Chapter 15

Heutagogy and researcher education: Unleashing the power of the novice researcher's agency

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Novice researchers become experienced researchers by developing their skills in varied contexts, typically within higher education institutions as part of their university degrees. This chapter focuses on the novice researcher who progressively develops their research capacities during the process of completing a PhD (Doctor of Philosophy degree) within a higher education institution or university.

Four established areas of research about the education of novice researchers, also known as research training, are examined: 1) the pedagogy of supervision; 2) threshold concepts of PhD candidates; 3) the Researcher Skill Development Framework; and 4) research metaphors. From these fields of research, practical recommendations are extricated to articulate how higher education institutions can promote learner agency, according to heutagogical principles, within the candidate's doctoral journey.

During this chapter, researchers are viewed as learners and the purpose of the chapter is to explore how the agency of these learner-researchers can be recognised and promoted, in practical terms, within the tertiary education sector.

Introduction: Researcher development

Usually, novice researchers hone their research abilities within the bounds of educational institutions by engaging in informal mentoring programs, laboratory work, field work, formal training courses and university degrees. This chapter focuses on one particular research training trajectory – that of doctoral candidates facing the challenges of learning about and conducting research while being enrolled in doctoral degrees. Whilst they may begin their doctoral studies as recognised experts or experienced practitioners in their field of work, they typically report feeling like a novice at the beginning of their postgraduate studies. Depending on the discipline and the context of their work and study, their transformation from a novice to an experienced researcher may take a number of pathways.

Development of research skills through candidate-supervisor interactions

Doctoral candidates may develop their research knowledge and skills incidentally over time through interactions with their postgraduate supervisors. During these candidate-supervisor exchanges they typically develop an understanding of how research works, often through the process of a cognitive

apprenticeship style approach (Collins, Brown, & Holum, 1991) in which their supervisors model various research practices.

Research training programs and policies within universities

Doctoral candidates may engage in professional development (PD) activities and research training programs that are formally provided by the universities in which they are enrolled. These opportunities frequently take the form of on-campus workshops, mentoring programs and/or online modules. Typically, the content of these research training programs is pre-determined by "those in the know" (experienced researchers) whose goals are to promote the education of novice researchers, enabling them to effectively and efficiently complete their postgraduate research degrees. Such programs may be specifically designed to initiate postgraduate candidates into the world of research and academic writing. "How to" workshops may be offered to guide postgraduate students, for example, through the processes of conducting literature reviews, writing research proposals and following guidelines for ethical research.

As well as PD-type programs, many universities have established capacity-building policies that institutionally support higher degree research (HDR) candidates as they develop into experienced researchers. Again, these policies are usually written by expert researchers or experienced university personnel and do not typically incorporate input from novice researchers.

The role of learner agency in research training

While PD programs and institutional policies play a valuable role in promoting the development of experienced researchers, the novice researcher features more as a participant than an initiator of their own PD in these programs and policies. Few research training approaches acknowledge the novice researcher's choice or learner agency. The self-determination of PhD candidates in their own trajectory of development may not even be acknowledged as an important determinant of their progress.

By considering the learner agency of the novice researcher, this chapter proposes a re-visioning of how a novice researcher could transition to becoming an experienced researcher. While not devaluing the research training processes adopted across the university sector, including the incidental and ongoing learning that takes place during supervisor-candidate interactions, this chapter suggests an alternative approach to supporting novice researchers in their learning trajectories: that which acknowledges the merits of self-determined learning approaches by allowing, encouraging and *daring* those engaged in research training to incorporate more learner choice into the research training landscape. By opting for less rigid boundaries on the design choices associated with the *who*, *what*, *where* and *how* of research training, this chapter proposes greater involvement of those at whom research training programs are targeted.

