



Australasian
Association
of Writing
Programs

TEXT

Journal of writing and writing courses

ISSN: 1327-9556 | <https://textjournal.scholasticahq.com/>

James Cook University

Robyn Glade-Wright and Elizabeth A. Smyth

Metaphors for doctoral research: Fundamental tenets & creative courage

Abstract:

Doctoral research candidates navigate a unique path and sustain a rigorous program of study as they make an original contribution to knowledge. The complex and challenging nature of doctoral research is evidenced by high rates of anxiety and depression among candidates (Evans et al., 2018). Metaphors are one tool used by candidates and supervisors to facilitate communication and the candidate's understanding of the research process. In this article, we argue that the existing range of metaphors have limitations, firstly in cases where they imply an ongoing process with no clear end, and secondly when presented in text or through oral communication without a pictorial representation. We aim to enrich current offerings of metaphors by contributing a new metaphor, which we present as The Moon Diagram. This combined pictorial and textual representation points to two areas of endeavour encountered in the research process, *Fundamental Tenets* and *Creative Courage*, and their correlation. The moon is depicted during a half-moon phase to symbolically differentiate the two regions, while overlaid text indicates the skills and experiences associated with each. The whole moon symbolises doctoral completion, and a separate celestial body represents post-doctoral employment. The Moon Diagram may be a useful mnemonic device for potential and confirmed candidates and printed as a larger-scale chart for supervisors to reference when mentoring candidates to doctoral completion.

Biographical note:

Associate Professor Robyn Glade-Wright is a practicing contemporary artist and arts educator who has presented over 40 solo exhibitions in public and private galleries. Glade-Wright's creative works call attention to the role humans have played in climate change and environmental pollution. Glade-Wright's research interests include arts-based research methods.

Elizabeth Smyth is a creative-practice PhD candidate. Her research interests include the farm novel, the georgic, creative writing, and region. During her candidature, she has

published in *JASAL*, *TEXT*, and *Georgic Literature and the Environment: Working Land, Reworking Genre*, edited by Sue Edney and Tess Somervell.

Keywords:

research supervision, doctoral education, metaphor, creative courage, research training

Introduction

A doctoral award is an esteemed formal academic qualification that obligates candidates to apply analytical and critical skills, an inquiring mind and creative acumen, along with a capacity for independent hard work. To gain a doctoral award, candidates navigate the ambiguous nature of research and maintain momentum over three to four years of full-time study, or up to eight years of part-time study, to establish and effectively share new insights and new knowledge (Arnold, 2012; Glade-Wright, 2017). Unsettling experiences during the candidature – including time pressures, maladaptive self-concepts and confusion – can weigh heavily on candidates and result in wellbeing issues and attrition (Di Benedetto et al., 2021; Evans et al., 2018; Stanley, 2015). Attrition is a major problem for universities given that completion rates for doctoral research students as low as 15.4% have been recorded four years after commencement of doctoral programs (Department of Education, 2020). As unsettling experiences arise, candidates and supervisory teams engage strategies and tools that will support the candidate to learn about the research process and improve their ability to cope with these experiences and achieve completion. The problems that can limit doctoral candidate success or lead to attrition are summarised in this article under the heading: Doctoral research problems for candidates. In this summary, we point to the benefits of increasing awareness and understanding of possible periods of confusion, and the importance of creativity to any field of study. One tool available to promote understanding of the doctorate requirements and experience is metaphor.

Metaphors connected to doctoral programs have attracted considerable attention in academic discourse (Hughes & Tight, 2013; Krauth, 2018; Lee & Green, 2009; Marshall, 2010; Nacey, 2022; Wisker, 2008). We argue that the existing range of metaphors can be enriched by the addition of a new pictorial metaphor that we present in this article and refer to as The Moon Diagram (Figure 1). A metaphor is a “figure of speech in which a name or descriptive word or phrase is transferred to an object or action different from, but analogous to, that to which it is literally applicable” (Oxford University Press, 2022). Metaphors are extremely helpful in “mentoring situations precisely because they are readily recognizable and familiar” (Nacey, 2022, p. 14). In the doctoral context, metaphors may be broadly grouped as relating to the student-advisor relationship, the research process or the thesis. Our contribution to the discourse on metaphors arises from our experience as a supervisor and a candidate. In this article, we focus on metaphors for the research process. Such metaphors include the *journey* (Hughes & Tight, 2013; Nacey, 2022; Wisker, 2008), *double helix* (Marshall, 2010), *circle* (Smith & Dean, 2009), *competitive game* (Nacey, 2022), *work* (Hughes & Tight, 2013), the *roller-coaster* (Pavey, 2008) and *finding a voice* or *giving birth* (Lee & Green, 2009). At times, a metaphor intended to symbolise the thesis also implies the research process. For example, Kelly (2011) considers the thesis as a *musical composition* to convey how the artefact may be arranged by a student or interpreted by a reader, then later refers to a “never-ending composition” (p. 435), which points to process. One might consider these numerous metaphors sufficient for candidates to learn about research, however, we argue they can at times have limitations and therefore be problematic in two ways: first, when the metaphor implies an ongoing process with no clear end, and second, when the metaphor is presented in text or

