Toward a framework for embedding doctorateness in research proposals

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Abstract

Doctorate graduates are expected to contribute original knowledge and possess advanced skills essential for addressing complex problems. Embedding doctorateness in doctorate programs could help ensure that the productivity of doctoral research is explicitly demonstrated. Doctorateness represents independent scholarship, the transition from knowledge consumption to knowledge creation, original scholarly contribution, and research integrity. A research proposal is the backbone of a doctoral journey, as it acts as an academic development plan for supervisors and students. Hence, understanding the role of supervisors in enabling doctorateness in preparing a research proposal is essential for improving student satisfaction and competencies in their academic development. Here, we develop a framework for facilitating doctorateness in preparing a research proposal and provide recommendations on supervisor functions.

Keywords: doctorateness; research proposal; doctoral education; threshold concept

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Introduction

As the number of students graduating with a doctorate has continued to grow, reaching 276,800 graduates across OECD countries in 2017 (OECD, 2019), concerns about the quality of doctoral education have increased (Leitch et al., 2022) despite the continued development of stringent institutional, national, and regional doctoral education standards (Council on Higher Education, 2018; QAA, 2020). Funding for doctoral education has been declining over the years, and Jowi (2021) observed that this has led to poor or inadequate research infrastructure, learning environments, and learning and research support, particularly in Africa. The decline in funding is probably a result of misconceptions on the urgency, novelty, and relevancy of doctoral education in addressing economic, environmental, and social challenges.

Embedding doctorateness in doctorate programs could help clarify these misconceptions while improving the quality of doctoral research. Trafford & Leshem (2009) framed doctorateness as a demonstration of independent scholarship, original scholarly contribution, subject mastery and technical expertise, transition from knowledge consumption to knowledge creator, establish links with other disciplines, research integrity, ethics and safety, and attainment of the highest academic degree (Fig. 1). Since a research proposal is an individualized and negotiated learning strategy for demonstrating reflective practice, professional skills, and productive and situational knowledge expected in the doctoral journey (Fig. 1), it can act as a powerful early indicator of doctorateness. Pietersen (2014) demonstrated that doctoral research proposals rejected at South African universities lacked doctorateness; that is, they lacked logical connections, showed poor subject mastery, lacked sound justification of research problems, based arguments on anecdotal evidence and presumptions, had poor research design, confused fundamental concepts, and had technical issues on language, referencing and clarity.

