

Doctoral students' well-being through the lens of social practice theory: An auto-photography study

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Abstract

The aim of this study is to explore doctoral students' (DS) perceptions of social practices that contribute to their well-being. Utilising social practice theory, specifically the framework of social practices as an interplay of 'materials', 'meanings' and 'competences', we examine which social practices enhance DS well-being and the contexts in which these practices occur. We employ an auto-photography methodology. Twelve UK-based DS took photographs of places that relate to their well-being and participated in interviews to explain their photos. On completing a three-stage data analytic procedure, our findings show that DS well-being is shaped by social practices shared between students and supervisors, where informal settings and the significance of place play a crucial role. We demonstrate that such settings, both on and off campus, act as facilitators for the performance of well-being-enhancing practices. Instead of solely attributing DS well-being to micro-level individual choices or macro-level institutional factors, as is often conceptualised, we propose that scholars must focus on the dynamic interplay of social practices that shape DS well-being. By demonstrating how social practices connect micro-level experiences with macro-level structures, we provide a deeper understanding of what shapes well-being and highlight the essential role of place. Understanding these practices can inform targeted interventions and policies, ultimately enhancing well-being among doctoral students.

KEYWORDS

auto-photography, doctoral students' well-being, social practice theory

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Key insights

What is the main issue that the paper addresses?

This paper explores the factors influencing doctoral students' (DS) well-being, arguing that traditional focuses on macro-level systems and micro-level individual behaviours fail to fully capture the complexity of well-being. It investigates whether social practices that bridge the macro–micro divide can better explain the emergence of well-being.

What are the main insights that the paper provides?

The paper reveals that well-being is shaped by interconnected social practices between DS and supervisors, with informal settings and the agency of place playing key roles. It advocates for understanding well-being as an outcome of the dynamic organisation of social practices.

INTRODUCTION

Doctoral students' (DS) well-being has emerged as a significant concern in global doctoral education research, policy and practice, due to rising mental health issues and an attrition rate of up to 50% among DS; this study addresses these critical challenges by proposing a new way of understanding well-being. Scholars have been actively seeking solutions, creating two distinct streams of literature: first, by exploring broader systemic factors impacting student well-being; second, by examining deeper individual-level experiences of well-being. The first stream examines how macro-level educational systems and institutional structures impact DS well-being, with research—primarily conducted through surveys—indicating a growing concern over the increasing number of PhD students abandoning their programmes (Feizi et al., 2024; McCray & Joseph-Richard, 2020). This stream raises concerns about systemic factors contributing to this exodus and suggests ways to address these issues, such as adapting the master–apprentice model of supervision, increased budgets, providing better mental health resources and fostering a more supportive academic environment (Sverdlik et al., 2018; Zhuchkova & Terentev, 2024). The second stream, consisting mostly of small-scale review papers and interview-based case studies (e.g., Lehan et al., 2021; Rigler Jr et al., 2017), explores individual agency and micro-level relationships, particularly between students and their peers or supervisors. These studies identify various factors—such as tight deadlines, financial pressure, time constraints, family issues, relationship problems, additional responsibilities, conflicting commitments, domestic duties, feelings of helplessness, procrastination, unclear expectations and challenges in supervisor–student relationships—contributing to negative well-being, manifested as stress, anxiety, burnout, guilt and a lack of motivation among DS (Al Makhamreh & Stockley, 2020; Artiles & Matusovich, 2020). Addressing these challenges, according to the studies, requires changes in supervisory styles, improved management of supervisory relationships, clear communication between parties, modification of individual behaviours, better emotion-regulation strategies and development of personal skills to enhance one's well-being (e.g., Akala & Akala, 2023; Geng & Yu, 2024; Jackman & Sisson, 2022; Moate et al., 2019; Pretorius et al., 2019). Despite numerous studies in these two streams examining DS well-being at macro and micro levels, few have explored

the social practices bridging these levels. Social practices can be understood, at this stage, as recognisable everyday activities, and the things and know-how required to do them, which are regularly performed by multiple people (Shove et al., 2012). They may encompass common activities like showering and studying, which occur frequently, as well as less frequent activities such as volunteering and attending conferences. DS social practices shape and are shaped by both the macro-level structures of the institution and society and the micro-level dynamics of relationships that DS develop over time, with their peers and supervisors. Focusing solely on macro-level structures or micro-level individual factors risks overlooking the critical interplay between these levels. Examining how practices connect the macro–micro divide can provide a more comprehensive understanding of how DS well-being emerges in real-world contexts. This is precisely what our study demonstrates.

We aim to gain a deeper understanding of DS well-being to find ways to enhance it. We use social practice theory (SPT), proposed by Shove, Pantzar and Watson, as an analytical lens to gain a deeper understanding of their practices. By applying SPT, we explore the constitutive elements of DS social practices and how they influence DS well-being. SPT offers a unique lens through which to examine the often-overlooked daily practices that contribute to DS well-being. Moreover, SPT enables us to focus on the interconnectedness of individual know-how, the meanings attributed to practices, and the materials used, allowing us to comprehensively explore how DS cultivate and sustain their well-being—a gap in the existing literature that often separates these critical elements. In addition, moving away from the more familiar survey designs, we utilise auto-photography (Glaw et al., 2017) as our data collection method. Auto-photography, a qualitative method not widely used in doctoral education research, enables participants to create photographic images that they believe more accurately represent their experiences. These photos help us see and understand the significance of physical places in their lives (Noland, 2006).

RESEARCH QUESTIONS

1. What photographic representations do DS create to illustrate their views on how social practices contribute to their well-being?
2. What social practices that shape the well-being of DS are depicted in their photographic representations?
3. How do DS perceive the process through which their social practices influence their well-being?

Conceptual context

Our paper begins with an examination of contemporary perspectives on DS subjective well-being. We adopt a broad definition of well-being, aligned with the Warwick–Edinburgh Mental Well-Being Conceptual Framework, outlined in Stewart-Brown (2021). Accordingly, well-being refers to DS both feeling good and functioning well, in physical, social and, for some, spiritual realms of their lives. Well-being encompasses seven key aspects: optimism about the future, feeling valued, feeling relaxed, feeling competent, clear thinking, strong relationships with others and a sense of purpose in life. In what follows, we examine the rising prevalence of mental health concerns, the interconnected role of supervisors, well-being practices and the critical role of ‘place’ in shaping such practices.

The doctoral journey and well-being

The doctoral learning journey, typically spanning 3 to 8 years, is a demanding endeavour that significantly impacts the well-being of those embarking on this path (Woolston, 2019). A limited number of studies indicate that individuals who successfully complete their programmes often proactively prioritise their well-being throughout their academic journey. For instance, Lynch et al. (2018) also found that individual motivation, enhanced by peer relationships and support, contributes to DS well-being. Similarly, a Belgian study involving 461 DS suggested that self-determination, characterised by making one's own decisions, is key to their success (De Clercq et al., 2021) and therefore to their well-being. From this, we can deduce that although the doctoral learning journey is challenging, it can be successfully navigated by those who prioritise well-being and foster supportive relationships.

While success in the doctoral journey is often linked to prioritising well-being and supportive relationships, a stark contrast emerges in the increasing prevalence of mental health challenges among DS. This growing concern is highlighted by nationwide assessments in the United Kingdom, and across the globe (Hazell et al., 2020, 2021). From the beginning of the doctoral programme, DS are under constant pressure to assimilate with peers, supervisors and the university environment (Hemer, 2012), which may not always be perceived as relaxing or welcoming. The extended duration of doctoral programmes introduces additional emotional and physical demands on DS, exacerbating well-being challenges (Gunasekera et al., 2021). The tension between DS personal goals and the external demands of producing industry-relevant research can also create significant internal conflict (Lundgren-Resenterra & Kahn, 2019; Muurlink et al., 2024). Furthermore, viewing research as a product to be produced on time, contributing to knowledge and meeting high-quality standards, rather than a process for developing expertise, can also induce significant stress. This is particularly true when the opportunity for personal and intellectual growth beyond dissertation completion is overlooked (Shavers & Moore III, 2014; Stubb et al., 2011).