through oral communication without a pictorial representation. A more useful metaphor for doctoral research, we argue, is one that facilitates an aspirational view of the candidate's major goals of completion and post-doctoral employment and may be presented as a printed image, which can function as a helpful and mnemonic pointer towards doctoral completion and research independence.

This article is structured to provide a summary of common problems faced by doctoral candidates followed by an overview of current metaphors for the doctoral research process and their limitations. We then introduce a new metaphor in The Moon Diagram, which is informed by theories of learning and our own experience and reflections. This diagram is presented as a visual image of a metaphor overlaid with text that may be used as a tool to aid conceptualisation, communication and understandings of the doctoral research process. We envisage The Moon Diagram as a mnemonic device for candidates and a stimulus for supervisory teams when discussing doctoral research in terms of research skills, the undertakings they are applied to and feelings of being lost or confused during the research process. Consequently, this paper has implications for potential and confirmed candidates, supervisors and administrators of doctoral programs.

Doctoral research problems for candidates

Doctoral education involves candidates making original contributions to knowledge and celebrating their successes. However, this focus can mask the underlying challenges and attrition associated with higher education, which are described by Alston et al. (2005), Pearson (2012) and Tinto (2006). Doctoral education prepares graduands for careers as independent researchers, contributing to ongoing research endeavours in the university, private and civic sectors. Graduands might draw on their candidature experiences if they enter the academy and join supervisory panels, therefore contributing to the ongoing provision of university education and highlighting the importance of effective doctoral programs (Friedrich-Nel & Mac Kinnon, 2019; Smith-McGloin, 2018). Yet despite the importance of doctoral awards for universities, candidates and the community, doctoral study is not for the faint-hearted (Leijen et al., 2016). Candidates can experience difficulties resulting in one in two encountering “psychological distress and one in three ... at risk of a common psychiatric disorder” (Levecque et al., 2017, p. 868). Problems can result in rates of attrition that vary from country to country, between disciplines, study modes and course delivery, and range from 30 to 60% (Rigler et al., 2017). Attrition impacts the lives of the candidate and the supervisors and has financial implications for supporting institutions (Gardner, 2009). While scholars point to surprises, problems and research not going to plan (Wisker, 2008), more work is required for candidates to understand the endeavours they are required to undertake and the feelings of confusion these tasks might elicit as they strive towards revelations and completion.

The challenges for doctoral candidates are many and varied, and candidate reflections on their research offer a key to improving the student experience. Doctoral candidates report issues including financial distress, lack of access to childcare, poor mentorship, perceived institutional discrimination, problems with colleagues and with achieving progress for timely completion

(Charles et al., 2022; Devos et al., 2017; Sverdlik et al., 2020). Maladaptive self-concepts – such as uncertainty regarding the capacity to produce a doctoral thesis of the required academic standard – can lead to anxiety, insomnia and depression (Sverdlik et al., 2020). Reports by candidates who feel rudderless and lost at times during their candidature note how beneficial it would have been to know that these experiences are relatively common (Cravens et al., 2014; Stanley, 2015). Stanley (2015) writes: “while I was lost, I would love to have known that getting lost is part of finding the way” (p. 146). These experiences demonstrate a continuing need for new ways to make the challenges and feelings of being lost widely known and understood, which prompted us to consider the pictorial metaphor of The Moon Diagram.