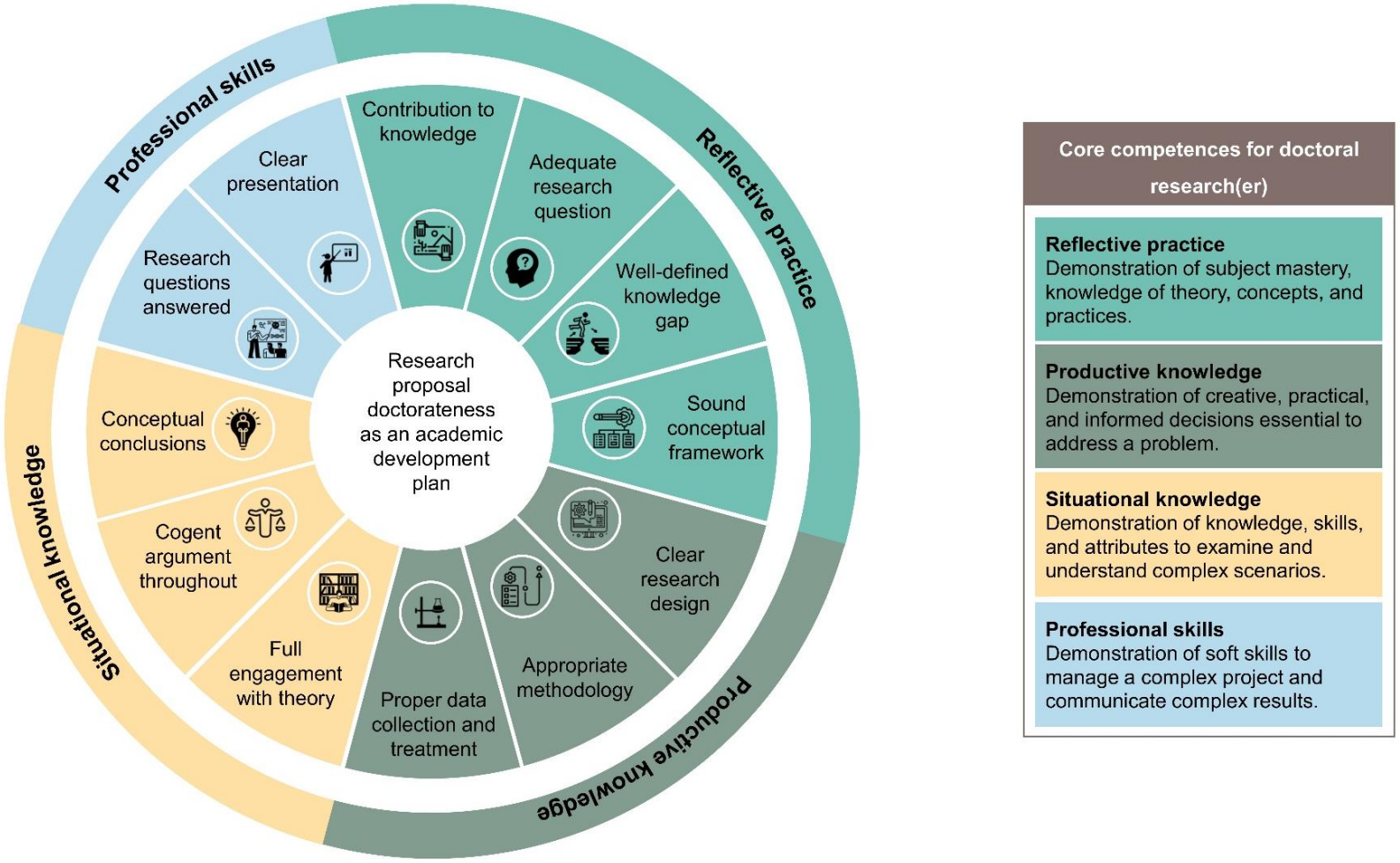

Figure 1 The critical components of doctorateness in the Trafford and Leshem model (adapted from Trafford & Leshem, (2009) and used with permission from the copyright holder).

This conceptual article examines doctorateness in research proposal preparation with the aim of developing a framework that could guide research supervisors, examiners, and graduate education leaders in ensuring that doctorateness is embedded in the doctoral process. We focus on a comprehensive research proposal submitted 6-24 months following provisional admission or as part of qualifying examination and not on those submitted during the preadmission stage. We examine the challenges and opportunities in embedding doctorateness in the research proposal and offer recommendations on the role of supervisors in the attainment of doctorateness in the preparation of doctoral proposals.

Theoretical framework

Social constructivist perspectives

Based on social constructivist theory and social network theory, it can be inferred that doctorateness is attained not solely through students' cognitive skills but through interactions with various social groups. Effective research supervision requires students to be enculturated into the research discipline (domain), the learning and research communities (community), and the research concepts, methods, tools, standards, and ethical guidelines (practice) (Newswander & Borrego, 2009). This assumes the existence of a 'more knowledgeable other' social group (i.e., supervisory team, peers, or professional community) who can help the student traverse the Vygotsky's 'zone of proximal development' with doctorateness viewed as a 'level of potential development' (Nguyen, 2012). Sweitzer (2009) found that students with stronger interactions with social groups within the institution and discipline were more likely to develop as independent scholars, and this agreed with the social network theory. We envision these interactions as relationships with a 'more knowledgeable other' which could foster doctorateness during research proposal preparation.