These pressures can contribute to a range of psychological challenges, including emotional exhaustion and depression among DS. The well-being issues often arise from excessive stress and diminishing intrinsic motivation (Levecque et al., 2017; Schmidt & Hansson, 2018). A considerable amount of research has explored 'the influence of personal, social, cultural and institutional factors in explaining various aspects of the doctoral experience' (Cantwell et al., 2017, p. 48). Notably, the lack of robust personal and social connections, especially with partners and family members, markedly affects DS well-being and elevates the risk of higher psychological distress and attrition (Jackman et al., 2023; Martinsuo & Turkulainen, 2011). Hazell et al.'s (2020) systematic review of meta-analyses and meta-syntheses also identified 'isolation' and 'identifying as female' as the risk factors with the strongest evidence base, further highlighting the vulnerability of these groups among DS. Such social isolation compounds the already significant challenges faced by DS, including general life pressures and financial burdens that often endure over extended periods (Czerniawski, 2023; Hoang & Pretorius, 2019; Hunter & Devine, 2016). As Waight and Giordano (2018) observe, many DS, being mature individuals, are conscious of the potential earnings and career advancement opportunities they are deferring to pursue their academic goals, adding to their stress and pressure. In sum, the stringent demands of doctoral studies not only lead to an increased prevalence of mental health issues among DS but also contribute to high attrition rates, estimated between 40% and 50% (Levecque et al., 2017; Maher et al., 2020). The COVID-19 pandemic has further exacerbated these challenges, significantly heightening mental health issues among DS globally and disrupting traditional supervision practices, necessitating a shift in perspective and practice within the affected

environments and structures. Given these challenges, the role of supervisors—who accompany DS from start to finish—becomes even more critical in supporting and enhancing their well-being.

Supervisors' contribution to DS well-being

Within the DS well-being literature, the link between supervision and DS well-being is strong. Supervisors play a crucial role in motivating students to persist with a PhD (Åkerlind & McAlpine, 2017), influencing student output (Hollingsworth & Fassinger, 2002) and shaping their future academic careers (Weidman & Stein, 2003). Dissatisfaction with the supervisory relationship can lead to increased dropout rates (Löfström & Pyhältö, 2014), contribute to anxiety and stress (Di Pierro, 2007), foster feelings of isolation and intensify negative perceptions of research challenges, often aggravating disagreements over the research's direction and focus (Gunnarsson et al., 2013). Cultural differences in supervisory styles, particularly when English is not the student's first language (Liechty et al., 2009), and stereotypes and assumptions about the supervision of international students (Corner & Pio, 2017; Fidler et al., 2023) also affect student well-being. Scholars (e.g., Pearson & Brew, 2002; Wright et al., 2007) have noted significant variations in supervisors' perceptions of their roles, with differences in how they respond to and structure support for needs beyond the academic realm (Vehviläinen & Löfström, 2016). Supervisors may often prioritise control over student learning and outputs, focusing on deadlines, deliverables and research outcomes. However, DS often cannot influence their supervisors' styles (Al Makhamreh & Stockley, 2020). Additionally, supervisors, who frequently carry heavy workloads, may not receive adequate recognition for the quality of their supervision (particularly in low-income contexts) and are under pressure to increase PhD completion rates. This pressure is compounded for students receiving online supervision, who may face frustration due to technological issues (Maor et al., 2016) and infrastructure limitations dictated by broader institutional systems beyond their control (Richards & Fletcher, 2019). This inability to influence these factors can lead to significant stress, further impacting the well-being of DS. As a result, DS are often under pressure to progress along what can feel like an irreversible path in their doctoral journey, potentially harming their mental health and well-being (Jaksztat et al., 2021).

Universities offer DS development programmes aimed at enhancing DS well-being by addressing a range of challenges related to managing time, stress and supervisor relationships. However, the continued high prevalence of mental health issues among DS, along with alarmingly low and decreasing doctoral completion rates (De Clercq et al., 2021), raises questions about the effectiveness of current interventions based on the isolated factors in addressing the underlying causes and improving outcomes. This highlights the urgent need to develop and implement new kinds of interventions informed by a holistic understanding of the complex interplay of factors influencing DS well-being. One promising avenue lies in exploring diverse well-being practices that empower them to navigate the challenges they face.

Doctoral well-being practices

Practices are 'embodied, materially mediated arrays of human activity centrally organised around shared practical understanding' (Schatzki, 2001, p. 2). They are purposeful, they generate meanings of their own and people are invested in them. Practices involve not only the 'patterns of actions' but also the meanings, norms and values associated with

those actions. They persist and continue over time, extending across various instances or episodes of enactment. They constantly change, are emergent and are in a constant state of flux; they combine and form 'textures'—nexus of practices (Hui et al., 2016)—thus contributing to the construction of social order. Maller (2021) argues that social practices are the foundational building blocks of social life and therefore they are 'an effective tool for explaining what people do, and why and how they do it, from a relational perspective' (p. 261). Understanding practices in this broader social framework allows for an exploration of societal patterns, norms and structures and how these are reproduced and transformed through activities.

DS well-being literature, although not inspired by any specific practice theories, does mention several practices such as participating in a scholarly community (Stubb et al., 2011), engaging in a work group (Stubb et al., 2012), collaborating with peers and other professionals (Douglas, 2023) and attending a doctoral writing group (Beasy et al., 2020). For the purposes of this paper, we classify the practices into three distinct, but interdependent, categories: self-initiated practices, collective practices and supervisor-led practices. (1) Self-initiated practices are self-initiated actions by DS to manage their well-being. These include, but are not limited to, examples like time-management techniques to balance research studies and personal life effectively, and engaging in stress-relief activities, such as journaling and physical exercise, to cope with the pressures of research. (2) Collective practices refer to shared activities among DS that foster a sense of community and mutual support. Examples are study groups that provide academic support and encouragement and social gatherings or interest-based clubs that offer respite from the rigours of academic life, allowing students to relax and build networks of support. (3) Supervisor-led practices are strategies initiated by supervisors to promote the well-being of their DS. Examples include providing clear, specific and actionable feedback in a timely and supportive manner to both encourage progress and reduce anxiety, and facilitating sessions on well-being and resilience to equip students with strategies to manage academic challenges. These practices are 'social' because they are not solely determined by individual preferences or actions, but rather are performances that reflect the broader sociocultural context in which the DS are embedded. For example, reading in a library, attending lectures and receiving supervision are practices that depend on macro factors such as the employment of supervisors, the construction of libraries, the matriculation of students, the provision of learning spaces and funding for research and study (Haslanger, 2018). Macro factors provide resources for understanding why social practices tend to be stable, but also reveal sites and opportunities for change. Haslanger (2018) argues that by challenging social meanings and intervening in the material conditions, outcomes (e.g., programme success, well-being and career progression of DS) could be influenced. Building on this understanding, it is crucial to examine the importance of place, where these practices are embedded or performed, to fully grasp their impact on DS experiences and outcomes.

The role of place

It is important to note that practices are embedded within specific places, moulded by the characteristics and meanings of those places. The physical attributes of a place, such as its infrastructure and material layout, can influence the types of practices that occur there. For example, the setting of a supervisor's office room within a university campus (Madikizela-Madiya & Atwebembeire, 2021) suggests that individuals may choose, whether consciously or not, to present certain aspects of themselves within those specific spatial contexts (Leitner et al., 2008, p. 307). DS and their supervisors might attribute social, historical and cultural meanings to that office, which in turn influence the

practices performed there. The office may also carry varying symbolic meanings for its occupants and visitors. Therefore, a supervisor's office may facilitate practices like giving and receiving feedback in particular ways. Thus, the social, material and symbolic elements of place are constantly organised in relation to each other, and it is argued that this organisation brings a place into being (Stephenson et al., 2020, p. 815), where practices are enacted. This implies that a place is not a static, pre-existing container but is dynamically constructed through the interactions among humans, materials and organisational activities (Stephenson et al., 2020, p. 810).