Creative contemplation is critical during doctoral candidacy to firstly imagine a meaningful and potential high-quality thesis, then to design an insightful research question, or set of questions, and innovative responses to these questions (Gallupe, 2007). Furthermore, a thesis requires creative acumen to clearly present the research aims, methods and eloquently articulate how the process has culminated in new knowledge. As Cravens et al. (2014) note: “Producing quality original research requires advanced analytic skills, but also the creative intelligence to design a project and the ability to handle the inevitably ambiguous research process” (p. 229). When candidates are immersed in periods of creative contemplation, they can experience uncomfortable feelings of being lost. We have noticed that this feeling of being lost during creative tasks can be generalised by some candidates to feeling lost in their candidature and contribute to negative outcomes such as anxiety. A major hope for The Moon Diagram is to normalise anxiety in creative pursuits by appreciating that it is common to experience uncomfortable feelings and to understand that it is only in the creative spaces that new insights come to light.

A different problem that impacts candidates and extends beyond the doctoral award relates to obtaining suitable post-doctoral employment (Woolston, 2019). Candidate concerns regarding post-doctoral employment are reported to escalate over the term of the doctoral program in line with an increasing investment in time and effort (Woolston, 2019). In recent years, this concern has been exacerbated by an environment in which doctoral completions outstrip the availability of academic positions. As a result, graduands may find the “destination itself may well be different from that which was imagined” (Stanley, 2015, p. 145). To maximise the candidate’s employability, supervisors can assist their candidate’s progression towards becoming independent researchers by acknowledging the candidate’s increasing competence and capacity during their candidature and welcoming them into their networks (Lovitts, 2005). Furthermore, knowledge of the research process is a transferable skill, which can help graduands become independent researchers, capable of transitioning into research-focused employment, within and beyond the academy. In addition, aspirations and goal setting are important aspects of learning for candidates. Considering the need to make the earlier described challenges and feelings of being lost widely known and accepted, and the positive influences of goal setting, we propose that the effective use of a metaphor can simultaneously expand awareness and acceptance of feeling lost, promote creativity, and represent successful completion and post-doctoral employment.

Metaphors for doctoral research

Metaphors are recognised for their capacity as “indications of underlying, systematic patterns that may influence our thought and actions” (Nacey, 2022, p. 14). Although experienced researchers relish the disparate challenges of research and are versatile in navigating an indeterminate research process, candidates may be daunted or distressed by such challenges and experiences and consequently require careful guidance. Supervisors can expedite a candidate’s developing understanding of their research field with judicious advice regarding key information (Curtin et al., 2016). Part of this advice involves preparing students for potential difficulties or helping them navigate challenges as they arise. All the while supervisors want their students to develop into mature, independent researchers who are motivated and excited by the prospect of making further contributions to the knowledge base (Skakni et al., 2019). However, the doctoral candidature takes years to complete and, during this time, supervisors and candidates often communicate, at times using metaphor to facilitate articulation and understandings of the research process and experience as the candidate develops graduand attributes.

Often the research process is described as a *journey* (Hughes & Tight, 2013; Nacey, 2022; Wisker, 2008). This journey can involve many stops and starts, detours, surprises and obstacles. Hughes and Tight (2013) point to the journey as stories with plots such as “the quest” where a protagonist must overcome various problems before finally achieving their goal, and the “voyage and return” where a protagonist travels into a strange unknown world before returning to comfort (pp. 767–768). Hughes and Tight (2013) offer a compelling demonstration of how the journey metaphor aligns with the doctoral research process based on John Bunyan’s *The Pilgrim’s Progress* (1678-1684). However, we argue that for many candidates the journey may be unquantifiable in its duration. The candidate may know that it ends in a book or for other people, but ask: When will it end for me?

Similarly, metaphors of a *double helix* (Marshall, 2010), *work* (Hughes & Tight, 2013), the *roller-coaster* (Pavey, 2008) and *finding a voice* (Lee & Green, 2009) may not always adequately point to completion. Marshall’s (2010) *double helix* was developed specifically for creative arts research and is based on two bands labelled “praxis (reflexive practice) and exegesis (the written component)” to represent the common two-sided nature of this style of doctorate (p. 80). Each strand is connected by linking pairs labelled “create, reflect and respond” for praxis and “observe, describe and analyze” for the exegesis (p. 80). The spiralling of the helix indicates an iterative process which involves questions repeatedly raised, tested and revised. But again, when does this end? Likewise, one could work or strive to find a voice indefinitely. Admittedly, a roller-coaster does not run forever, but the duration of such a ride is not often determined by the will or a prior plan of the person sitting in the carriage, and the candidate using this metaphor is most likely considering the ride in motion.

