

**Le Shorn Benjamin, PhD**  
**Research Statement**

While my research agenda explores a variety of conceptual issues, at the core is a commitment to promoting quality education for all students. Given this dedication to advancing educational equity and quality, I have directed my scholarly aim to studies that examine:

- i) educational quality in Doctor of Philosophy (PhD) programs and**
- ii) broadening participation in engineering education**

This research statement will discuss projects that I have completed in these areas and how they have provided a sturdy foundation for my future scholarship.

**Equating Educational Quality with Educational Equity**

Compared to undergraduate programs, doctoral level education has been less widely researched. Although this body of research spans four decades, it has gained the most popularity over the last twenty years. The inextricable link between doctoral student research, innovation, and the economy is undeniable and is evidenced by the substantial purse of public funds that subsidizes the cost of research in higher education. Given the recent calls by funding agencies for greater accountability in doctoral programs, however, this area of research offers a wealth of investigative opportunities.

For the year 2016, alone, federal obligations to universities and colleges stood at 31.6 billion dollars. Of this sum, 28.5 billion went to research and development with another 1.37 billion dedicated specifically to fellowship, traineeship, and training grants (NSF, NCSES, 2018b). While the benefits of PhD programs have been most frequently defined through their contribution to the advancement of science, medicine, and engineering in the United States, scholars such as Nyquist and Woodford (2002) have taken great lengths to highlight the value of PhD training across various disciplines.

The early stages of my research agenda examined the conceptualization of PhD program quality as understood through the meaning-making of a variety of higher education stakeholders. As a product of my doctoral dissertation, this Interpretative Phenomenological Analysis (IPA) study employed semi-structured interview data, obtained from eight expert participants. These individuals included luminary research faculty within the field of doctoral education, national policy researchers of graduate education, and senior administrative professionals within graduate education. Their career experiences as senior professionals provided insights that allowed for the construction of a greater understanding of PhD programmatic quality, particularly given the diversification of career pathways for recent PhD graduates.

As intuitive as they were, the findings of this study demonstrated a perspective on PhD program quality that promoted and prioritized student centeredness across each of the doctoral program stages outlined by Nerad (2014). Figure 1, a conceptual map originating from this study, is

provided below for a deeper appreciation of how participants conceived of a quality PhD program.

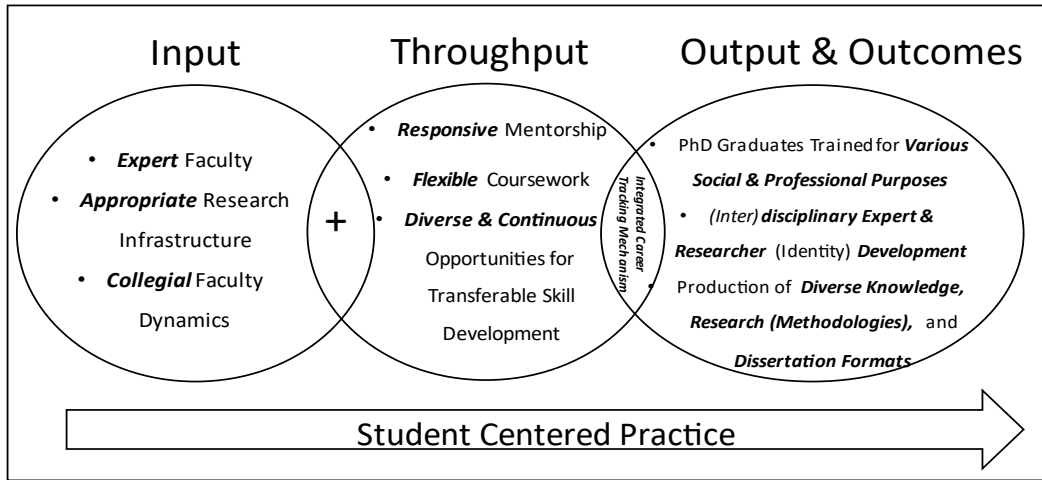


Figure 1. Conceptual Map Illustrating Characteristics of PhD Program Quality as Derived from Participants' Conceptions

### Engineering Education PhD Program Quality: Opportunities for Broadening Participation in Engineering Education

This conceptual map of PhD Program Quality provided the foundation for the current focus of my research agenda. Most recently, I have examined how directors/coordinators of Engineering Education (Eng Ed) PhD programs conceptualize program quality with a view towards understanding how these programs may contribute to broadening participation in engineering. Eng Ed PhD programs are a relatively new addition to the rank of doctoral education with the first of its kind launched at Purdue University in 2004. Since then, others have steadily emerged, promoting a variety of program aims and foci. Projects from my current work have been accepted at ASEE national and regional conferences, The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE) conference and is currently under review with the Association for the Study of Higher Education. It has also provided keen insights for the development of a suite of Engineering Education qualifications at the University of Houston, where I completed my ASEE Post Doctoral Fellowship.

The implications of such research are both theoretical and practical. Findings from this study are positioned to effect positive change in the design and delivery of existing PhD programs as well as those currently being conceptualized. With numerous calls for broadened participation in both the academic discipline and profession of engineering, this area of research has provided a rich foundation for the future lines of inquiry I intend to pursue if offered the opportunity to serve as a tenure-track assistant professor within your department. Based on the preliminary insights gained from this research area, I am now committed to pursuing a longitudinal multi-method study which will integrate document, interview, and survey-based data to examine the outcomes of graduates

of Engineering Education PhD programs and the extent to which their doctoral education has resulted in the use and development of inclusive educational practice. This may involve interviewing graduates who pursued the academic track, their students, and departmental colleagues. It can also include document reviews of their syllabi, CVs, and research publications to better understand how graduates perceive their role and contributions to creating a more inclusive engineering discipline.

This work is well positioned to illuminate the extent to which engineering education PhD programs promote useful pedagogical and empirical strategies for promoting inclusive education and contributing to the development of equity minded scholars. Both factors are key components in the removal of crucial barriers which limit the success of the most vulnerable student groups. Given the aim of my research agenda, I foresee opportunities to support disciplinary transformation within your department. I am confident that with the appropriate departmental collaboration and resources, I can advance initiatives that are currently underway and even develop novel approaches with a complementary focus. In doing so, I will be able to actualize my educational philosophy which equates educational quality with educational equity. As a point of closure, it should be noted that this goal is mutually beneficial as it also aligns with the mission of your department to cultivate an inclusive environment that respects the diversity of all people and ideas.