Understanding the complex interplay between DS, their supervisors and the environments in which they operate is crucial to addressing the rising mental health challenges within this population. To further illuminate the factors influencing DS well-being, we will utilise SPT as a lens to explore the dynamics of doctoral life.

Social practice theory

Practice theories have long been utilised for conceptualising health and well-being (e.g., Blue et al., 2021; Cohn, 2014; Hennell et al., 2019; Maller, 2015; Wiltshire et al., 2018), yet their application in DS studies is rare. Lee and Boud (2009) are notable exceptions in advocating for a practice-based approach to DS well-being. Practice theories view humans as agents ('voluntary actors') who act within the structures ('norms and resources') of practice. A social practice refers to the situated activities of social actors that occur in the flow of daily life or in context. These are routinely performed and integrate various types of bodily and mental activities, objects, materials, competences, knowledge and skills (Reckwitz, 2002). In essence, a practice is 'a temporally unfolding and spatially dispersed nexus of doings and sayings' (Schatzki, 1996, p. 89). Practice theories position practices as the 'site of the social' (Shove & Walker, 2014, p. 42) and the central unit of conceptualisation and analysis. Practices are seen not as isolated actions, but as something broader and more interconnected, distributed across place and time, and densely interwoven. For Shove et al. (2012), a practice is not simply what people do; it is something enduring across moments of doing. Practice encompasses the social, cultural and historical dimensions that shape and give significance to routinised behaviour. In other words, practices are dependent on social infrastructures and systems, and these include the availability of resources, technologies and institutional arrangements that facilitate or constrain the performance of practices. They are not static but are continually negotiated and shaped through the ongoing interactions between individuals and their social environment. It is through the processes of doing that a practice is sustained, reproduced and potentially changed or discarded. In this study, instead of focusing on DS as individuals, the focus is on the practices with which they engage; delving deeper to examine the components of these practices, including materials and skills that constitute those practices, and moving on to analyse how these practices emerge, change and connect (Shove et al., 2012). This is the critical feature of this study.

Key elements of social practices

Shove et al. (2012), beyond simply defining 'practices', present the very constitution of practices, dissecting them into their key elements: materials, meanings and competences (Figure 1). SPT assumes that through the association of various combinations of these elements and repeated performances over time, practices continue to exist or decline (Shove et al., 2012).

The integration of the three elements in the very act of enactment is what brings a practice to life. Figure 1 includes the practice of eating breakfast, illustrating how the configuration

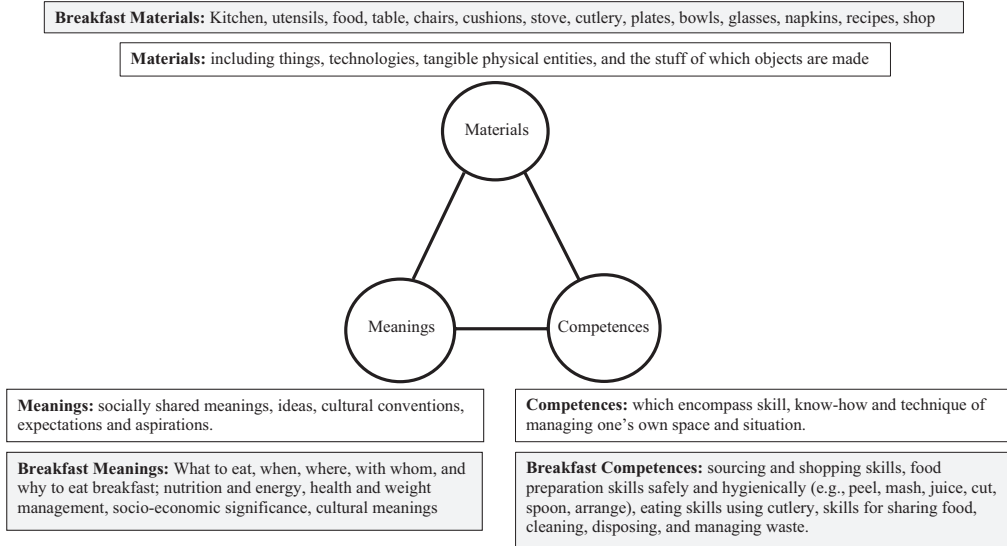


FIGURE 1 The social practice framework (adapted from Shove et al., 2012, p. 29) with an example of the elements of the social practice of eating breakfast (adapted from Maller, 2015, p. 58).

of these three elements during a specific performance—in particular contexts—illuminates the nature of this practice and, consequently, why people engage in certain behaviours. As agents adapt, improvise and experiment with new combinations of these elements, researchers are enabled to study the ‘trajectories’ of such practices. Importantly, multiple practices can converge synchronously, evolving over time into ‘bundles’ (Shove et al., 2012, p. 17). For instance, within the doctoral learning context, a bundle might include the practice of meeting a supervisor intertwined with the practice of collecting children from nursery en route from the university (materials), orchestrating transportation and time management (competences), and aligning the meeting’s outcomes with the overarching goal of doctoral completion amidst challenges (meanings). In supervisory experience, it is common to encounter DS who find managing these interdependent practice bundles challenging.

Like other social theories, SPT has been criticised for not being able to ‘lead directly to prescriptions for action’ (Shove, 2014, p. 416). Additionally, its ‘theoretical complexity and exacting approach to language and concepts’ have been noted to cause unease among government social researchers considering the application of the theory’s insights in policy-making (Hampton & Adams, 2018, p. 223). However, understanding a practice in terms of its constituent parts allows researchers to achieve a holistic understanding of that practice. It also, potentially, enables them to examine the ways in which practices might be changed to benefit the practitioners (the DS in this study). In the next section, we describe how our theoretical stance led us to the auto-photography method for constructing data and how this method facilitated our understanding of DS well-being from their perspective.

STUDY DESIGN, METHODS AND ANALYSIS

Auto-photography

Given our interest in examining the social practices of DS in their environments, we apply an auto-photography method. This approach involves participants taking their own photographs (Fox-Turnbull, 2011), aiming to document the world as seen through their eyes,

thereby facilitating knowledge production (Glaw et al., 2017). Auto-photography is useful in capturing people's perspectives because 'it offers... a way to let participants speak for themselves' and choose the images that 'participants themselves believe best represent them' (Noland, 2006, p. 1). Auto-photography has been effectively employed to explore various themes, including the significance of everyday places (Klingorová & Gökariksel, 2019; Lombard, 2013), experiences of physical activity engagement among mothers (Ritondo et al., 2024), of homelessness (Johnsen et al., 2008), identity construction among bodybuilders (Phoenix, 2010) and older adults (Kohon & Carder, 2014; Phoenix, 2010) and the impact of new infrastructure on rural communities (Butz & Cook, 2017), among others. In all these studies, auto-photography granted additional agency to the participants by centring their voices, while providing researchers with a unique opportunity to visually present research data.

Ethical considerations

Our universities' ethics committees approved the study. We ensured that participant welfare was safeguarded at every stage of the research process. In line with BERA's Ethical Guidelines (2018), participants were provided with detailed information sheets explaining the study's aims and objectives, the nature of the photographs to be taken, and how data would be used. They were explicitly instructed that no identifiable individuals (e.g., visible faces in the photographs) would be presented. This measure was taken to safeguard the identity of those who had not agreed to participate in the study and who might have been captured in photographs taken in public or private settings inadvertently. Each participant signed an informed consent form and was informed of their right to withdraw from the study at any stage, ensuring that participation was fully voluntary. We did not provide any incentives. The data was securely stored and shared between the authors.