One could argue that a *circle* (Smith & Dean, 2009), *competitive game* (Nacey, 2022) or *giving birth* (Lee & Green, 2009) imply completion, however, one doesn’t always win a competitive game, nor can an obstetrician guarantee a successful birth. In all cases, we argue, it is not

impossible but may be difficult for candidates to identify representations of their goal to complete and obtain post-doctoral employment.

Furthermore, each of these metaphors are often communicated in text or orally, and are therefore open to interpretation, which echoes Blumer's (1969) groundbreaking perspective that meanings are shaped by an individual's social situation. To counter these limitations, we offer a metaphor presented as a combination of image and text with a clear representation of completion and post-doctoral success. This builds on the work of Gemino and Parker (2009) who note "the pictorial view provides clues for selecting and integrating important information from text descriptions thereby preserving cognitive processing for increased integration of the material presented" (p. 15). In other words, an image facilitates learning. The image we offer is designed for consistent interpretation of the metaphor and simultaneous representation of the research process, the project as a whole and the ultimate goal of post-doctoral employment.

The Moon Diagram

The Moon Diagram (Figure 1), depicting a half-moon phase and written descriptions, provides an overview of major research endeavours. The subdivision into the two regions enables potential and confirmed candidates to appreciate what Cravens et al. (2014) describe as "when and how one seeks inspiration and when one should expect mostly linear hard work" (p. 243). The *Fundamental Tenets* region is overlaid on the light region of the Moon to emphasise the relatively secure linear hard work. *Creative Courage* is overlaid on the dark region of the Moon as it includes tasks such as seeking inspiration in a relatively unstructured space. The whole Moon alludes to the relationship between the two halves, and how successful endeavour in both regions coalesce to form new knowledge. As an office wall poster, The Moon Diagram may function as a helpful stimulus for supervisors to expand topics as they mentor candidates and as a mnemonic device for potential and confirmed candidates.

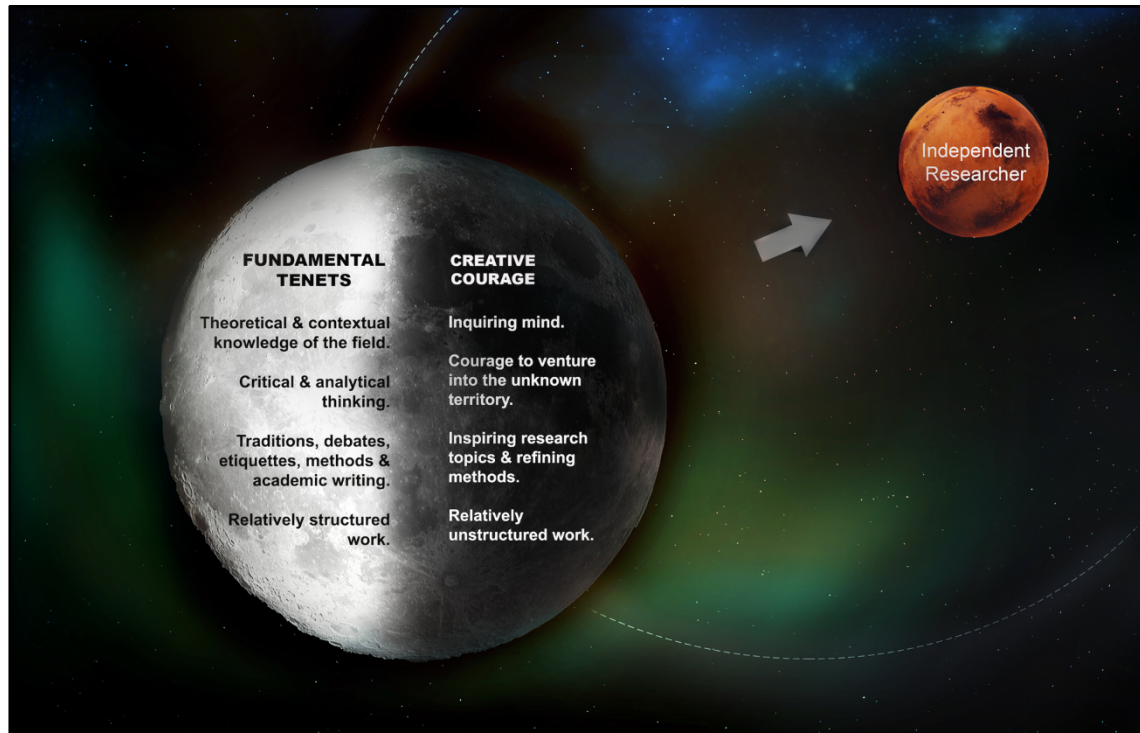


Figure 1. The Moon Diagram: Fundamental tenets & creative courage.

