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Introduction

In his monograph, A Research Agenda for Graduate Education, Mitchell contends that despite the fact that a vast array of scholarly work exists regarding graduate education and graduate education programs, there is a gap of sufficient evidence to describe how or why graduate education works. This gap results in a lack of hard data or reliable models in which policy decisions can be guided or informed. As such, in times of rapid change and shifting landscapes for universities in general, graduate programs can be slow to shift or adapt. Mitchell stated that "graduate education has changed little during the past century [but] what has changed is the environment in which it finds itself" (p. xvii). He cites the chronic lack of diversity in graduate programs and uncertainty in graduate career preparation as examples of this slow change, despite policy initiatives to the contrary, and proposes a research agenda to inform the changes faculties and graduate schools are seeking. The main contention of this book describes an approach to collect and analyze better data sets in order to make more informed and fruitful decisions about graduate programs, both holistically and interdisciplinary. An agenda that calls for research on graduate education that is longitudinal, predictive, and more generalizable with the goal of improving graduate education.

As a foundation for the research agenda, Mitchell provides readers with a review of current literature related to graduate education and finds that while there is a broad scope of work to draw from, much of the existing research is descriptive in nature and narrowed to discipline or geography. As such, there appears to be a lack of foundational study on graduate education in areas such as graduate-level learning, program improvement, and career preparation that pertain to all programs and that could inform the work of all programs. Throughout the chapters, Mitchell reviews existing literature, cites gaps, and proposes possible research questions for the "graduate education community to pursue, with kernels of guidance from the current literature" (p. 18). While the questions he poses are thematic in nature, they serve as a useful guide for graduate programs to consider, and his connection to current scholarly work (he limits his review of the literature to most current, peer-reviewed work) does give a foundation to further inquiry.

Structure and Organization

Outside of the Introduction and Conclusion, the book constitutes three main chapters that Mitchell sees as the main foci for future research in graduate education. His purpose is to provide a "structured framework to help identify topics and encourage collaborative research teams [through] a series of overarching research questions" (p. 5) aimed "at the key constituents that can best effect change: faculty, students, and administrators" (p. 16). As such, Mitchell structures his research agenda in three main categories/ chapters: *The Science of Graduate Learning, Graduate Student Career Preparation*, and *Graduate Program Improvement*. Keeping an interdisciplinary focus on this agenda, Mitchell cites that those connected to teaching and learning will be most interested in *The Science of Graduate Learning*, those who are most connected to delivering graduate education will be interested in *Graduate Student Career Preparation*, and those connected to administration and policy will be most interested in *Graduate Program*

Improvement. Mitchell is clear that these perspectives, while not exhaustive, are interwoven and crucial to shaping our understanding of graduate education. He contends that the thematic areas of inquiry can be not only used to inform program reviews and inquiry on the impact of specific programs, but also used to drive a larger, more comprehensive inquiry of graduate education as a whole. It is the link from specific to generalizable that forms the basis of his suggested approach.

At the heart of his call for further research related to *The Science of Graduate-Level Learning*, Mitchell argues that graduate education should mirror the work on new learning theories and instruction that are often left to baccalaureate and K-12 education. He contends that a focus on competency-based approaches and skill development for graduate students is needed, and the focus for researchers should be on determining what skills are required at the graduate level and what is the best manner in which to develop those skills. As with all of his suggested areas of inquiry, Mitchell provides a foundation of existing research and work as a starting point. For example, he refers to Pellegrino and Hilton (2013), who described key skills for students as cognitive, interpersonal, and intrapersonal, and posits that theorists should look at models such as these to determine how they best pertain to graduate-level learning. The overarching goal is the improvement of teaching and learning that first requires inquiry into what is it that graduate students need to learn (outside of their disciplinary focus). Mitchell also looks at the work of graduate students and enquires about the relationship between developing research and teaching skills, the models of mentorship and interdisciplinary teams, and even the shifts in how theses and dissertations are produced to represent learning. While these questions do pertain to program administrators and deans, Mitchell contends that this work is pedagogical and requires a pedagogical lens to delve into the research needed to focus on the "what and how of graduate education and how both can be improved" (p. 21). Along those lines, Mitchell suggests further research into the impacts of online or distance learning. The core of that inquiry suggests that if specific skills and outcomes are established for graduate learning, then methods and approaches can be better applied to meet those outcomes.