During the online interviews, to minimise any potential distress, participants were invited to take breaks, advised to skip questions or discontinue participation if they felt uncomfortable. We provided mental health support contacts, regularly checking in with participants to remind them of their rights to withdraw or request changes to their contributions at any point in the study. We also reminded participants of mental health support services available at their respective universities to ensure they had access to campus resources if needed. We prioritised our own mental well-being by organising support in case of unforeseen actions or events. During the analysis and reporting, interview transcripts were anonymised by assigning pseudonyms and removing identifiable information.

Sample

We employed a snowball sampling strategy, targeting a currently registered cohort of DS through our internal and external networks. Twelve participants form the sample, all in their final year of studies at the time of data collection (2022–2023), with six from a UK business school and the remainder from diverse departments across four universities, including social care, nursing, IT, education and computing. This diversity reflects the composition of the author team, and the effect of the snowball sampling strategy employed.

The sample achieved equal gender representation, with participants relatively young (six between 20 and 30 years old, six between 31 and 40 years old). They pursued various specialisations (marketing, finance, operations, international business, events management, social care, education and computer programming) and represented diverse nationalities

(six from the United Kingdom, three from Europe, one each from the Middle East, Asia and Africa).

Data collection

In the first stage of the data-collection process, participants were asked to send us a photograph representing a practice which supported their DS well-being, along with a 500-word narrative of explanation. DS were instructed to ‘take pictures of places/objects/materials in their environment which contribute to their well-being positively or negatively’. The instructions provided were intentionally open-ended, allowing participants to use their own mobile phones or other cameras to capture a photo aligned with the study's focus. Following this, participants were invited for a brief unstructured interview. The purpose of these interviews is to add texture to the meanings conveyed by the photographs themselves. These interviews offered us a further opportunity to co-construct meaning and ‘minimise misunderstandings or misinterpretations of the photographs’ (Glaw et al., 2017, p. 7). During the interview, we used the photos with open-ended prompts (e.g., ‘Tell us about the photo’, ‘Why did you decide to send us this photo?’ and ‘What in this photo illustrates a practice that contributes to your well-being?’) were used. After these broad, opening questions, we encouraged participants to speak more directly to the research questions (Knott et al., 2022) on the processes of ‘how’ the identified practices were perceived to contribute to their well-being. Overall, the interviews ranged from 45 to 60 min in duration. The interviews helped to contextualise the images, prioritise participants' voice in the research process and construct a richer, more meaningful dataset. There are three forms of data. Digital photos, the participant-produced narratives that accompanied the photos and the interview transcripts.

Data analysis: A three-stage approach

To integrate data sources, we employ a staged approach (see Figure 2). Both authors concurrently analysed the data across multiple stages, as described below. This process adhered closely to the data analysis guidelines provided by Ray and Smith (2012), Glaw et al. (2017) and Rose (2022).

Stage 1: Descriptive and content analysis of photographs to identify ‘materials’

Each researcher independently conducted a descriptive and content analysis of the photos, using Ray and Smith's (2012) categorisation. Our focus at this stage was to answer the first research question on the photographic representations DS create to illustrate their views on how social practices contribute to their well-being. First, we examined the ‘site of the image’ (Rose, 2022). We individually sought to identify all the objects/tools/materials visible in the photos that perceived to constitute their practices. We identified all materials and descriptively listed them in separate tables. Second, we looked at the ‘site of production’ (Rose, 2022) of the image—such as whether it was taken on the campus or elsewhere—then we applied additional place-based descriptors to each photo. We also noted how frequently photos showed the materials and places. Specifically, we looked at different modalities (i.e., critical aspects that constitute the effects of a photo) including technological (the material qualities of photos), compositional (the visual organisation of photos) and social (a photo's relation to well-being practices) and coded them. Third, we reviewed the ‘site of

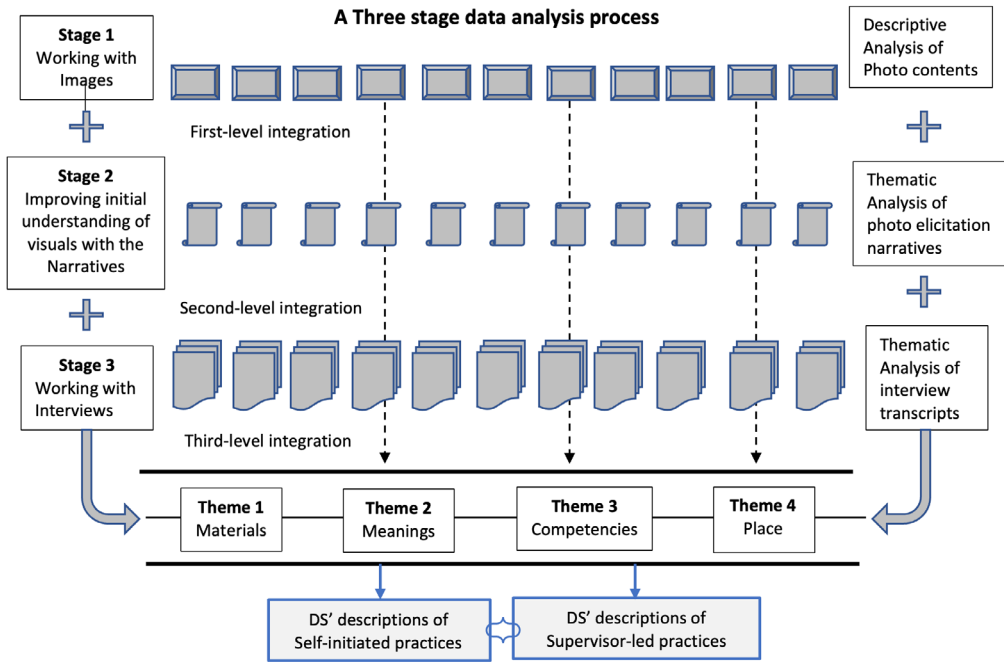


FIGURE 2 A three-stage data analysis process: participant-generated photos giving access to DS world.

audienicing' (Rose, 2022), which refers to the perspective from which an image is viewed. This involves considering the positioning of the viewer in relation to the photograph, including the angle from which it is taken, the framing of the image and the spatial arrangements of objects within the frame. We sought to understand how the image positions the viewer and what kind of meaning is constructed through this positioning. We then compared our codes and created Table 1, which presents the descriptive content analysis of all materials found in the images. Given that the photographs were created exclusively for this study, examining their 'site of circulation' beyond the research context was not relevant to this study. This initial examination of materials is understood as participants' collectively 'speaking' their experiences of social practices through photographs (Glaw et al., 2017).

Stage 2: Descriptive thematic analysis of participant narratives to identify 'materials' and 'meanings'

In Stage 2, we read, re-read and descriptively analysed the short narratives associated with each photograph. This process involved examining what participants wrote about their photos. Both researchers collaboratively engaged in this stage. First, we examined the ascribed 'meanings' of each photograph. We used open coding to highlight the significance participants attached to the photos. In most cases, the meanings were not immediately evident from the photographs themselves and therefore, analysing participants' written descriptions of why they decided to send us the photograph (meanings) became critical to uncovering the deeper insights and contextual significance behind each image. By searching for and identifying the *materials and meanings* at this stage, we were able to code the linkages between these two constitutive elements of practice. Finally, with a view to answer the second research question about social practices, we examined what social practices were signalled and hinted at by the materials and meanings we had seen.

TABLE 1 Stage 1: Descriptive analysis of photos (a catalogue of 'seen' elements, on the 'site of image'; Ray & Smith, 2012; Rose, 2022).