Fundamental tenets & the light side of the moon

The illuminated region of the Moon is populated with codified disciplinary knowledge relevant to the candidate's field of study under the heading *Fundamental Tenets*. This knowledge includes known theories, traditions, debates, academic protocols, ethics, disciplinary etiquettes, research methods, data acquisition and analysis and academic writing. Literature and methods in this region contextualise and situate the candidate's research topic and vary with each project. Contributions to new knowledge collated in this region are obtained through reviewing physical and online resources, studying artefacts, and conducting and reviewing experiments. Learning may be supplemented by conference attendance and doctoral research seminars and expert advice from supervisory teams. Skills required to progress in the *Fundamental Tenets* region include critical and analytical thinking, the capacity to synthesise information and to communicate outcomes clearly in the thesis. When candidates review literature and methods a foundation is established to formulate original and useful research questions and refine or design research methods. The light of this region of the Moon therefore suggests the relatively secure nature of linear and intensive doctoral work.

Creative courage & the dark side of the moon

The *Creative Courage* region is less structured than that of the *Fundamental Tenets* and involves the candidate's imagination, flexible thinking, insider acumen and inquiring mind. The *Creative Courage* region also points to the creativity involved in devising and telling an insightful and compelling story in a thesis. For supervisory teams, it serves as a prompt for encouraging candidates to be creative. Strategies related to creativity include problem finding, problem definition, problem-solving, finding connections, design thinking and uncovering

concepts that might shape the methods or the answer, understanding divergent and convergent thinking, and brainstorming sessions (Kozbelt et al., 2010; Lee, 2008). With this region in mind, supervisors may encourage candidates to tarry with ideas to allow time for better questions or solutions to arise and thus facilitate ideation. They can also draw on this region to reassure students that it is acceptable, and indeed expected, that some of their ideas will be unsuitable. Facilitated discussions and encouragement can help the candidate to enhance their creative self-belief.

An important feature of the *Creative Courage* region is the explicit acknowledgement of how creative courage is needed to engage with the unknown and develop new insights and understandings. This can be experienced as messy work in this unstructured space. New insights devised during epiphanies when inquiring into the unknown are pivotal points in a research process and necessary to make an original contribution to knowledge. This contribution to knowledge is an important criterion in the assessment of a thesis for a doctoral award. When candidates appreciate that uncertainty is a necessary part of the process of developing new knowledge, fear of being confused might be replaced with acceptance and appreciation. Understanding that other candidates often feel lost during creative work may have a cathartic effect. As Stanley (2015) notes “this state of suspended messiness is normal” and “getting lost along the way” is not an indicator of failing to complete (p. 145). The Moon Diagram therefore offers candidates and supervisors a visual cue and metaphor to facilitate conversations around personal experience.

The light of the full moon

Although not shown in The Moon Diagram, supervisors and candidates can use the moon metaphor to envisage the light of the full moon as a symbol of completion. Even with half the moon shaded, the whole moon, which can represent the whole doctoral project, is visible. Supervisors are accustomed to working across the two areas but may forget there are two areas that candidates must navigate. Candidates oscillate between the moon regions with increasing fluency, drawing on their understanding of both as they imagine and deliver an examinable thesis. The subdivision of doctoral work into two regions has the advantage of isolating two disparate ways of working that are necessary in the development of a thesis. Candidates oscillate between the two regions, working intensively in one region before swapping to the other as they develop their thesis for long or almost instantaneous periods of time. Awareness of the two regions enables supervisory teams to intervene in cases where tasks in one region are being pursued to the detriment of tasks in the other, or when a candidate is struggling and might benefit from considering other aspects of research. Epiphanes, inspiration and insights associated with the *Creative Courage* region are vital to doctoral progression, however the linear hard work in the *Fundamental Tenets* region consumes a significant amount of time. By using a full moon as a metaphor for successful endeavour across both regions, a candidate may more easily conceive their overall goal. The additional celestial body representing the independent researcher maintains awareness of the goal of post-doctoral employment and depicts this as a real, unassailable outcome after completing the doctoral program.