Building on the call for research on how and what graduate students learn, the second area of Mitchell's research agenda focuses on what students do with their degrees, specifically the career preparation needed for students to take roles in the academy or private industry upon graduation. In Graduate Student Career Preparation, Mitchell describes this aspect of the research agenda to be more ambitious and challenging as much of the inquiry needed requires more longitudinal data and analysis. Through reference to much existing literature in this area, Mitchell declares that "there is more literature on the factors affecting entry into, persistence during, and success in and after graduate school" (p. 49) than in the other areas of his agenda. The gap lies in that much of the existing data is program-specific or particular to a small number of students. Mitchell cites the need for more comprehensive studies that seek to build on the current foundational data in order to create more generalizable conclusions through the analysis of larger data sets. These conclusions are what might be useful in guiding decision-making or policy creation that are not only informed by local knowledge, but also by understandable phenomena in the field. This chapter presents much of the existing literature and poses areas of further investigation in a more chronological order than the other chapters. For example, Mitchell begins with a review of the foundational literature on how decisions are made to pursue graduate degrees, what factors influence career decisions, and the impacts of structured professional development activities; there is value in the foundational work he reviews, and there is merit to the questions he poses for future inquiry in these sections. As such, the organization of this chapter is useful to give a broad discourse of the factors related to the pursuit of graduate education and the career paths that follow. The chapter then shifts to the transition from study to work and explores the development of post-graduate careers and the definition of success in those careers. Again, a multitude of foundational literature makes up the discussion in this chapter, and while there is a reference to some large studies, Mitchell does pose some questions to inquire more deeply into the data that currently exists. For example, he wonders about the metrics that graduate programs often employ as indicators of success, such as publication rates of faculty members, and what the equivalent metric might be in the private sector. Without these links, Mitchell contends that career success or career preparation strategies for graduates are difficult to understand or measure, particularly as it relates to career paths outside of the academy.

In the final component of his research agenda, *Graduate Program Improvement*, Mitchell describes the dichotomy that exists – if a better understanding of learning and career preparation at the graduate level existed, graduate program improvement would be the result. The converse would also be

true in that knowledge of what impacts program improvement would result in an improved understanding of teaching, learning, and career preparation. With that in mind, the focus of the chapter "is about reframing some of the previous research questions and looking at them from the program level instead of the student level...[with the hopes that]...approaching them with simultaneous top-down and bottom-up approaches offers clarity" (p. 79). While Mitchell alludes to existing processes such as program reviews or accreditations that programs regularly engage in, he does cite the need for research to better inform those processes and provide tools for improvement. For example, he describes the practice of using a common metric related to program quality of faculty publications, grants, and awards, but acknowledges the lack of evidence linking a mentor's productivity and the success of the graduate student (either career or skill attainment). As such, the areas and themes presented in this chapter are of good use and value to program administrators who wish to inquire more deeply during accreditation or review processes. As in the other chapters, foundational studies focus the discussion on areas for further research. The chapter contains some useful findings, such as elements that influence enrolment, attainment, and completion of students, particularly looking at the experiences of underrepresented groups and international students. Much of the agenda speaks to the need to look more closely at current practices and consider them broadly. He calls for the linking of data sets to capture the plethora of information that currently exists to answer many of the questions he poses.

Conclusion

A recurring theme in this monograph is the call for "more and better data sets, longitudinal research, and research collaborations" (p. 106) that can support the desire for overall program improvement in graduate education. To this end, Mitchell suggests that by building on the foundational research that exists, this research agenda can shift from an interpretive study of graduate education to a more causal approach aimed at shaping policy and improving programs. While he admits that "at present, the system sensors are insufficiently sensitive and too thinly dispersed to provide the necessary input for such robust analysis" (p. 117), there are possibilities for existing organizations to engage in collaborative and longitudinal research, and his framework provides a pathway to that work. Understanding the pedagogy, the career pathways, and program improvement allows for multi-level, interdisciplinary research to inform the betterment of graduate education for all stakeholders, and as Mitchell adequately describes, "the current state of research on graduate education is insufficiently robust" (p. 117). As such, the argument posited in this book seems logical and warranted and of interest to those connected to graduate programs, particularly administrators and policymakers. The value of this book for faculty lies in the robust review of literature that Mitchell presents and in the thematic inquiry that he poses. Engaging in program improvement requires informed perspectives on the issues that faculties and graduate schools face, and this work is a good primer for those pursuits.

References

Pellegrino, J., & Hilton, M. (2013) *Education for life and work: Developing transferrable knowledge and skills in the 21st century.* National Academies Press.