Image ID	Place	Setting and focus (indoor/outdoor)	Layout	Light	Materials	Any activity seen?	Any expression/emotion visible?
Figure 3	A corner of a study room, a chair, a laptop and stationery in focus	A close shot of a study space	Clear indoor lighting	Chair, a laptop, a lot of papers, pen, a loosely organised shelf with a teacup, medicines, water bottle, stapler, tapes, books, flask and more bits and papers	No	No	
Figure 4	A bookshelf, with neatly organised books, with decorative objects	A close shot of a three-level bookshelf	Clear light	Subject-related books, placed in three equal-sized sets, neatly arranged on each level, three decorative objects—one on each level	No	No	
Figure 5	A two-part old house is being constructed/renovated, with scaffolding as the focus	A long view of a two-part old building, under construction	Bright daylight	Small house, big house, on the side of a road, with a double yellow marking, scaffolding in between the houses, a door, car park space, parked car	No	No	
Figure 6	A pair of running shoes in focus	Central focus on the shoes	Clear picture	A pair of used running shoes, with laces and blue colour designs	No	No	
Figure 7	A hand that holds a teacup in an outdoor setting	Close-up shot of the teacup, with visible tea leaves	Bright, sunny, blurry background	A finger and thumb, soiled thumb, teacup on a table, tea and tea leaves	No	No	
Figure 8	A cycle lying sideways in a curvy road	Central focus on the cycle and the long, curvy road	A cloudy day picture, with daylight but without any bright sunlight	Narrow road, the ends of which are not visible; bushes and wild trees are visible in the background, cycle is lying down at the roadside	No	No	

TABLE 1 (Continued)

Image ID	Place	Setting and focus (indoor/outdoor)	Layout	Light	Materials	Any activity seen?	Any expression/emotion visible?
Figure 9	Café	bright, colourful interiors, green chairs, lights on, wall pictures, bins neatly ordered	Long shot, clearly showing the bright interior of the tea shop, a lot of empty chairs that are neatly arranged	Bright, all lights on, natural light is coming through the many windows seen	Chairs, tables, bins, wallpapers, photos, ceiling lights, hanging lights, menu cards, clean floor	Two people facing each other	No
Figure 10	A public street	a narrow walkway, flowers by the roadside, a finished house, treetops seen in clear-sky background	Image showing the length of the street, a completed house at the end of the road	Flowers seen in the shadow, some bright areas of light	Walls, stone kerbs, yellow flowers, treetops, a house in sky background	No	No
Figure 11	A dog sitting on a bed, in a bedroom		Colour, clean window screens	Light coming through the window	Window, clothes	No	No
Supplementary File: Other photos not shown here due to space limits (but used in the data analysis stage)							
Figure A	Labyrinth in a park setting (outdoors)		A bird's eye view of a labyrinth in a garden, many concentric circles, with red and white flowers	Bright daylight, colourful garden, on a sunny day, park background, on a sunny day	Grass, well maintained, clear circles with a flowery core, well-grown trees at the periphery, stonework, gateways and ornamental rocks	No	No
Figure B	A corner of a table, a peacock feather, a book and a laptop are in the background		Clear view of the feather, plain background	Bright colour is coming through from the top	A laptop, a big, bound book, a peacock feather and a book or a coaster, partially visible	No	No
Figure C	A cartoony image of a female with a trophy, being held or lifted by a male		Plain green colour background	No natural light but a clear image	The male appears to be White, and the female appears to be from a BME background	No	No

(Continues)

TABLE 1 (Continued)

Image ID	Place	Setting and focus (indoor/outdoor)	Layout	Light	Materials	Any activity seen?	Any expression/emotion visible?
Figure D	A dark room, with two computer monitors switched on and a person holding a Covid electronic poster on a mobile device	Central focus on the two switched-on monitors and a Covid poster	Dark room, with bright computer and mobile screens	A silhouette of a male holding a mobile Covid screen, in a dark background, with two screens in front of him	No	No	

It is important to note here that, at this stage, we developed a profound appreciation for the significance of place in shaping DS experiences. We recognised how practices were deeply embedded within specific environments and how these places enabled practices coming together.

Stage 3: Thematic analysis of interview data to identify 'competences' that connect 'materials', 'meanings' and 'places'

Next, following Braun and Clarke (2021), we familiarised ourselves with the interview transcripts. Considering the materials, meanings and places we identified in the previous analytical stages (Stage 1 and 2), first, we analysed the transcripts with a specific focus on locating the competences described by the participants during the interview. We open-coded the various competences—the skills, know-how and techniques of managing their place and situations. Second, we reviewed the codes and found patterns in them with the intention of linking materials and meanings with competences, so that we could more fully understand the practices these elements constituted in each photograph. Third, we compared all the codes we generated during the analysis of interview data and the images to construct themes that were well represented among multiple participants and the images. We labelled these themes to describe the experiences behind them. Our focus at this stage was to capture the important aspects of the data in relation to the second and third research questions (i.e., how the materials/meanings/competences constitute the practices, and how these practices contribute to participants' well-being).

Integrating data through data-source triangulation

After completing the three-step process, we iteratively compared the codes across the different data sources. During this data-source triangulation (Carter et al., 2014), we sought complementary information between the photographs, narratives and interview data and cross-referenced the themes, identifying relationships between data strands. This process helped us enhance the validity and reliability of our findings, gain a comprehensive understanding of the research problem and confirm our results through cross-verification. We generated four main themes: materials, meaning, competences and place (see Table 2).

We then reflexively synthesised these themes and generated two sets of high-level stories grounded in the data: (1) DS descriptions of self-initiated practices; and (2) their descriptions of supervisor-led practices. Further data integration occurred in subsequent collaborative writing sessions, where we further refined the interpretation of results and explored the implications of our findings. We acknowledge Noland's (2006) caution regarding photographs representing the photographer's own view of what is important and that using photographs may also reveal what previously may have been assumed. In our case, the analytical process highlighted the importance of supervisor-led practices being significant to the well-being of participants, rather than an emphasis on the academic contribution the supervisors offered.

Researcher positionality

Reflexivity emphasises the importance of researchers critically engaging with their own positionality and experiences to enhance the research process (Berger, 2020; Lumsden et al., 2021). Our understanding of DS well-being is informed by our own experiences as

TABLE 2 Data analysis: First-level and second-level themes.

First-level themes	Materials	Meanings	Competences	Place
Second-level themes	<ul style="list-style-type: none"> Scaffolding Computer screen Books on shelves Office table Papers/printouts Peacock feather Pet on a bed Teacup Running shoes Cycles Communal chairs, tables, lights Drinks 	<p>Supervision as...</p> <ul style="list-style-type: none"> Personal time to think and reflect Interpersonal time to know each other An opportunity <ul style="list-style-type: none"> To build relationships To support To ask questions To build resilience To express emotion To learn patience A way of managing loneliness A place to find assurance A system to access expertise A place to become <ul style="list-style-type: none"> Confident Independent Resilient Mentally and emotionally well 	<p>Know-how and skills</p> <ul style="list-style-type: none"> Make decisions Make mistakes Manage work schedule Ask for help Feel a sense of belonging <p>Being</p> <ul style="list-style-type: none"> Informal Non-hierarchical Unpressurised Authentic Themselves 	<ul style="list-style-type: none"> Study room Private home Public places Walkways Alleys Coffee shop Supervisor's office Virtual location (i.e., an online meeting place)

former PhD students and current roles as doctoral supervisors. Our journey through the PhD process, coupled with supervising several PhD students and conducting workshops on PhD well-being at doctoral colloquiums and conferences, provides us with a unique insider perspective. However, we acknowledge that we cannot be separated from our biographies. Being active participants in these academic and professional circles grants us a unique advantage—an ability to maintain a critical distance, balancing our insider knowledge with an objective analysis of DS and supervisor practices. As Lumsden et al. (2021) suggest, our reflexivity enables us to bridge the gap between personal experiences and scholarly analysis, fostering a more nuanced understanding of the subject matter.

Moreover, it is important to recognise that no research approach can provide a completely unmediated view of reality; all methodologies are influenced by the tools and assumptions they employ. As Berger (2020) notes, it is only in engaging with reflexivity that researchers are able to recognise their influence on the research process and outcomes. This recognition is crucial for producing robust and empathetic research. With methodological reflexivity (Johnson & Duberley, 2003), we declare that our involvement in both academic and supervisory capacities—combined with our reflexive practice—positions us to offer a balanced analysis of supervisor-led well-being practices that contribute to DS well-being.