The Moon Diagram applied to doctoral research

Elizabeth Smyth is a current candidate of creative-practice research. During her candidature she has published essays that will comprise chapters of a thesis-by-publication. These essays are representative of traditional literary scholarship. This combination of traditional research and creative practice enables us to draw on her reflections on The Moon Diagram as an early indicator of its applicability across two different styles of doctoral research. Smyth writes:

From a creative-practice perspective, the two regions of The Moon Diagram are familiar and comforting. I live on the light side for completing the practical work of my research – administration, searching for information, formatting documents, professional development – that kind of thing. For other blocks of time, I'm working on the creative component, writing a novel and deep into the dark side. The shadow feels right. To create a re-imagined farm novel, I have to let go of preconceived ideas and fully immerse in my imagination. This immersion makes me vulnerable. I definitely need to feel safe to drop my guard and daydream, without the usual interruptions.

But I've also had to draw on the dark side for my exegesis. When I'm developing arguments or specific approaches to an essay, I need an inquiring mind and to venture into the unknown. Without it, I'd only be producing a summary of other people's research. (Smyth, personal communication, October 18, 2022)

This reflection on both creative-practice research as a whole and the exegetical research in isolation suggests The Moon Diagram will likely resonate with candidates in other fields of research. Indeed, all candidates must take new approaches to problems to fulfil the doctoral requirement of a new contribution to knowledge. Smyth goes on to draw our attention to a transition zone between the *Fundamental Tenets* and *Creative Courage* regions:

Sometimes I imagine myself at the frontier of both regions, on the blurred intersection. From there, I can see everything I have to do. I always feel a sense of relief when I arrive at this unfettered boundary to cross from one way of working to the other. Going towards the dark region gives me a sense of relief, a freedom from constraints. Going the other way, towards the light region, also brings relief but for a different reason. This relief comes from returning to clearly specified, logical tasks that can be ticked off a list. (Smyth, personal communication, October 18, 2022)

This distinctly different experience is not so clearly delineated in other metaphors. The two strands of the *double helix*, for example, are indistinguishable without their labels. Smyth's reflection also demonstrates how a supervisor might initiate a conversation to gain insight into the candidate's doctoral experience. Smyth writes more about the connection between the moon metaphor and her supervision:

On one occasion, a supervisor wanted me cut back on what I was doing. At first, I was annoyed by the interruption and the idea of producing something less than I wanted. But when I study, The Moon Diagram, I can see they were concerned about whether I'd finish the entire project in time. It reminded me of the overall goal, and the feeling of irritation faded away. Another thing, looking at the moon in real life reminds me of

the diagram and my project. It makes a positive impression too. (Smyth, personal communication, October 18, 2022)

This final connection of the metaphor with the moon in the night sky demonstrates the universality of our metaphor, given all candidates will most likely have an opportunity to view the moon and be familiar with its shape and illumination.

Conclusion

Doctoral research poses many challenges that both potential and confirmed candidates need to be aware of and understand. In this article, we reviewed the use of metaphors to support communication about the research process to assist doctoral candidates in achieving the key goals of completion and post-doctoral employment. Existing metaphors may be helpful but are often limited by an incomplete representation of the candidature timeframe or when presented only in text or through oral communication. The Moon Diagram presented in this paper uses a combination of metaphor, image and text to increase understanding of the research process. The succinct visual, textual and symbolic form of The Moon Diagram will likely function as a mnemonic device for candidates, clarifying doctoral undertakings, their purpose, and nature. In The Moon Diagram, the *Fundamental Tenets*, consisting of codified knowledge, are differentiated from the *Creative Courage* region, which represents the ability to imagine and explore the unknown. Awareness of the symbiotic relationship between the two Moon regions may facilitate progress and timely doctoral completion and independent researcher capacity. Furthermore, the representation of the whole moon and a separate celestial body labelled *Independent Researcher* points to goals of completion and post-graduate employment. This paper has implications for potential candidates seeking to understand doctoral research, confirmed candidates navigating challenges and debilitating experiences, and supervisors managing expectations and progress. However, further research is required to measure the usefulness and impact of The Moon Diagram on student success.