1.1 Threshold concept and liminality perspective

Embedding doctorateness in the research proposal requires the student to transform their scholarly identity, metacognition, and personal agency. Such transformations, based on the threshold concept perspective (Meyer et al., 2010), occur when the student masters core knowledge, disciplinary competencies, and professional skills. Most elements of a research proposal are threshold concepts; including constructing an argument, establishing testable hypotheses, developing a conceptual framework, preparing an experimental design, engaging literature, disciplinary knowledge, doctorateness, and the research proposal itself (Fig. 2) (Chatterjee-Padmanabhan & Nielsen, 2018; Feldon et al., 2017). Meyer et al. (2010) argued that crossing a threshold concept occurs *via* a preliminal state where the students encounter troublesome knowledge, a liminal state where they reconfigure, integrate, discard or shift existing knowledge, and a postliminal state where they change their discourse, perspective and approaches. Keefer (2015) showed that students in the liminal state felt isolated, lonely, as imposters, sensed anxiety and that their research was misaligned for periods ranging from days, weeks, or longer. We argue that supervisors can facilitate threshold crossing using activities and support based on community of practice and social constructionist theory.

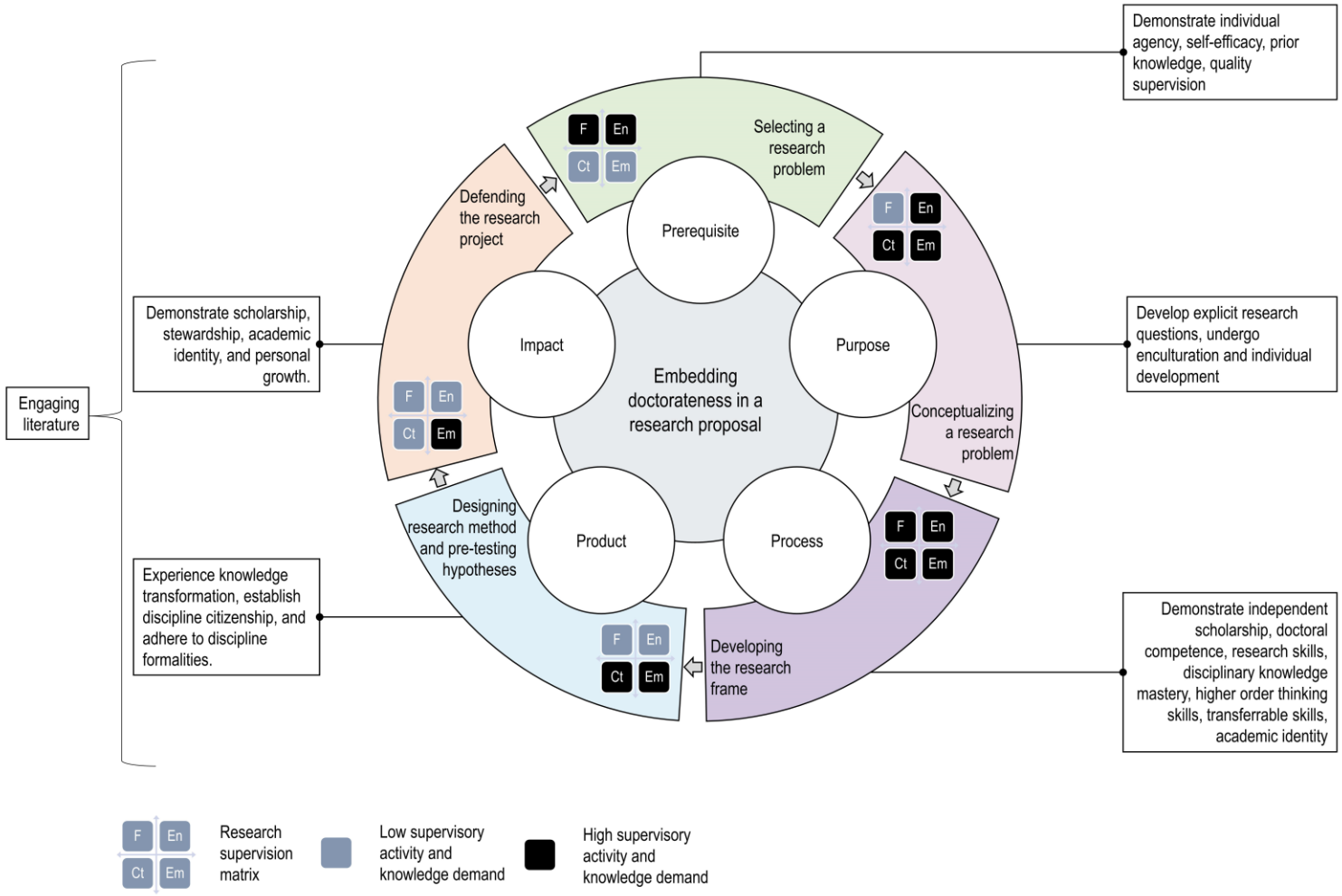

Figure 2 A proposed framework for embedding doctorateness in a research proposal that is based on demarcating the research proposal process into five doctorateness assurance nodes (i.e., prerequisites, purpose, process, product, and impact as proposed by Yazdani & Shokooh (2018)) in which the supervisor engages in activities or provides knowledge and skills that offer functional (F), enculturation (En), critical thinking (CT), and emancipation (Em) roles with varying intensity depending on the process needs as proposed by Lee (2008).

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Challenges and opportunities for embedding doctorateness in the doctoral proposal