FINDINGS

Our analysis of the dataset, using the lens of SPT, brings to the fore the role of materials, meanings and competences in shaping DS well-being-enhancing practices and the importance of places. In this section we show how the interconnections between the three constitutive elements of social practices are viewed by the participants.

Materials (theme one)

The DS photographs show a wide range of materials—physical materials that are a part of the daily lives of PhD students. Participants told us how using, seeing and accessing these physical objects has an impact on their well-being. Figures 3 and 4 give examples of the objects participants depicted.

Figures 3 and 4 show a range of materials that played a role in DS well-being. These were not just inanimate objects sitting in the background; they actively enabled and were fundamental to the existence of various practices. It is because of these materials that practices such as reading, writing and researching come to be, with books, papers and laptops constituting the core of these activities. The participants did not view these objects in isolation, but connected them to their experience to give them meaning.

Meaning (theme two)

Using materials aided the creation of meaning to the engagement, and together they contribute to well-being. The participants identify several self-initiated practices that linked materials and meanings. For example, Ashok walks past a house with scaffolding (Figure 5) on the way to university and reflects on the connection to their doctoral journey:

It [the PhD] is just like a house, you know—you don't build a house to not want to live in it, and not want that to be sort of foundational in your existence. So, that's

really what I felt about that, was that, you know, you're building together something that is so integral to the future of what you want to do in academia, or the way that you want to live in academia, and it's also so integral to notions of well-being, you know—the home that you're going to be living in, and a place that in supervision you're going to be living in, and just working on that process, really.



FIGURE 3 A study room (materials in a cluttered place).



FIGURE 4 Another study room (materials in a de-cluttered place).



FIGURE 5 Scaffolding.



FIGURE 6 Running shoes.

Louise, photographing her running shoes (Figure 6), describes how putting them on and running provides time for reflection on the PhD process and how this enables her to recharge:

Running has given me time and space to reflect and has a positive effect on my mental health—and that is certainly an area that needs attention when you are doing a PhD over such a long period of time and working full time too.

David offers a photograph of a cup of tea (Figure 7) taken in an outdoor space at home on a farm. These moments away from the desk are vital for DS well-being. As David observes:

I took this photo to remind myself of a moment of relaxation, from reading text and sitting at a desk—green tea, warm sun, sitting outside my house in the fresh air.



FIGURE 7 Teacup.



FIGURE 8 Bikes.

Miles provides an image of a crossroads passed when out cycling (Figure 8). His cycle gives him time alone in the countryside and as he notices, makes a contribution to his well-being:

The road is bumpy with choices along the way. This junction sums this. Do I go right, or do I go left? Or even turn around? Eventually, all of these roads join back up and arrive at the same place, although further junctions, or suggestions, interactions, and choices arise on any of these roads. Left is steeper and shorter whereas right is gentler on the body but longer. Time might be taken away from PhD research but the positive benefits, both physically and mentally, are incalculable. The mind is free to roam.

Physical material and objects are important to the DS and in their individual narratives, they showed how meaning and materials impact their well-being.

Competence (theme three)

DS participants say that they have the 'know-how' and the competences to make decisions, admit mistakes, manage work schedule, ask for help and have a sense of belonging. In an informal, non-hierarchical, unpressurised place, they can be truly themselves. Participants

identified supervisor-led social practice of supervision, in which the constitution of materials, meanings and competences make up that practice.

Mary notices that (Figure 9) having the supervision in a café enhanced her well-being. For her, the café at the edge of the university campus is a public place that is on the periphery of the academic world. But the ability to discuss social issues, sharing stories with her supervisor in that informal setting, makes a positive difference to her well-being:

Sitting in a coffee shop, discussing wider social issues, and sharing stories with supervisors that may not link directly to my thesis/their role, just for a few minutes before and/or after structured supervisions, has enabled the experience to be one I genuinely look forward to. We have a coffee together and talk and smile. Sometimes these sessions are short and to the point, sometimes they are more informal and can spill significantly over the allotted time; either way, I never feel as if I am a burden.

And Mary recollects a supervisory meeting that had a changed meeting place. The meeting held in the campus café rather than the supervisor's office, and it created an opportunity for her to meet another researcher who she had met in an online place:

At my last supervision, the supervisor said 'Oh, shall we go and have lunch?' And then there was a colleague in the café who I had met on a Teams meeting. We went and sat. So, this colleague asked me about my research. I talked about it, and they said 'That's really nice—you speak really well. Your research is really interesting'.

The use of a different place (the café) with alternative materials (communal chairs, tables, drinks) offered new meanings (building relationships, supervisor presence and interpersonal time to know each other) and built competence (managing work schedule and increasing confidence).

As Mary concludes, the meeting in the café felt like they were *'genuinely creating spaces where I can be a researcher...'* Further, as she reflected afterwards: *'the café meeting had allowed for the slow but steady kind of emergence of feeling like I had a place around that table of academic researchers'*.

For Mary, the change had helped remove isolation and created a place for positive DS well-being in the context of PhD business. It was a common experience, endorsed by many of the participants. With this in mind, conversely, the absence of some materials, places and meanings could impact on competence and DS well-being. Negative impacts on well-being could occur.



FIGURE 9 Café.

For Curtis, a senior manager prior to the PhD, this was the case very early on with a supervisor, as he recollects entering the supervisor's office:

Knocking the [office] door of my supervisor, you know, I was just looked at: 'Oh, why did you come into my room without knocking?' I look at myself. I am an executive. I have a lot of staff working for me. I don't shout this way at them. Is this the way academia is? Am I really for this? Why should somebody, well, never see me, and is going to be supervisor for three years? Why should such a supervisor tell me off? And I went back. I stood at the door for about five minutes, and he asked me to come in, and I greeted, and I said 'Sorry, where I come from, we are cultured people. I actually greeted you'.

Subsequently, Curtis was aware that these interconnected disruptions acted as inhibitors in the management of his studies and impacted on his competence to maintain DS well-being:

Those are my predicaments, and my situation. Those are my stories and my well-being.

What is interesting to note here is that materials, meanings and competences come together in a specific place.

Place (theme four)

For these DS participants, the following places seen in the photographs and the narratives: study room, private home, public places, virtual location (on a TEAMS call), the coffee shop and the supervisor's office were important.

Earlier, Ashok, Louise, David and Miles have described the relevance of the outdoors as a place for DS well-being. For some participants, home is their place. Maya (Figure 3), in her narrative, writes:

Sitting down at the workstation created in the corner of my room gives me the comfort required for well-being. Before the creation of the workstation, doing my research has been a pain and stress.

Maya has made a connection between the materials (her workstation), the ability to read and write (competences) and a place (her room) and found meaning (the likely consequence on her DS well-being). Not every DS in the study depicted a home-based place for positive DS well-being.

Nina's photo (Figure 10) is of an urban place on a city pathway. Her headset plays music (material), she is in a beautiful area (place) and the meaning she gives the experience helps her feel well (competence) and builds DS well-being. She tells us:

I had decided to leave a little earlier than I might otherwise have and walk a longer but more scenic route to the university. The April sun was shining. Listening to music, holding a book, which I knew I would get to read at some point that afternoon, I found myself momentarily alone whilst walking into a city centre; beautiful buildings all around me and flowers blooming either side of me. I often get feelings of guilt when I do not feel like I am 'being productive'; taking a walk feels like a luxury I can ill afford. Putting a little time aside, however, just to walk,



FIGURE 10 Public pathway.



FIGURE 11 A pet, being part of a digital location.

to be humbled by the world, has had a very positive impact on my mental health and well-being...