References

- Alston, M., Allan, J., Bell, K., Brown, A., Dowling, J., Hamilton, P., McKinnon, J., McKinnon, N., Mitchell, R., Whittenbury, K., Valentine, B., Wicks, A., & Williams, R. (2005). 'SERPS Up': Support, engagement and retention of postgraduate students – A model of postgraduate support. *Australian Journal of Adult Learning*, 45(2), 172–190.
- Arnold, J. (2012). Practice led research: Creative activity, academic debate, and intellectual rigour. *Higher Education Studies*, 2(2), 9–24. <https://doi.org/10.5539/hes.v2n2p9>
- Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Prentice Hall.
- Charles, S. T., Karnaze, M. M., & Leslie, F. M. (2022). Positive factors related to graduate student mental health. *Journal of American College Health*, 70(6), 1858–1866. <https://doi.org/10.1080/07448481.2020.1841207>
- Cravens, A. E., Cornelius, M., Ulibarri, N., Royalty, A., & Nabergoj, A. S. (2014). Reflecting, iterating, and tolerating ambiguity: Highlighting the creative process of

- scientific and scholarly research for doctoral education. *International Journal of Doctoral Studies*, 9, 229–247. <https://doi.org/10.28945/2058>
- Curtin, N., Malley, J., & Stewart, A. J. (2016). Mentoring the next generation of faculty: Supporting academic career aspirations among doctoral students. *Research in Higher Education*, 57(6), 714–738. <https://doi.org/10.1007/s11162-015-9403-x>
- Department of Education. (2020). *Completion rates of higher degree by research students: Cohort analysis, 2007-2017*. Australian Government. <https://tinyurl.com/ycymbcd9>
- Devos, C., Boudrenghien, G., Van der Linden, N., Azzi, A., Frenay, M., Galand, B., & Klein, O. (2017). Doctoral students' experiences leading to completion or attrition: A matter of sense, progress and distress. *European Journal of Psychology of Education*, 32(1), 61–77. <https://doi.org/10.1007/s10212-016-0290-0>
- Di Benedetto, C. A., Lindgreen, A., & Ringberg, T. (2021). How to guide your PH.D. students. *Industrial Marketing Management*, 93(2021), A4–A13. <https://doi.org/10.1016/j.indmarman.2020.04.006>
- Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*, 36(3), 282–284. <https://doi.org/10.1038/nbt.4089>
- Friedrich-Nel, H., & Mac Kinnon, J. (2019). The quality culture in doctoral education: Establishing the critical role of the doctoral supervisor. *Innovations in Education and Teaching International*, 56(2), 140–149. <https://doi.org/10.1080/14703297.2017.1371059>
- Gallupe, R. B. (2007). Recognizing good ideas: An essential skill of a doctoral student advisor. *Communications of the Association for Information Systems*, 20, 20–25.
- Gardner, S. K. (2009). Student and faculty attributions of attrition in high and low-completing doctoral programs in the United States. *Higher Education*, 58(1), 97–112. <https://doi.org/10.1007/s10734-008-9184-7>
- Gemino, A., & Parker, D. (2009). Use case diagrams in support of use case modeling: Deriving understanding from the picture. *Journal of Database Management*, 20(1), 1–24. <https://doi.org/10.4018/jdm.2009010101>
- Glade-Wright, R. E. (2017). New insights effectively shared: Originality and new knowledge in creative arts postgraduate degrees. *Qualitative Research Journal*, 17(2), 89–98. <https://doi.org/10.1108/QRJ-04-2016-0023>
- Hughes, C., & Tight, M. (2013). The metaphors we study by: The doctorate as a journey and/or as work. *Higher Education Research and Development*, 32(5), 765–775. <https://doi.org/10.1080/07294360.2013.777031>
- Kelly, F. (2011). 'Cooking together disparate things': The role of metaphor in thesis writing. *Innovations in Education and Teaching International*, 48(4), 429–438. <https://doi.org/10.1080/14703297.2011.617088>

