

Navigating power in doctoral education

Abstract

The prevalence of publication pedagogy in doctoral education and its emphasis on knowledge production is increasingly making doctoral students the subject of research performance and productivity measures, creating a borderland which they must cross in order to achieve academic success. Navigating this contradictory and conflicting space requires them to overcome invisible power structures and taken-for-granted pedagogical practices. To aid in this crossing the paper demonstrates the use of network diagrams for mapping the borderland, using 1216 publications by research masters and doctoral students at the University of Tasmania from 2007 to 2015. A data feminist approach is followed to examine and challenge power made visible by borderland maps, and conscientiously engage with issues of quality, practice, and culture in knowledge production.

Introduction

As publishing during candidature becomes the norm in doctoral education, doctoral students and supervisors are increasingly subject to expectations and measures of assessment informed by a pervasive culture of research performance and productivity, one which they must learn to overcome in order to be successful (Horta & Santos, 2016; Kamler, 2008).

Measures of research performance and productivity shape practices from writing to citation and co-authorship in contradictory and conflicting ways, affecting priorities and choices such as who to cite, include or acknowledge in a publication. The issues of research quality, practice and culture that arise are a growing area of interest in higher education and research policy, and there is increasing awareness that many researchers encounter these issues on their journeys (Christian et al., 2021).

Over time these practices can lead to inequities by reinforcing privilege and oppression, creating asymmetric power structures where the 'rich get richer' and where phenomena such as the Mathew Effect emerge (Bornmann et al., 2019). Successful navigation of these issues requires critical engagement with the practices of knowledge production. Publication pedagogy in doctoral education needs to make room for learning about the social and political dimensions of knowledge production and conscientious engagement with the issues of quality, practice and culture that arise (Mott & Cockayne, 2017).

By drawing on borderland theory, a network perspective, and data feminism this paper engages with these issues through the analysis of a co-authorship network created from 1216 publications by research students (masters and doctoral students) at the University of Tasmania between from 2007 to 2015.

Borderlands, networks, and data feminism

The borderlands theory of Gloria Anzaldúa provides a means of imagining the space in which doctoral work is done, a social and political landscape that doctoral students must navigate and cross in order to achieve academic success (Anzaldúa, 2012). The concept of a borderland makes it possible to visualise, map and explore the landscape's social and political dimensions. In this borderland the only legitimate residents are those in power, individuals or groups who have obtained structural advantage.

Network diagrams of co-authorship "act as traveling aids in the scholarly territory" (Zuccala, 2006, p. 11), allowing investigation of past and present relationships, the dominance of key scholars and structures of power in an institution or scholarly community (Walker & Boamah, 2019; Zuccala, 2006). Network diagrams give visibility to the social dynamics of power among borderland residents,

they allow viewers to examine and challenge power in knowledge production and provide a shared language for discussing it.

While network diagrams provide a means of navigation, data feminism provides the tools for reading and interpreting these borderland maps. Data feminism's intersectional lens enables the examination of structural, hegemonic, disciplinary, and interpersonal dimensions of power and oppression so that they might be challenged by borderland residents (D'Ignazio & Klein, 2020).

Discussion

The network analysis presented in this paper reveals a network with small world characteristics, one that shows signs of openness and inclusion among borderland residents (Deb et al., 2020). It is a borderland where crossings by research students and supervisors are frequent and one inhabited by few 'legitimate' residents. Viewing the network through the lens of data feminism enabled scrutiny of bibliometric data, this brought attention to the sanitisation of co-author identity and raised questions about the distribution of power and equity in different groups of co-authors.

The network diagram in Figure 1 shows the number of years in which a co-author published and the strength of relationships among co-authors. Although there are few 'legitimate' residents in the borderland those who published over many years did assume influential positions with stronger relationships. Collaborating with these co-authors can provide greater access to the network, they have the power to include or exclude co-authors, suppress ideas or withhold reward and recognition.

Looking to the future

The culture of production and performance has led to a proliferation of accessible digital data about research such as the publication metadata used in this paper. Access to this data is driving a new wave of research on research which seeks to quantify and predict the success of researchers and the impact of their work (Wang & Barabási, 2021). In a future where big bibliometric data defines a researcher's career, reading borderland maps, understand the language of networks, and applying the lens of data feminism will be essential.

This data driven future raises some important questions for doctoral education:

- How can graduates best be prepared for a datafied academic career?
- Is there room for integrity and resistance in knowledge production?