Since more doctoral graduates are now pursuing careers outside academia, the purpose of doctoral education has shifted from original knowledge (product) to skilled graduate (process) production (Taylor, 2012). There are concerns that this 'skills push' pushes doctorateness out of the doctorate. Denicolo & Park (2013) argued that core competence lists developed by government and professional communities, such as the Researcher Development Framework, evidence doctorateness. Unfortunately, these lists are long and unattainable within the doctoral period. Additionally, Mowbray & Halse (2010) found that core competency lists did not align with the expectations and experiences of doctoral students. They found that doctoral students viewed doctoral education as 'a process of acquiring intellectual virtues' through the development of 'personal resourcefulness', cognition, and technical skills. These 'intellectual virtues' aligned with the four domains of learning and identity development (i.e., relational, emotional, cognitive, and practical development) proposed by Brown & Bimrose (2014). Acquiring intellectual virtues while preparing a research proposal can lead to threshold crossing and a demonstration of doctorateness.

Yazdani & Shokooh (2018) the doctorateness as an implementation process of strategic quality management with five conceptual areas (i.e., prerequisites, purpose, process, and impact). We envision these conceptual areas as doctorateness assurance nodes that ensure that the research proposal meets the 'fit for purpose' and 'right first time' principles. We posit that the supervisor's role during the process of preparing a research proposal is to facilitate the student's learning and identity development through supporting activities that promote the demonstration of doctorateness and crossing of threshold concepts. Several supervisory styles and roles have been proposed for research supervision, including an *alignment tool* – student development needs are aligned to supervisory style, *dynamic supervisory management concept* – structure and support

varies with student needs, and *conceptual approach* – supervisor's activities, knowledge and skills are designed to address researcher development needs. We argue that the conceptual approach (i.e., functional, enculturation, critical thinking, and emancipation) proposed by Lee (2008) enable supervisors to support students as they progress through each doctorateness assurance node.

