Special Session: Honing the Craft of Conducting Interviews in Engineering Education Research

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***Abstract*— Engineering education research heavily relies on qualitative studies that utilize interview-based approaches. The quality and depth of knowledge derived from these studies depend heavily on the craft of conducting interviews, a facet often overlooked in prior work on qualitative methods. This special session aims to address this gap by guiding engineering education researchers in honing their interviewing skills for qualitative research. Participants will learn best practices for developing interview protocols, creating an accessible environment, and capturing high-quality data. Through case studies and hands-on activities, attendees will gain confidence in moderating conversations, improving data collection, and enhancing their overall skillset. This session provides an opportunity for researchers interested in qualitative research and scholarly educators to deepen their understanding of conducting meaningful interviews. By bridging the gap between the importance of qualitative studies and the need for skilled interviewers, we aim to contribute to the advancement of engineering education research.**

Keywords*— *research methods, qualitative research, interviewing skills

I. Overall Description

Engineering education research is heavily informed by qualitative studies that rely on interview-based approaches (e.g., [1]–[6]). However, the quality of these studies and the depth of their knowledge claims rely heavily on the quality of the interviews themselves [7]–[10]. Prior work on qualitative methods has often emphasized the importance of establishing protocols that elicit the intended data [11], [12], but rarely do we examine the craft of conducting interviews. How do these moments where the interviewer and participant come together to create powerful opportunities for producing new knowledge in engineering education research and practice? How do we attend to the margins in between the scripts of our protocols?

In the special session, we guide engineering education researchers in conducting individual interviews for qualitative research, covering best practices for developing interview protocols, creating an accessible environment, and other subtleties for high-quality data collection. The session is designed for education researchers interested in qualitative research using interviews and scholarly educators looking to deepen their skills. Participants will learn how to begin an interview, develop rapport, probe strategically, capture high-quality audio, and wrap up while leaving the door open for future correspondence. In the session, we use case studies to illustrate these concepts, increasing participants' confidence in moderating conversations and improving the data collection process.

The special session will enable participants to engage in hands-on activities, analyzing a pre-recorded interview transcript to hone how they can use a systematic approach to reflecting on their positionality and presence during the research interview. The session is designed to increase the confidence and introductory skillset of participants as they conduct meaningful interviews, evaluate their performance in this skill, and ultimately contribute to engineering education research. In summary, we aim to bridge the gap between the importance of qualitative studies in engineering education research and the need for skilled interviewers to conduct high-quality interviews.

II. Description of Session Content

A. Session Objectives

The session will focus on exploring the significance of interviewing, the methodology involved, the process of adaptation, and the importance of reflection. Participants will gain insights into the personal interactions, essential skills, and subtle techniques employed by skilled interviewers to facilitate productive and insightful conversations. Therefore, this special session is organized around the following objectives:

O1: Guide participants on skillfully adapting from established interview protocols.

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O2: Introduce participants to mindfulness in creating accessible environments for conducting high-quality data collection.

O3: Build reflective skills in critically examining the performance of the researcher in conducting a semi-structured interview.

B. Importance for the Engineering Education Community

Qualitative approaches that utilize interviews are essential in the intersection of engineering and education research. However, there needs to be more emphasis on developing the necessary skills for conducting high-quality interviews among researchers using qualitative methods. This special session addresses this gap by offering a comprehensive guide based on literature, experience, and knowledge. The session brings together engineering education researchers, both emerging and established, who have an interest in qualitative research. It provides a platform for interdisciplinary collaboration and knowledge sharing, fostering an environment of learning and collaboration.

III. Format of the Special Session

The 80-minute special session will offer a highly interactive experience, allowing participants to engage in hands-on activities. These activities will include the analysis of a pre-recorded interview, exploration of the challenges and best practices associated with conducting semi-structured interviews, and the development of research or education plans focused on interviews in engineering education. The session will conclude with remarks from facilitators, followed by a discussion on opportunities for participants to shape their projects and explore potential publication avenues.

IV. Itinerary

A. Welcome and Group Introductions

(00:00 – 00:05): The session will start by welcoming the participants, followed by an overview of the purpose and itinerary of the session. The facilitators will then organize the participants into small groups, facilitating introductions within these groups to foster a sense of connection and collaboration. During this time, the facilitators will also hand out all materials related to the session.

B. Defining Terms: Conducting Qualitative Interviews

(00:05 – 00:15): The part will start by exploring various interview modes, examining the extent to which an interview can be viewed as a conversation and the different approaches for understanding and classifying research interviews [8], [9]. The intent here is to foster reflection among the participants through the shared experience before considering the procedural aspects of conducting interviews.

C. Activity #1: Honing the Craft of Qualitative Interviews

(00:15 – 00:30): Facilitators will guide participants through a hands-on activity analyzing a pre-recorded interview, fostering reflection on personal interactions and essential skills for conducting effective qualitative interviews. Meaningful discussions will allow participants to reinforce critical elements and reflect on potential challenges encountered in the qualitative interview process.

D. Activity #2:Questions in Semi-Structured Interviews

(00:30 – 00:45): Participants will analyze a specific question from a semi-structured interview to explore the personal interactions and skills necessary for conducting meaningful qualitative interviews. They will receive a handout containing a transcript of the interview with a highlighted question. Individually, participants will reflect and document their thoughts on the effectiveness of the question, the interviewee's response, the type of data elicited, and the influence of the researcher's identity on the interview context and interactions. Following the individual reflection, participants will form small groups to share their insights with one another. Facilitators will walk around to provide support during the activity. Finally, groups will report with the rest of the participants.

E. Exploring Challenges and Best Practices

(00:45 – 00:55): A short presentation on the role of the interviewer in engineering education research will cover theory and methods alignment, power dynamics, question types, shared experiences, and other relevant topics. It will highlight best practices and common challenges in conducting interviews, accompanied by illustrative examples.

F. Activity #3: Reflecting on Challenges and Best Practices

(00:55 – 01:10)*:* In a two-part activity, participants will develop research or education plans related to interviews in engineering education. They will first discuss challenges and best practices, followed by small group work led by facilitators to align theories, methods, and practice-oriented contexts for their plans. A group discussion led by the facilitators will explore strategies and approaches used by the groups and their applicability to individual projects.

G. Final Group Discussion

(01:10 – 01:20): Facilitators will share concluding remarks. The session will close with a brief group discussion, with the group identifying how they can apply what they have learned to their own investigations. The conversation will end with examining potential publication venues and access to an online repository with workshop materials.

V. Anticipated Audience

The anticipated audience for this session includes emerging and established researchers interested in conducting qualitative research in engineering education. Each moment and experience of this special session is planned to align with these objectives. While this special session will not comprehensively prepare attendees for interviewing, it will create a space to launch this skill development and identify a community where this proficiency can be supported.

VI. About the Presenters

Dr. Sindia M. Rivera-Jiménez is an Assistant Professor of Engineering Education at the University of Florida. Her research focuses on participatory action research, investigating the role of engineering communities in driving transformative change. After receiving the NSF RIEF award (No. 2106206),

she has employed qualitative and mixed research methods to examine pedagogical and systemic changes across diverse contexts in Higher Education. Dr. Rivera-Jiménez is dedicated to integrating evidence-based practices into the curriculum, fostering social responsibility skills, collaboration, and inclusive environments. She is also actively involved in developing and facilitating professional development workshops on social justice, diversity, equity, and inclusion in engineering for students, faculty, and industry professionals.

Dr. James L. Huff is an Associate Professor of Engineering Education and Honors College Senior Faculty Fellow at Harding University. He conducts transdisciplinary research on identity that lies at the nexus of applied psychology and engineering education. A winner of the NSF CAREER award (No. 2045392), Dr. Huff has mentored numerous undergraduate students, doctoral students, and academic professionals from more than 10 academic disciplines in using interpretative phenomenological analysis (IPA) as a qualitative interview-based research method to examine identity in a variety of contexts. Additionally, he has offered multiple workshops in using IPA and regularly consults other investigators in how they apply the methodology.

Dr. Jerrod A. Henderson ("Dr. J") is an Assistant Professor in the William A. Brookshire Department of Chemical and Biomolecular Engineering at the University of Houston. His research centers on qualitatively understanding the experiences and promoting the success of underrepresented students, with a particular focus on Black males. His leadership in enhancing engineering student achievement has been recognized by INSIGHT Into Diversity Magazine, the University of Illinois at Urbana-Champaign, and the Career Communications Group. Because of his qualitative research expertise, he was recently selected as an associate editor for the Journal of Women and Minorities in Science & Engineering.

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