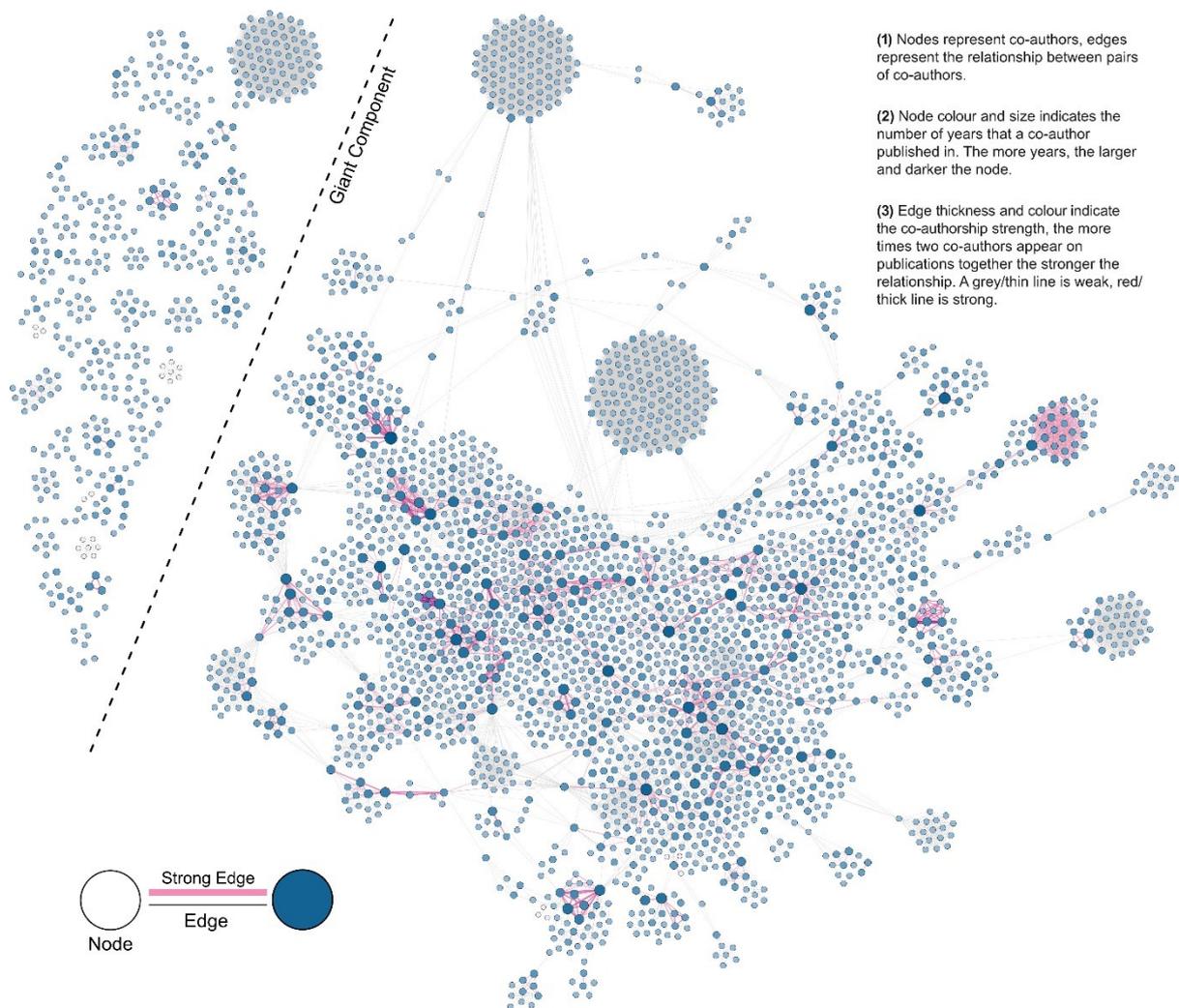


Figure 1: The co-author network. Containing 3024 unique co-authors with 26416 edges between them. Many (83%) of the co-authors are connected, this giant component contains 640 research students and 1880 non-students with 23021 edges. The size and colour of nodes (co-authors) relates to the number of years they published papers in (larger and darker nodes published in more years), and the colour and size of edges relates to the number of times two co-authors appear on publications together (larger and darker edges show stronger relationships).

References

- Anzaldúa, G. (2012). *Borderlands: The new mestiza = la frontera* (4th ed.). Aunt Lute Books.
- Bornmann, L., Ganser, C., Tekles, A., & Leydesdorff, L. (2019). Does the $h\alpha$ -index reinforce the Matthew effect in science? The introduction of agent-based simulations into scientometrics. *Quantitative Science Studies*, 1(1), 1–16. https://doi.org/10.1162/qss_a_00008
- Christian, K., Johnstone, C., Larkins, J. A., Wright, W., & Doran, M. R. (2021). A survey of early-career researchers in Australia. *ELife*, 10, 1–19. <https://doi.org/10.7554/ELIFE.60613>
- D’Ignazio, C., & Klein, L. F. (2020). *Data Feminism*. MIT Press.
- Deb, V., Musial, K., Palmer, S., Taylor, S., Abidi, S., Zemaityte, V., & Simpson, L. (2020). Controlling for openness in the male-dominated collaborative networks of the global film industry. *PLoS ONE*, 15(6), e0234460. <https://doi.org/10.1371/journal.pone.0234460>
- Horta, H., & Santos, J. M. (2016). The Impact of Publishing During PhD Studies on Career Research Publication, Visibility, and Collaborations. *Research in Higher Education*, 57(1), 28–50. <https://doi.org/10.1007/s11162-015-9380-0>

- Kamler, B. (2008). Rethinking doctoral publication practices: writing from and beyond the thesis. *Studies in Higher Education, 33*(3), 283–294. <https://doi.org/10.1080/03075070802049236>
- Mott, C., & Cockayne, D. (2017). Citation matters: mobilizing the politics of citation toward a practice of 'conscientious engagement.' *Gender, Place and Culture, 24*(7), 954–973. <https://doi.org/10.1080/0966369X.2017.1339022>
- Walker, M. A., & Boamah, E. F. (2019). Making the invisible hyper-visible : Knowledge production and the gendered power nexus in critical urban studies. *Human Geography, 12*(2), 36–50.
- Wang, D., & Barabási, A.-L. (2021). *The Science of Science*. Cambridge University Press. <https://doi.org/10.1017/9781108610834>
- Zuccala, A. (2006). Modeling the invisible college. *Journal of the American Society for Information Science and Technology, 57*(2), 152–168. <https://doi.org/10.1002/asi.20256>