Theo, a mature, international DS with extensive industry experience, describes how virtual supervision impacted him (see [Figure 11](#)):

It's obvious. I'm not on the inside. I'm not the right age. I'm not the right race/ethnicity. I'm not the right social class. My professors were a lot of support. They were a greater support than the institution of academia. Forms, councils, processes, institutions are dehumanising. I think one of my favourite moments in my PhD is when [Supervisor X]'s dog barked in the background of one of our meetings. They brought the dog onto the camera. It made me feel like I was a human talking to another human. He shared something about his everyday life.

Theo's experience demonstrates that in virtual places too, when materials, meanings and competences constitute the social practice of supervision and in the dynamic organisation of practices, well-being is experienced. We can also see that by focusing on competences (the ability to listen and to discuss subject materials) and meanings (mutual respect, trust in each other, being transparent, treating the other as equal, with the ultimate goal of developing a researcher, another human being), the digital/physical binary is transcended to create positive well-being. Theo's experience aligns with findings from Cullinane et al. (2022), who established that doctoral learning communities can flourish utilising online platforms.

Taken together, the findings point out how materials, meanings and competences constitute certain well-being-enhancing practices, how a supervisor-led practice such as supervision creates well-being experiences, what role 'places' play in making practices come together and how well-being was experienced in the dynamic organisation of social practices. We will now discuss the implications of these findings.

DISCUSSION

In the data extracts included here, all the DS are aware of the impact on DS well-being of the physical and material places they utilise. While SPT's post-humanist stance recognises the agency of materials, objects and technologies in the construction of everyday life (Shove et al., 2012; Strengers & Maller, 2014), as researchers we had not estimated that places—notably the informal cafés and digital places—students inhabit with supervisors could have such strength. The physical and virtual settings acted on DS and supervisors by providing environments that fostered open communication, trust, collaboration and a sense of belonging, which in turn enhanced DS well-being and academic productivity. In this context, for a space to have agency means that the physical and digital places where interactions occur significantly influence the behaviours, emotions and practices of the individuals within them, shaping the outcomes of their engagements. Further, we have also learned to consider how social practice theories 'elevate materials, objects and infrastructures to the status of active elements that co-constitute practices' (Maller, 2015, p. 54), as identified in the findings here.

Many of the participants' experiences are ones where they held an agentic role, which supervisors enabled, often through choice of location. Participants here have described how supervisors have enabled them to build and support their personal goals by acknowledging their individuality and circumstances, demonstrated through their interactions and practices in the interpersonal and physical place of supervision. In our sample of DS, all but one (Curtis) had a positive experience of materials, meanings and competences coming together in a place, and enhancing their well-being. Curtis experienced limited support from his supervisory team, with supervision taking place in formal places which predicated conflicts and disintegration of linkages between the elements of materials, meanings and competences.

Using SPT, if we unpack the doctoral student's engagement with their supervisor, we gain an understanding of how supervisory social practices can facilitate DS well-being. Schatzki (2001, p. 3) argues that studying practices 'as if they were discrete, arguably prevents a consideration of how both empirically and theoretically, we might recognize that the social is a field of embodied, materially interwoven practices'. Further, the interdependency means that examining one practice in isolation from the others with which it intersects 'is likely to be limited in its power to explain a current issue or social problem, as well as providing a limited basis on which to design for intervention and change' (Maller, 2015, p. 59). In this study, we find a range of connected practices hanging together in informal spaces when DS and supervisors meet. Practices tend to intersect with each other in informal and less rigid, neutral spaces. By developing a shared understanding of the project at hand

(competence), by conferring a sort of collegial identity to the student (meaning) and by sharing a cup of coffee, while sitting side by side in a café (materials), their practices 'suffuse' (Shove et al., 2012), that is, they spread over as liquid or gas. In these informal, neutral places, the constitutive elements of DS and supervisor practices fuse with each other, relaxing their boundaries, making fresh connections possible (see Figure 12). As they spend quality time together in these places, just as music softly fills a room, mutual trust and respect begin to flow between them, infusing the environment with a sense of compassionate connection. In this atmosphere, both DS and supervisors transform and perpetuate meanings, materials and competences into richer, more integrated practice bundles, creating an experience of positive well-being.

Based on these findings, we conclude that DS well-being is an outcome of the dynamic organisation of social practices of DS and supervisors. It then follows that to improve DS well-being we must examine further, analyse and understand the kinds of practices in which they and their supervisors are engaged. Rather than focusing on individuals, we need to see DS and supervisors as people who perform a set of practices together. Additionally, these practices involve a wide range of materials, meanings and competences. This constitution indicates that besides ensuring that the right kinds of materials and resources are available and accessible to DS, it becomes even more critical to understand the meanings that DS attach to these materials and competences, and the specific social practices in which they are engaged. By gaining insights into how DS and supervisors interact with these elements, universities can better tailor their support systems. Furthermore, these elements also highlight that geography—in this case informal places—plays an important role in facilitating DS well-being. As the supervisory relationship evolves over time, we speculate that the dynamic combination could create other outcomes, such as more effective learning, more prosocial behaviours, greater productivity, increased optimism and timely completion of the PhD programme. More research is needed to determine what kinds of combinations cause or trigger these kinds of spillover outcomes (unintended consequences) for DS.

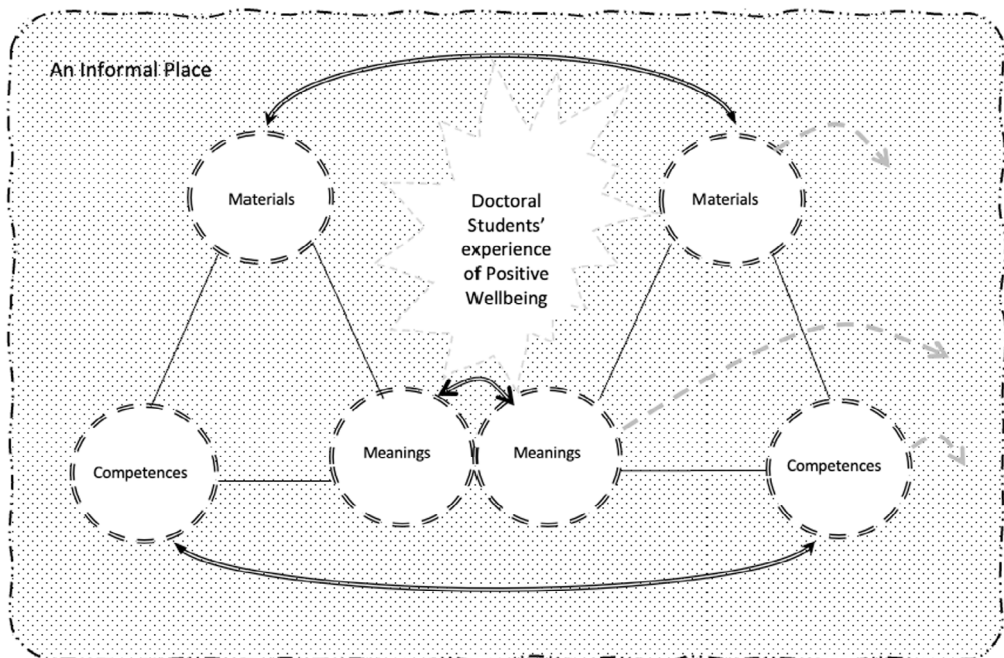


FIGURE 12 Interconnected practice 'complexes' contributing to positive well-being.