Purpose of this chapter

This chapter may be most relevant to those engaged in the supervision of postgraduate research candidates or educational designers who are responsible for developing research training and PD programs to support researcher development. Four key fields of educational research that relate to researcher education are analysed with a special emphasis on how the researchers leading these fields position the novice researcher as an active learner during their PhD journey. Aspects of researcher education that especially promote learner agency, or are specifically designed with heutagogical principles in mind, are highlighted with a view to extricating practical recommendations for postgraduate supervisors and designers of PD programs for novice researchers. Throughout this chapter, novice researchers are viewed as learners, the purpose of the chapter to explore how the agency of these learner-researchers can be recognised and promoted, in practical terms, within the tertiary education sector as they participate and progress through postgraduate research degrees.

The pedagogy of supervision

The first field of research considered in this chapter is that of the *pedagogy of supervision* (Bruce et al., 2009; Grant, 2005; Green & Lee, 1999). At the heart of this form of pedagogy is a particular form of teaching and learning that takes place across the PhD candidature during which an ongoing candidate-supervisor relationship develops. The learning-teaching interactions that occur between postgraduate supervisors and their PhD candidates are acknowledged as instrumental in the development of a novice researcher's capabilities. This form of teaching is often deemed successful when the candidate's learner agency is recognisably enacted at the point at which the HDR candidate becomes an independent researcher. This stage of their learning journey becomes noticeable, usually by their supervisor, as the researcher engages in various processes of self-determined learning and takes charge of their own research project.

The following practical recommendations are extracted from the last two decades of research associated with the pedagogy of supervision, with a special emphasis on heutagogical approaches that encourage the involvement of PhD candidates in their own development as researchers. To promote learner agency of their PhD candidates, postgraduate supervisors are encouraged to consider the following practical recommendations.

- **Topic choice and supervision approach**. As opposed to directing candidates to pre-determined research topics or offering candidates a selection of topics and supervision approaches from which to choose, negotiate choices of research topics and supervision methods with the candidate.
- **Personal learning preferences**. Invite input from the PhD candidate in the early stages of their degree about their personal learning preferences – especially in relation to how they engage with their supervisors and how they select research training opportunities.
- **Robust discussions**. Expect and encourage the candidate to engage in robust discussions with their supervisors about the candidate's research and writing decisions, noting that some of these discussions may end with an "agree to disagree" stance.
- **Communication style**. Flatten the supervisor-candidate hierarchy by communicating more frequently with the PhD candidate on a collegial level, rather than adopting a traditional student-teacher hierarchical communication style.
- **Candidate's leadership**. Accept the candidate's role of leadership, especially in the later stages of the candidature.

Learning thresholds of doctoral candidates

For many years, Margaret Kiley and Gina Wisker investigated the threshold concepts that PhD candidates develop as they work their way towards becoming experienced researchers. These threshold concepts, sometimes referred to as *learning thresholds* through which a candidate transitions, are described as "building blocks" (Kiley & Wisker, 2009, p. 432) that lead the candidate to a new level of learning. Once reached, the learner typically sees their subject and their own learning in a new light. Kiley refers to these points in the PhD journey as, "rites of passage" (2009, p. 293). From an HDR supervisor's point of view, it's important for supervisors to know about these threshold concepts so they can better assist their candidates to identify and *learn through* the process of achieving these higher levels of learning which may, in fact, present as periods of "stuckness" (Kiley, 2009, p. 302).

After interviewing a number of HDR supervisors and asking them questions such as "How do you identify when a student has crossed a threshold?", Kiley and Wisker detected a number of threshold concepts that doctoral students crossed or achieved when developing as researchers (2009). Their findings present six threshold concepts in researcher education described as, "major conceptual challenges for those learning to be researchers" (Kiley & Wisker, 2009, p. 439), including: argument; theorising;

framework; knowledge creation; analysis and interpretation; and research paradigm. No doubt, many experienced researchers and postgraduate supervisors, as well as research candidates themselves, may recognise some of these stages as problematic for novice researchers.

Kiley and Wisker acknowledge the value of considering the threshold concepts of doctoral candidates from the perspective of the supervisor as well as the candidate. They also express their interest in investigating these threshold concepts further, from the student's point of view: "In addition, we are working on gaining insights from students as to their experiences of crossing (or not) these different thresholds. Bringing together the understandings of students and supervisors will be critical in advancing this area of learning" (Kiley & Wisker, 2009, p. 440).

