

Workshop: Using Focus Groups to Gain Insights into First-Year Engineering (RESUBMISSION)

Cassie Wallwey, The Ohio State University

Cassie Wallwey is currently a Ph.D. candidate at Ohio State University's Department of Engineering Education. She is Graduate Teaching Associate for the Fundamentals of Engineering Honors program, and a Graduate Research Associate working in the RIME collaborative (<https://u.osu.edu/rimetime>) run by Dr. Rachel Kajfez. Her research interests include engineering student motivation and feedback in engineering classrooms. Before enrolling at Ohio State University, Cassie earned her B.S. (2017) and M.S. (2018) in Biomedical Engineering from Wright State University.

Mrs. Abigail Clark, The Ohio State University

Abigail Clark is currently a Ph.D. candidate in the Department of Engineering Education at The Ohio State University. She is currently advised by Dr. Rachel Kajfez, and is part of the RIME collaborative (<https://u.osu.edu/rimetime>). Her research interests include engineering identity development in K12 students, engineering education in informal settings, and women's experiences in the engineering field. Prior to coming to Ohio State, Abigail worked as a researcher at Battelle Memorial Institute in Columbus, OH. She holds a bachelor's degree in mechanical engineering from Ohio Northern University and a master's degree in mechanical engineering from the Ohio State University.

Dr. Rachel Louis Kajfez, The Ohio State University

Dr. Rachel Louis Kajfez is an Assistant Professor in the Department of Engineering Education at The Ohio State University. She earned her B.S. and M.S. degrees in Civil Engineering from Ohio State and earned her Ph.D. in Engineering Education from Virginia Tech. Her research interests focus on the intersection between motivation and identity of undergraduate and graduate students, first-year engineering programs, mixed methods research, and innovative approaches to teaching. She is the faculty lead for the Research on Identity and Motivation in Engineering (RIME) Collaborative.

Dr. Mahnas Jean Mohammadi-Aragh, Mississippi State University

Dr. M. Jean Mohammadi-Aragh is an assistant professor in the Department of Electrical and Computer Engineering at Mississippi State University. Dr. Mohammadi-Aragh investigates the use of digital systems to measure and support engineering education. Current projects include leveraging writing to support programming skill development, using 3D weather visualizations to develop computational thinking skills for K-12 students, and exploring how instructors impact attention in large, computer-infused lectures. Dr. