

Becoming an Engineering Education Researcher: Finding Pathways Toward Interdisciplinarity

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Interdisciplinary thinking is gaining momentum as an important topic for empirical investigation, particularly in regard to how crossing disciplinary boundaries can enrich teaching and learning across fields. There is a need for researchers who can think and work at the interdisciplinary interface. However, despite increased attention given to interdisciplinarity as a goal, there remains much to understand about the nature of interdisciplinary work and who is doing it. This study focuses on one particular interdisciplinary setting: engineering education—an interdisciplinary space at the interface between engineering and education perspectives.

Implications for Engineering Education Research

By better understanding interdisciplinary work, we can make visible interdisciplinary ways of thinking and the process of constructing interdisciplinary identities. This knowledge can then be used to design environments for bringing people into interdisciplinary scholarship and scaling up programs that build capacity and sustain communities. This research will be used to support those who work in interdisciplinary spaces and explore how programs that work to build capacity in engineering education research can be effective “change pathways” for improving engineering teaching and learning.

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What We Found

Findings emerged regarding three major elements of the process of becoming an interdisciplinary researcher: 1) the points of entry to this type of work and to the interdisciplinary space where this work takes place; 2) what facilitates people’s continued work in and navigation through this space; and 3) strategies for successful interdisciplinarity.

In the participants’ discussions of each of these elements, the theme of community emerged repeatedly, suggesting that this is a significant theme across the pathway to interdisciplinarity. One observation that emerged from our findings is that interdisciplinary work cannot easily be done in isolation. Community is important in any field or type of work, but it appears to be particularly critical when entering and working in an interdisciplinary field. We noted that as the nature of the scholars’ communities evolved, so did their relationships to those communities, as evidenced in their statements about their professional identities. Each scholar had a slightly different way of describing his or her identity and position in the interdisciplinary space between

engineering and education. However, these responses had in common an intentional inclusion of both the engineering and education sides of their professional lives.

Another common theme across the participants' stories was what we call "intentional serendipity," referring to the scholars' tendencies to talk about steps in their pathways in terms of luck or chance, while at the same time providing evidence of intentionality in making those steps happen. Opportunities to get involved in education research projects seemed to "just come up" or were "assigned," or scholars were "luckily" offered education-related positions. Despite this language of "luck," the intentionality of their actions is apparent in the scholars' efforts to meet people who can provide entry, build community networks, and construct an identity as an interdisciplinary engineering education researcher with others in the community.

Excerpts of three participants' stories are discussed in more detail in the full text paper using the two themes above as a lens for examining and interpreting pathways to interdisciplinarity and will help further our understanding of how to support scholars on such pathways.

Methods and Data Sources

For this exploratory study, participants included ten individuals at various levels of membership in the engineering education research community that were 1) known to work across multiple disciplines, 2) committed to this kind of interdisciplinary work, and 3) recognized as members of the community. Semi-structured interviews were used to engage participants in conversations about their interdisciplinary work. Participants were asked about how they became interested in engineering education, how they began doing this kind of work, what challenges they faced and how they overcame those challenges, and what advice they would give to others who wish to enter the field.

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