Prerequisite

Self-determination theory argues that the functioning of any relationship or individual depends on the fulfilment of autonomous, competent, and context-oriented prerequisites (Janssen et al., 2020). Selecting a research problem requires these prerequisites, but students may expect the supervisor to take the lead, may have self-doubt, and might feel inept due to a lack of reflective and productive knowledge (Fig. 1). de Kleijn et al. (2015) proposed that the supervisor can help the student meet these prerequisites by communicating expectations, chunking, providing feedback, and listening. However, an increase in student diversity broadened the expectations and assumptions that students have about quality research and supervision. Gunnarsson et al. (2013) found that students had disagreements and low perceptions of their supervisors when there was a mismatch between students' and supervisors' expectations. Duke & Denicolo (2017) recommended that supervisors should have 'open and honest communication about expectations, with space for negotiation' to best meet the student's needs. Feldon et al. (2019) found that when senior students and postdoctoral researchers mentored new doctoral students (cascade mentoring), the research skills of the new doctoral students significantly improved. McVicar et al. (2006) found that workshops and seminars led by practitioners and academics helped students form critical communities among their peers, and through ZPD, they became more competent and context oriented. Therefore, policies that enable faculty members to 'create shared understanding and common practice across departments and research areas,' as proposed by Duke & Denicolo (2017), should be enacted.

Purpose

(Kolb, 2015) experiential learning theory argues that learning occurs through a cycle of *concrete experience* – encountering new concepts, *reflective observation* – analyzing the encounter, *abstract conceptualization* – reconstructing the meaning of the encounter, and *active experimentation* – formulating a testable hypothesis. Conceptualizing a research problem that demonstrates independent scholarship and originality requires the student to go through Kolb's learning cycle. Wolfsfeld & Haj-Yahia (2010) found that students tend to jump from concrete experience to active experimentation without reflecting or reconstructing the encounter (accommodators) or fail to progress from reflecting on the encounter to abstract conceptualization and active experimentation (divergers). The supervisor needs to engage in activities and provide scaffolding that enables the student to become competent 'problematizing, finding connections, and uncovering conceptions/the shape of an answer' (i.e., assimilators and convergers) (Lee, 2018). Supervisors can facilitate experiential learning by coaching (enculturation approach), challenging arguments (critical thinking approach), and facilitating reflection (emancipation approach) through activities such as supervisor-student dialogs and research team meetings (Stracke & Kumar, 2020) and practitioner-led seminars and workshops (McVicar et al., 2006). Institutional and national policies that require supervisors to receive formal training and participate in continuous professional development activities might help supervisors perform better in these three functions.

Process

Attia & Edge (2017) argued that research methods should not be viewed as a list of procedures that the researcher masters but an 'on-going mutual shaping between researcher and research' (reflexivity) and 'an increase in awareness of such processes of interaction between organism and context' (researcher development). Extending the Vygotskian sociocultural perspective to

researcher development as previously done by (Nguyen, 2012), we argue that students need to choose and defend a research object, tools (i.e., sampling and data analysis), rules (i.e., disciplinary practices, safety and health, integrity, and ethical considerations), division of labor (i.e., protocols and collaborations), and a community (i.e., academic, social, and environmental context) that enables them to coherently, validly, and reliably answer their research questions. The process should offer 'moments of interruption' that 'provoke new questions, invite reflexivity, and facilitate new possibilities' in the student's perception of themselves, their research, and their community (Rodricks, 2018). McKenna et al. (2021) recommended that supervisors take a functional role in recommending research methods coursework that helps students master the tools and rules of research design and analysis. Achieving this might require institutions to include coursework as part of the doctoral curriculum. Additionally, (Brown (2017) observed that, after taking coursework, students lacked opportunities to practice the new methods, and most coursework failed to link the research methods to real-life problems. Through the enculturation approach, the supervisor can extend the student's competencies by facilitating collaborations with other researchers. Additionally, journal clubs, where students critique published primary literature (critical thinking approach), can improve students' critical thinking skills, help them build communities of practice, and promote peer collaborations (Newswander & Borrego, 2009). Unfortunately, making taking coursework or journal clubs an institutional policy might result in students viewing them as administrative hurdles rather than an opportunity for researcher development. Such challenges can be addressed using learner-centered approaches such as the personal development planning. In the UK, students are encouraged to use personal development planning workshop where they valuate their skills, knowledge and competencies, find strategies for developing a scholarly identity, identify learning opportunities that could support them in their

researcher development, and clarify their expectations for their supervisor (Elliot et al., 2020). Such a learner-centered approach helps students demonstrate autonomy toward their development and embedding doctorateness. Therefore, institutions need to enact policies that create a "facilitative mechanisms to assist doctoral researchers to examine their position consciously and their overlapping bio-ecological systems for learning" such as the professional development planning (Elliot et al., 2020).