While the wisdom of experienced supervisors is no doubt eminently valuable when identifying the threshold concepts that research candidates achieve or *learn through*, the insight offered by the candidates about their own experiences, from a phenomenological perspective, is of potential value by providing an insider's perspective to how researcher development transpires. The choices made by candidates during their PhDs and the informal and non-linear nature of much of their lifelong learning experiences align closely to heutagogical learning principles as outlined by Blaschke (2012) and Hase and Kenyon (2013) that acknowledge the value of nonlinear teaching and learning approaches.

The research conducted about the threshold concepts developed by novice researchers during their PhD candidature provide practical recommendations for both PhD supervisors and the candidates themselves.

- **Expect periods of difficulty.** By engaging in conversations about the points of difficulty or "stuckness" in a PhD candidate's degree, such points of difficulty should be presented by supervisors as incidental, expected or typical of a PhD candidate's experience.
- **Identify milestones**. Points in the PhD candidate's progress (e.g., achievement of key threshold concepts of doctoral students) should be identified and celebrated as conceptual and practical milestones.
- **Engage with other candidates**. As well as making informed recommendations from their positions of experience, supervisors should encourage PhD candidates to co-mingle with other PhD candidates who have already or who are about to achieve doctoral threshold concepts (in the spirit of the cross-pollination of doctoral knowledge).
- **Training preferences**. Candidates should be encouraged to voice their preferences for research training topics by contacting the postgraduate studies departments of their universities or engaging in learning contracts with their supervisory team.

Researcher skill development framework

John Willison's investigations, over many years, into the skills that researchers develop are the basis of his Researcher Skill Development (RSD) Framework (Willison, 2010a, 2010b), of which the skills of doctoral candidates feature. The RSD Framework is described as a way of articulating, "to students not only the research skills required, but also clarifying the resulting autonomy in their research-orientated learning" (Willison, Sabir, & Thomas, 2017, p. 430). Torres and Jansen (2016) emphasise the Framework's capacity to define researcher skills, noting that it "articulates explicit, cyclical and incremental development of students' research skills" (p. 26).

Willison's Framework outlines the increasing level of autonomy gained as researchers become more experienced in a similar way that the theory of heutagogy aims to develop learners who are, "highly autonomous and self-determined" (Blaschke, 2012, p. 56). The current version of the Framework, known as RSD7 (Willison, 2018), includes seven levels of autonomy, from *Prescribed Research* through to *Bounded*, *Scaffolded*, *Self-initiated*, *Open*, *Adopted* and *Enlarging* Research. These autonomy levels specify how much choice and scope researchers exercise in initiating research topics and the degree of independence they enact when conducting research (Willison & Buisman-Pijlman, 2016). The Framework

is built upon the expectation that researchers "may shuttle back and forth between higher prescription and greater scope … rising and falling as conditions dictate, rather than hierarchical … neither a high level or autonomy nor low is more valued" (Willison et al., 2017, p. 440). This recognition of the usefulness, at times, for the PhD candidate to move backwards in terms of autonomy for the purposes of taking direction from their supervisors, is seen as relevant in self-determined learning, described by Hase (2009) as, "extremely dynamic experience occurring in a world that was (and is) highly complex, non-linear and ever-changing" (p. 43).

Willison collaborated with many other researchers and educators in the application of his RSD Framework, often using it to inform the design of curricula for both undergraduate and coursework degrees (e.g., Willison & Buisman-Pijlman, 2016; Willison et al., 2017). In later years, he specifically explored the development of researchers' levels of autonomy and has particularly taken note of students' perceptions of their own research skills. Thus, the Framework is an example of heutagogical theory in practice through its acknowledgement of the continuum of a researcher's learning that, "occurs when the learner is ready" (Hase, 2009, p. 44).

The following realisations, based on the research published on Willison's Research Skill Development Framework, offer practical recommendations for how this Framework may be used to encourage PhD students to take on increased levels of autonomy at key points of their development as researchers.