- Kozbelt, A., Beghetto, R. A., & Runco, M. A. (2010). Theories of creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (pp. 20–47). Cambridge University Press. <https://doi.org/10.1017/CBO9780511763205.004>
- Krauth, N. (2018). Exegesis and artefact as a woven work: Problems of examination. *TEXT*, 22(1), 1–12. <https://doi.org/10.52086/001c.25111>
- Lee, A. (2008). How are doctoral students supervised? Concepts of doctoral research supervision. *Studies in Higher Education*, 33(3), 267–281. <https://doi.org/10.1080/03075070802049202>
- Lee, A., & Green, B. (2009). Supervision as metaphor. *Studies in Higher Education*, 34(6), 615–630. <https://doi.org/10.1080/03075070802597168>
- Leijen, Ä., Lepp, L., & Remmik, M. (2016). Why did I drop out? Former students' recollections about their study process and factors related to leaving the doctoral studies. *Studies in Continuing Education*, 38(2), 129–144. <https://doi.org/10.1080/0158037X.2015.1055463>
- Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). Work organization and mental health problems in PhD students. *Research Policy*, 46(4), 868–879. <https://doi.org/10.1016/j.respol.2017.02.008>
- Lovitts, B. E. (2005). Being a good course-taker is not enough: A theoretical perspective on the transition to independent research. *Studies in Higher Education (Dorchester-on-Thames)*, 30(2), 137–154. <https://doi.org/10.1080/03075070500043093>
- Marshall, C. (2010). A research design for studio-based research in art. *Teaching Artist Journal*, 8(2), 77–87. <https://doi.org/10.1080/15411791003618597>
- Nacey, S. (2022). Systematic metaphors in Norwegian doctoral dissertation acknowledgements. *Scandinavian Journal of Educational Research*. Advance Online Publication. <https://doi.org/10.1080/00313831.2022.2042847>
- Oxford University Press. (2022). “metaphor, n.” In *OED online*. <https://www.oed.com/view/Entry/117328>
- Pavey, S. (2008). The postgraduate research handbook [review]. *International Journal of Research & Method in Education*, 31(2), 215–216.
- Pearson, M. (2012). Building bridges: Higher degree student retention and counselling support. *Journal of Higher Education Policy and Management*, 34(2), 187–199. <https://doi.org/10.1080/1360080X.2012.662743>
- Rigler, K. L., Bowlin, L. K., Sweat, K., Watts, S., & Throne, R. (2017). *Agency, socialization, and support: A critical review of doctoral student attrition* [Paper presentation]. International Conference on Doctoral Education 2017, Orlando, Florida.

- Skakni, I., Calatrava Moreno, M. d. C., Seuba, M. C., & McAlpine, L. (2019). Hanging tough: Post-PhD researchers dealing with career uncertainty. *Higher Education Research & Development*, 38(7), 1489–1503. <https://doi.org/10.1080/07294360.2019.1657806>
- Smith-McGloin, R. (2018). Reconceptualising the supervisory role: Border-crossings and bounded spaces. In E. Bitzer, L. Frick, M. Fourie-Malherbe, & K. Pyhäntö (Eds.), *Spaces, journeys and new horizons for postgraduate supervision* (pp. 109–132). African Sun Media.
- Smith, H., & Dean, R. T. (2009). *Practice-led research, research-led practice in the creative arts*. Edinburgh University Press.
- Stanley, P. (2015). Writing the PhD journey(s): An autoethnography of zine-writing, angst, embodiment, and backpacker travels. *Journal of Contemporary Ethnography*, 44(2), 143–168. <https://doi.org/10.1177/0891241614528708>
- Sverdlik, A., Hall, N. C., & McAlpine, L. (2020). PhD imposter syndrome: Exploring antecedents, consequences, and implications for doctoral well-being. *International Journal of Doctoral Studies*, 15, 737–758. <https://doi.org/10.28945/4670>
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice*, 8(1), 1–19. <https://doi.org/10.2190/4YNU-4TMB-22DJ-AN4W>
- Wisker, G. (2008). *The postgraduate research handbook: Succeed with your MA, MPhil, EdD and PhD* (2nd ed.). Palgrave Macmillan.
- Woolston, C. (2019). PhDs: The tortuous truth. *Nature*, 575(7782), 403–406. <https://doi.org/10.1038/d41586-019-03459-7>

Acknowledgements

The authors gratefully acknowledge the contribution of graphic designer Narelle Delle Baite to preparing Figure 1 for publication, and the Graduate Research School, James Cook University, for funding that work. The second author acknowledges the support of an Australian Government Research Training Program Scholarship.