Product

The contents of a quality research proposal demonstrate independent scholarship, doctoral competency, research skills, subject mastery, higher-order thinking skills, academic identity, and interdisciplinarity. However, many students struggle with writing the research proposals because of a lack of guidance and clarity on the contents, details, and arguments expected in the research proposals. A previous study found that research proposals by students who engaged in research and teaching had testable hypotheses and valid experimental designs compared to students who only engaged in research (Feldon et al., 2011). Inouye & McAlpine (2017) found that the extent to which a doctoral student self-assessed their research proposal or sought and engaged with feedback on their research proposal was linked to the development of their academic identity and research independence. Yu & Lee (2013) showed that supervisor feedback acted as a scaffold by introducing the student to the concepts, communities, and practices of the discipline and motivated the students by commending their knowledge and skills while building the supervisor-student relationship. Additionally, Wolff (2010) suggested that supervisors support their students by providing them space to engage in preliminary research for the student to acquire the data sufficient to demonstrate the feasibility of the research proposal.

Impact

The impact doctorateness assurance node is primarily concerned with ensuring the performance measures embedded in the research proposal preparation guarantee doctorateness. When research proposal preparation is viewed as an administrative hurdle, success is measured as the acceptance by the department of the research proposal. In contrast, Gardner (2009) found academics in English and Communication departments perceived doctoral success as researcher development rather than higher degree attainment. They conceived doctoral success as acquisition of research skills (i.e., ability to produce quality research publications and conference presentations) and successfully getting employment postgraduation (i.e., demonstration of transferrable and disciplinary skills) (Gardner, 2009). Based on researcher development paradigm, we propose assessing the performance of students formatively during research proposal preparation using the student's participation in departmental and faculty seminars, conferences and symposiums, and, where feasible and 'collaborative capability' (e.g., co-authoring a research paper) (Sinclair et al., 2014). However, Anderson & Gold (2019) found current practices in doctoral education emphasize being competent members of the academic community and not of the practice community, we also add the societal community. The 'skills push' measures performance through the capability of the student to be a competent member of the practice and societal community. Therefore, we contend that, in addition, to demonstrating proficiency in Gardner's academic socialization (writing research papers and presenting at conferences), doctoral students need to show potential for knowledge co-production ability (e.g., leading practice communities and forming productive research partnerships with society or industry). The role of the supervisors is mainly emancipation as they help the student question how they will demonstrate impact while offering them opportunities for engaging in academic and professional socialization.

Conclusion

Supervisors, students and education leaders need practical guidance, rooted in learning and identity development theory, regarding reconciling their academic goal of producing graduates capable of producing original knowledge and the demand for highly skilled graduates with generic competencies. Embedding doctorateness into the process of preparing a research proposal by setting it as an objective for social interactions can safeguard the student's researcher development. Approaches to embedding doctorateness in the research proposal may entail viewing each element of the research proposal as a threshold concept that acts as a doctorateness assurance node. The high attrition rate among doctoral students and the demand for higher-order thinking and problem-solving skills to address complex global challenges show the importance of doctorateness as a demonstration of independent scholarship.

Our proposed framework encourages the exploration of important questions for future research on the implications and applications of sociocultural, experiential, and reflexive learning theories on doctoral supervision. For example, how do learning styles evolve and interact with the learning context during a doctoral journey, and how can supervisors adapt to this evolution to ensure students become independent scholars? This requires understanding that supervisory styles also evolve during the doctoral journey as supervisors are also developing their identity, and this evolution is influenced by various factors, including student interactions. Further research should explore the effects of the coevolution of supervisory and learning styles on the transition of students into independent researchers.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on Contributors

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