- **Degrees of autonomy**. The RSD Framework incorporates a "continuum of researcher autonomy" which, in practical terms, recognises that varied levels of autonomy are required by PhD students throughout their candidature, and that these levels of autonomy are more back-and-forth than hierarchical (Willison et al., 2017). Varied levels of autonomy are described across a researcher's development (Willison & Buisman-Pijlman, 2016) and PhD candidates are not expected to demonstrate high levels of autonomy as novice researchers in the early stages of their candidature.
- **Articulating research skills.** The RSD Framework can be used as a conversational basis between candidates and supervisors (Velautham & Picard, 2009) and as a way of articulating researcher skills (Torres & Jansen, 2016).
- **Skill relevance.** The ability of HDR candidates to identify their own research skills, as acquired through their PhD degree, is important because it enables them to communicate the relevance of their research skills to their current and future employers (Willison et al., 2017).

Metaphors used to describe research

Metaphors used to describe research are investigated for the purposes of providing insight into the conceptions of research held by PhD candidates and their supervisors, and novice and experienced researchers (e.g., Bills, 2004; McCulloch, 2013; Pitcher & Åkerlind, 2009). While some researchers have explored metaphors for research supervision (Bartlett & Mercer, 1999; Mackinnon, 2004; Vilkinas, 2002), others have focused on metaphors that describe the experience of the doctoral candidate or metaphors that describe the research conducted by the candidate. Discussions about research metaphors are recognised as a method of deepening candidate-supervisor interactions throughout a PhD student's candidature as well as a technique to help candidates understand the processes that take place during doctoral study. Hughes and Tight (2013) further distinguish between two types of metaphors used to describe a doctoral degree: metaphors based on *processes* (e.g., journey or route metaphors) and those that describe *products* (e.g., the work metaphor).

While discussions based on metaphors may act as a bridge between the ideas of the candidate and his or her supervisor/s, some metaphors distract from such connections by further reinforcing the power pecking order between the candidate and the supervisor/s and may undermine candidate autonomy. Furthermore, the role of learner agency, as a component of the PhD itself, is not always promoted during candidates' and supervisors' discussions of their respective conceptions of research. Bills' research about supervisors' conceptions of research identifies a problem in the way research is conceptualised

because it constructs, “authoritative researcher identities” (Bills, 2004, p. 87), which reinforce the deficits that postgraduate candidates feel as researchers. Her conclusions also emphasise the importance of the role of reflective practice in any PD program .

Beyond the vision of the PhD as a landscape where research occurs or the way in which the results of a PhD contribute to knowledge, the actual experience of completing a PhD is also metaphorised. While the process of completing a doctoral degree is frequently described as a “journey”, as acknowledged by Hughes and Tight (2013), McCulloch (2013) suggests the “quest” metaphor as an alternative, describing it as, “a cross-cultural basis for both staff and student development activities through which sense can be made of the research experience” (p. 55). He offers the quest metaphor due to its unpredictable and, sometimes, unexpected nature. This aspect of the PhD process resonates with heutagogical principles that acknowledge how learning does not necessarily occur in predictable, well-ordered, teacher-driven steps (Hase, 2009; Hase & Kenyon, 2013).

The following practical recommendations are offered for use by postgraduate supervisors and their candidates. They are drawn from published literature about postgraduate candidates’ and post-doctoral researchers’ conceptualisations of research, as expressed in metaphors.

- **Expectations**. Discussions about various metaphors for research can be used by supervisors to assess their candidate’s understanding of research and, by candidates, to understand their supervisor’s expectations of their research projects.
- **Concepts of research**. Research metaphors (e.g., as reported in the research of Bills, 2004; Pitcher & Åkerlind, 2009) are used to assist both postgraduate supervisors and their students to understand how the research of a PhD candidate is linked to the research described in university policies. Use of metaphors for the doctoral degree, in discussions between candidates and their supervisors, clarify the process of completing a PhD and express the value of the product of such a degree.
- **Stages of research**. Metaphors are used to assist candidates to understand the various stages of conducting research as part of a doctoral degree.
- University policies that describe the PhD process in a lock-step set of ordered milestones may require revision to incorporate less linear processes: such processes should be directed just as much by the novice researcher (i.e., the PhD candidate) as their postgraduate supervisors and the institution in which they are studying.