By focusing on practices (as opposed to individuals at the micro level and structures at the macro level), we can better understand how the dynamics could be a potential source of positive or negative outcomes. For example, practices inevitably compete for students' and supervisors' time. When practices are neatly aligned, specifically in informal places, students might experience positive emotions. Students might begin to develop trust and feel safe when asking for help. And when they gently collide with each other, we speculate that they may even spark creativity and unconventional research directions. However, when their practices crash with each other, they can lead to unhealthy power dynamics, stress, stagnation and programme discontinuation. Effective management of these elements depends on the many factors that are present in their micro and macro environments and on how the student manages them. In places of synchronicity and synergy, DS personal well-being becomes a tangible outcome. The informal place, like the café, enables a new way of seeing, knowing and understanding the world (Cresswell, 2014, p. 18). DS begin to see, know and understand that they 'belong' there. In places of power conflicts and collision of practices, however, the well-being outcome is not experienced, leading instead to a detrimental impact on students' mental and emotional well-being. In this study, social practices bridge micro-level experiences and macro-level structures and produce DS well-being. As researchers, we could elevate and celebrate even more the crucial role of place in connecting practices and fostering DS well-being. In sum, with a greater cognition of the complex interplay of practices and places, it is possible to identify how well-being is experienced by DS. Such focus will not only help frame the issue of DS well-being differently, but will bring to light a new agenda for policies related to their education and development.

While further research is needed to fully understand the intricate relationships between these elements in both DS and supervisor practices, this study highlights the potential for more complex links and unexplored consequences. The extent to which supervisors are aware of their own practices and their potential impact on their well-being is indeed another complex area that warrants further investigation. We are currently exploring these topics in a separate study, which aims to shed light on how supervisors' self-awareness and practices influence not only their own well-being but also the well-being of their students and colleagues. We hope to contribute useful insights that can enhance supervisory practices and promote overall well-being in universities.

Implications for theory, practice and policy

This study sheds light on aspects of doctoral well-being practices, supervisor actions and the importance of place in enabling certain practices to be performed. While social practice theories are relatively new in doctoral education research, they hold promise. We highlight the material dimensions of doctoral experience, and the connection between place and well-being to suggest that institutional interventions for DS well-being and completion rates should target social practices, not just individual attitudes and behaviours.

Theory

In employing SPT, the study recognises the agency of materials and objects in shaping DS practices and well-being. This breaks down the traditional structure–agency divide, acknowledging the active role material artefacts play in everyday life (Shove et al., 2015; Strengers & Maller, 2014). This focus on materiality demands a shift in doctoral education. Real change might occur by altering the material conditions of doctoral researchers through interventions aimed at their social practices. The agency of materials and

contexts in this study is evident; it was through the tools used by supervisors and the informal setting of supervision meetings held in cafés that DS felt these practices significantly contributed to their positive well-being. In other words, without these materials and informal contexts, the positive well-being experienced by the DS might not have been achieved. By recognising and leveraging the agency of materials and informal contexts, it may be possible to create a more holistic theorisations on DS well-being. Similarly, place is an under-researched aspect in doctoral education research, despite existing process studies offering various frameworks for analysis (Stephenson et al., 2020). This gap mirrors a broader trend in academic writing, where 'physical settings seldom figure explicitly' (Sword, 2012, p. 93). Including sensory and embodied experiences of places could enrich understanding of how individuals navigate and construct meaning within their environments. Researchers need to employ innovative methods that match the reality of doctoral journeys that happen in time and place. This aligns with process studies that challenge static notions of space, urging scholars to examine other spatial-temporal aspects of places, including movements, boundaries, duration of practices, speed and rhythm of practices that contribute to DS well-being. It might include examining how other sensory experiences such as touch (a pat on the back), taste (sharing food/coffee together) and physical movements (issues related to change of rooms, labs, moving house, job-related relocations), along with the role of pets, affect DS well-being. To this end, recent advancements in SPT (Shove, 2016, 2022; Shove & Trentmann, 2018; Shove et al., 2015) offer valuable insights into how interconnected practices can significantly contribute to DS well-being, providing a framework for future research and interventions.

Practice

Our findings suggest that doctoral learning extends beyond physical boundaries, encompassing a constellation of places—physical and virtual, formal and informal—that shape DS well-being. We extend the 'doctoral learning ecology model' by demonstrating that learning flourishes not only within established domains (Elliot et al., 2020) but also in 'liminal spaces' (Shortt, 2015), where boundaries blur and practices converge. Growing evidence confirms this link (Wang & Wang, 2016; Wood & Martin, 2020; Wood & Selwyn, 2017). Focusing on physical and virtual settings can also illuminate power dynamics in supervisory sessions, both in-person and remote. We make clear that DS well-being does not happen in vacuum and there is a strong link between well-being and place (Atkinson et al., 2016). Creating and maintaining physical and virtual spaces that are conducive to productive and stress-free interactions can significantly impact DS well-being. Institutions should invest in comfortable, accessible and humane meeting places that can be tailored to informal supervision sessions or relationship-building work. The environment in which these interactions occur can greatly influence the effectiveness of the support provided and the overall well-being of the DS.

Policy

Given the critical role of materials and place in supporting DS, funding cuts that limit access to essential resources can severely hinder students' ability to engage effectively in their research practices, thereby impacting their well-being and academic progress. Furthermore, allocating resources for creating more innovative learning places that do not signify power imbalances but promote playful and inclusive learning is essential. Institutions can also improve doctoral student well-being by implementing more comprehensive policies that

encourage flexible supervision practices and diverse well-being resources, following the Concordat's emphasis on supportive research cultures. Training supervisors on well-being support and utilising various technological/AI-enabled tools effectively would further empower them. Regular feedback mechanisms for students, and well-being metrics in supervisor evaluations, would ensure student needs are addressed and best practices are incentivised. Additionally, tailored supervision policies with flexible work hours, remote supervision options and financial aid would support the diverse needs of international students, part-time researchers and caregivers. Finally, fostering a community of practice among supervisors through place-based workshops and networking would allow them to share successful strategies and create a more supportive environment for all DS. We hope that the findings of our study can spark discussions among supervisors and policymakers about how to harness the potential of under-utilised informal settings—both within and beyond institutional boundaries—to support diverse students with varied learning backgrounds.

While our study offers valuable insights, acknowledging its limitations is crucial for an informed interpretation. Firstly, the relatively small sample size ($n = 12$) based in the United Kingdom limits transferability. Secondly, participants' initial enthusiasm for well-being research and auto-photography might have introduced a slight positive bias. Future research could expand its scope to international contexts, investigate the described practices from diverse perspectives (e.g., students with mental health challenges, doctoral development programme managers and heads of doctoral colleges) and incorporate collaborative practices beyond those studied here. Finally, focusing solely on the DS perspective limits our understanding of supervisors' role in well-being. Future studies should include both DS and supervisor perspectives to gain a more holistic understanding of their relationship and its impact on DS well-being.

CONCLUSIONS

DS well-being should be viewed as a result of the dynamic organisation of practices they engage in, at specific times and in particular contexts, both within and outside institutional boundaries. An understanding of the practices undertaken by students and their supervisors is essential for enhancing DS well-being, demonstrating how informal places can function as enablers for the ongoing enactment of practices that foster DS well-being. Specifically, we advocate for the development of policies that foster supportive processes, as well as supervisory practices that acknowledge the importance of place and individual agency in shaping well-being.

For optimal DS well-being, we conclude that the three constitutive elements—materials, meanings and competences—are necessary. Understanding how these practice complexes work may be critical for understanding and enhancing DS well-being. Not only do universities require a change of approach to well-being; they require cultural change that engages with, disrupts and revises social meanings currently ascribed by DS (Haslanger, 2018). Achieving this understanding also depends on recognising the critical role of places and material infrastructures (Shove et al., 2015). Dismantling the myth of individual responsibility for well-being, the study suggests a deeper exploration of social practices and the complex interplay of individual agency, institutional structures and broader societal forces that ultimately determine well-being. This focus necessitates a shift towards interventions that address the interconnectedness of these factors to create a supportive doctoral ecosystem.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

Data supporting the findings of this study can be provided by the corresponding author on request.

ETHICS STATEMENT

This study was authorised by the Ulster University Business School Ethics Committee. The research presented was carried out with due consideration to all relevant ethical issues and in line with BERA's Ethical Guidelines for Educational Research.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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