

Building an Effective Advisory Board for Grant Submissions

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Abstract—This Special Session will engage engineering and computing education professionals in an interactive discussion of how to find and use the expertise of an advisory board when writing and executing funded projects. Our recent research of effective practices for supporting early career faculty in engineering education has shown that grant administration is an area that many faculty feel unprepared to manage. Beyond writing an excellent grant proposal, the skills required to carry out the planned grant activities are different from those addressed in existing professional development opportunities and are essential the success of a grant. This session will provide an interactive discussion and development of tools on one specific aspect of grant proposal writing and management—advisory boards. Advisory boards are an essential part of leveraging the expertise in the wider engineering education community, but there are various ways of strategically building and engaging advisory boards in grant work. The outcomes of this session will be a set of tools for faculty to use in building and leveraging the expertise of an advisory board in grant submissions.

Keywords—grant proposal development, advisory board, grant administration

I. PROJECT OVERVIEW

Despite the establishment of engineering education research as a field of inquiry in the last three decades [1]–[3], the social infrastructure available to engineering education researchers is not yet robust enough to consistently support the development of early career faculty across different types of appointments that exist within departments, as faculty in traditional engineering disciplines, or as a part of centers [4], [5]. The strategies and resources provided in this workshop come from research as a part of a larger National Science Foundation (NSF) project that focuses on building support structures for early career faculty with the NSF CAREER award as a particular indicator of early success in engineering education.

This special session focuses on providing support and effective tools for early career engineering education researchers who are applying for external funding with a particular focus on building and managing advisory boards.

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While all disciplines are welcome, the research plan discussions will center on engineering education and broadening participation research.

II. GOALS OF SPECIAL SESSION

The goals of this session are to engage in a collaborative inquiry cycle to discuss collectively the challenges associated with building an effective advisory board as well as leveraging the strengths of an assembled advisory board of experts once a grant is funded.

After participating in this special session, individuals will:

- Be more aware of the different ways to build and engage an advisory board for grant submissions.
- Have a set of actionable strategies that can be used to leverage the expertise of an advisory board.
- Be connected to at least one new peer who is at a similar career stage and also conducts research in engineering education and/or broadening participation.

III. NOVELTY OF SPECIAL SESSION

Most professional development for early career faculty related to external funding focuses on grant proposal development. In a survey of 50 early career faculty and prior NSF EEC CAREER awardees about the types of resource that were available to them in grant proposal development. The majority of individuals indicated college or university sponsored workshops for general or CAREER program specific grant development. However, many participants also indicated that these workshops were too general for their particular project or area of research and were not as useful for their proposal development as they had hoped.

In a recent meeting (March 2019) of 42.2% of the 45 NSF Division of Engineering Education and Centers (EEC) CAREER and PECASE awardees, the challenge of grant management after a proposal is awarded was brought up as a significant challenge for early career faculty. Each participant shared a similar experience of receiving grant funded and then asking the question, “Now what?” This discussion highlighted the need for support beyond grant proposal writing for the NSF CAREER award to other considerations in grant proposal development and management.

IV. EXPECTED INTERACTION

This special session will use a collaborative inquiry cycle to develop a shared set of tools and resources that participants can use in building effective advisory boards. Collaborative inquiry is a process in which participants come together to build consensus and action, often on difficult topics [6]. It can be used as a tool to examine information through reflection on previous actions or experiences and make future action-oriented decisions on information gathered through these reflections [6]. Collaborative inquiry both as a process and tool is inherently interactive. It involves real-time learning and discussion with other researchers where the collective experiences of the group provides ways to draw conclusions about how to adapt future practice. Beginning in education (mostly in the K-12 setting), collaborative inquiry has supported teachers in better informing their practice through a series of reflections and discussions intended to validate proposed iterations to their teaching methods. More recently, this research method has been used in studies focused on informing a specific action or practice based on the collective experience and knowledge of education researchers. It has been used in recent EER studies to understand quality among a range of diverse interpretive qualitative methods [7], [8] and to capture the development and negotiations of first-year faculty [9]. In this special session, collaborative inquiry will provide a guiding framework in how the interaction in the special session will occur. This approach is particularly appropriate given the wide range of expertise in leveraging advisory boards within the FIE community and it positions all participants as active creators of the collective knowledge generated from the special session.

V. DESCRIPTION OF SPECIAL SESSION

A. Focus

This special session will focus on one specific aspect of grant proposal writing, advisory board development and engagement throughout the course of a project. We will use collaborative inquiry (described above) to collectively build a shared set of resources and tools for participants.

B. Agenda

A collaborative inquiry cycle involves multiple steps that are reflected in the detailed session plan in Table I. Participants are given initial information about the topic. Then, they explore and engage around this topic in small groups.

TABLE I. DETAILED SESSION PLAN

Time (minutes)	Session Activity
0-5	Introductions and description of session goals
5-15	Information about purpose of advisory board
15-30	Break out discussion in groups of prior experiences with advisory boards and challenges faced
30-40	Report out of table discussions

Time (minutes)	Session Activity
40-50	Individual reflection on group synthesis
50-60	Activate and discuss across groups
60-75	Organize and integrate group discussion into actionable tools and resources
75-80	Wrap up and feedback for facilitators

C. Expected Outcomes and Future Work

The outcomes of this special session will reflect the specific goals. In addition, this special session can fill a gap in the current professional development. Participants will have the opportunity to engage in a collective discussion and development of actionable resources or tools to build and engage effective advisory boards in their current or future funded work. In addition, this special session will focus on building connections among participants. A total of 50 minutes out of the 80 minutes will be spent in group interaction and 10 minutes on individual reflection.

Our future work from this special session will include additional workshops and webinars to provide support for early career faculty in successful grant proposal writing and administration. This work provides support and resources for faculty who are often “lone wolves” or otherwise unsupported in engineering education research at their institutions. These individuals play an important role in the engineering education community and equitable access to resources for grant proposal development and administration provides not only strong development for researchers at engineering departments and centers but also to those who connect into more traditional engineering spaces. Broad-based and widespread change will occur through modifications to EER infrastructure and leadership development that support early career engineering education researchers. This infrastructure has the potential to offer transformative change to improve and sustain better CAREER award applications. These efforts can prevent EER from becoming a siloed as a discipline to the exclusion of new researchers, which can hamper innovative and transformative research. This infrastructure also fills a void in engineering education faculty development in moving researchers from a central to core leadership position in the community in their early careers. As engineering education continues to develop an identity as a field, efforts to strengthen and improve the next generation of research leaders is an essential piece in the development process.

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