Conclusion

This chapter represents a set of practical recommendations for use by supervisors of PhD candidates and designers of research training programs for novice researchers. Four fields of research associated with research training and researcher development are consulted to establish recommended practices for promoting self-determined learning approaches for novice researchers within doctoral degrees. The practical recommendations extracted from these four fields of research range across issues associated with research autonomy, candidate-supervisor interaction and the conceptualisation of research and research processes.

A common thread runs throughout all recommendations: that of the value of input by the novice researcher into their own trajectory of development as a researcher. Underlying all of the practical applications put forward in this chapter is the theory of heutagogy, specifically focusing on the learner’s agency as part of the process that novice researchers experience on their pathway to becoming experienced researchers. When the pedagogy of supervision is enacted in a way that recognises the advantages of transferring learning choices to novice researchers, both the candidate and the supervisor may benefit from flipping the tables of structured hierarchy that is often at the heart of traditional supervisor-candidate interactions.

As Blaschke and Hase (2016) explain, heutagogy offers the educator and the educated “a framework to think about learning in a revolutionary way” (p. 37). In the current days of COVID19 when there is much talk about flattening the curve, this chapter has put forward a set of reasons why flattening the traditional hierarchy of the supervisor-candidate relationship, on which many a doctoral degree is based, is a recommended way to promote heutagogical learning principles, especially those associated with choice and the promotion of learner autonomy.

In summary, this chapter offers the following key practical applications to institutions who are aiming to promote learner agency within HDR candidates’ doctoral experiences. These recommendations are categorised according to the four established areas of research that were consulted in the preparation of this chapter.

Recommendations, extracted from pedagogy of supervision research

- **Topic choice and supervision approach:** Negotiate with the candidate, rather than dictate, choices of research topics and supervision methods.
- **Personal learning preferences:** Incorporate the candidate’s personal learning preferences into supervisor-candidate interactions.
- **Robust discussions:** Expect and encourage robust supervisor-candidate discussions that incorporate points of agreement *and* disagreement, consensus not always being achievable.
- **Communication style:** Collegial-style communication is preferred supervisor-candidate interactions, rather than traditional student-teacher hierarchical communication.
- **Candidate’s leadership:** Accept and encourage leadership from the candidate, especially in the later stages of the candidature.

Recommendations, extracted from threshold concepts research

- **Expect periods of difficulty:** Refer to points of difficulty or “stuckness” as incidental, expected and typical of the PhD experience.
- **Identify milestones:** Make an effort to celebrate conceptual and practical milestones in a PhD candidate’s progress.
- **Engage with other candidates:** Encourage candidates to co-mingle with other candidates who may have already achieved key doctoral threshold concepts.
- **Training preferences:** Engage candidates in identifying areas of need in research training.

Recommendations, extracted from research about the Research Skill Development Framework

- **Degrees of autonomy:** Throughout a PhD degree varied levels of autonomy are required and these levels are not necessarily hierarchically staged throughout a candidature.
- **Articulating research skills:** The Research Skill Development Framework is a useful basis for articulating a candidate’s skills as a researcher.
- **Skill relevance:** Candidates need to identify and articulate their own skills as researchers, especially when communicating with current and future employers.

Recommendations, extracted from research about the research metaphors

• **Expectations:** The use of research metaphors provide insight into a candidate's understanding of research and can assist in understanding supervisors' expectations of candidates.

• **Concepts of research:** The use of research metaphors in university policies can render these policies more accessible candidates.

• **Stages of research:** Metaphors assist candidates understand research stages.

• **Policy:** University policies should incorporate linear and non-linear PhD milestones. The development of policies should involve input from candidates and supervisors.

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