences of the ethics in supervision.

The ethics in supervision materialized through the doctoral students' experiences of *Ethical issues in the research community, including social structures and programmatic*

**Table 5** Comparison based on intentions to discontinue PhD studies, supervision model, and considered or materialized change of supervisor

Variables	Puzzled (n = 160)		Strugglers (n = 96)		Seekers (n = 192)		Trouble-free (n = 412)		Chi square
	n	%	n	%	n	%	n	%	
Intentions to discontinue PhD studies									
Yes	60	37.7	64	66.7	78	42.6	91	22.5	75.34***
No	99	63.3	32	33.3	105	57.4	313	77.5	
Supervision model									
Mainly individually	94	61.8	65	76.5	138	82.6	246	69.7	19.49**
In a group	14	9.2	5	5.9	5	3.0	22	6.2	
Both	44	28.9	15	17.6	24	14.4	85	24.1	
Considered changing supervisor									
Yes	12	9.3	34	45.3	38	29.9	15	4.8	102.11***
No	117	90.7	41	54.7	89	70.1	295	95.2	
Changed supervisor	15	25.9	11	28.9	34	53.1	48	26.7	

\*\*\*  $p < .001$ , \*\*  $p < .01$

aspects (*FORM*), *Fairness and adherence to common formal and informal rules as a means of ensuring equal treatment of doctoral students (RULE)*, and *Respect in personal relations (CARE)*. The Finnish students' experiences emerged in general as less positive than the experiences of their Estonian and South-African peers. Qualitative analyses of Finnish doctoral students' experiences of the ethics in supervision indicate a high level of sensitivity about ethical aspects (Löfström & Pyhältö, 2014, 2017), which may help explain why their answers were more critical. However, since we do not have comparison data from Estonia and South Africa, we can only speculate.

The profiles were the *students puzzled by the supervision relationship*; *Strugglers in the ethical landscape*; *seekers of ethical allies*; and the *students with ethically trouble-free experiences*. When the students did not experience major ethical problems in any of the ethical dimensions as in the case on the *Trouble-free*, this was related positively with engagement, low levels of exhaustion and cynicism, and high levels of satisfaction with supervision and doctoral studies. By contrast, the *strugglers* expressed challenges in all of the ethical dimensions. This was related negatively to engagement, high exhaustion and cynicism levels, low levels of satisfaction with doctoral studies and supervision, harboring thoughts of discontinuing studies, and considerations to change supervisors. This finding is in line with research showing that students who experience receiving insufficient supervisory support exhibit more burnout and are less satisfied with supervision and more likely to harbor thoughts about dropping out than their peers who experience receiving sufficient support (Peltonen et al., 2017).

While the *puzzled* showed indications of ethical challenges, they were in some regards "better off" than the *seekers*. Even if supervision failed to contribute to the doctoral students' experiences of being fully respected in the supervision relation and supported in autonomy, the *puzzled* were more satisfied with the supervision than the *seekers*. Sound institutional structures and processes are important; particularly so in situations in which supervisors change, and the supervision relationship must be renegotiated (Wisker & Robinson, 2013) – something which was more common among the *seekers* than in the other profiles.

The consistent experiences of the two extremes and their relation to the outcome variables establish the importance of paying attention to doctoral students' experiences ethics in supervision. It is important to keep in mind that the *trouble-free* represented the largest profile, suggesting that supervision generally takes place in a sound ethical landscape.

Differences emerged among the three countries. In Finland, the *seekers* and, in South Africa and in Estonia, the *trouble-free* were overrepresented. Research on Finnish doctoral students' experiences of their main resources and challenges during their doctoral studies relate to supervision (resources), structures and programmatic features (challenges), and the apprenticeship nature of doctoral studies in Finland (Author et al., 2012), which may help explain why this profile is overrepresented. The emphasis is on seeking alliance with the supervisors while experiencing challenges with social structures and programmatic aspects. The relationship and importance of alliance with the supervisor is pronounced, perhaps at the expense of association with and involvement in doctoral programs. South African students have been reported as having high levels of burnout (ASSAf, 2010; Herman, 2011), and high levels of exhaustion were corroborated by our study. The conditions of the South African students are more demanding than for Finnish and Estonian students, in terms of tuition fees and economic matters. Yet, the South African students were highly engaged and satisfied with the supervision and their doctoral studies. For these students, there appears to be a balance between the perceived demands and the available resources (see Bakker & Demerouti, 2008), and a sense of fairness and care to mitigate against



negative experiences of ethics in supervision. The Estonian students, in turn, exhibited relatively high levels of satisfaction, which may be a clue to understanding their overrepresentation in the *trouble-free* profile. Satisfaction has been shown to be related to positive experiences of ethics in supervision and indicative of a fit between the individuals and their learning-environment fit (Löfström & Pyhältö, 2020).

We acknowledge that there are limitations in the study. The response rate was 25–26%. It is possible that students who have experiences at the extremes of the dimensions we researched were more prone to respond than their peers whose experiences were neutral.

We propose future research to investigate what movements take place in and out of profiles and whether movement patterns differ across countries. A longitudinal approach would provide insight into the dynamics at the intersection of doctoral student experience, supervisory practice, and ethics. While our study was focused on an inter-country comparison, we recognize the possibility of intra-country differences and therefore encourage research with a larger number of institutions, first within a country and, second, across countries.

**Acknowledgements** The authors would like to thank the anonymous reviewers for their valuable comments on an earlier version of the manuscript.

**Funding** Open access funding provided by University of Helsinki including Helsinki University Central Hospital.

## Declarations

**Conflict of interest** The authors declare no competing interests.

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**Publisher’s note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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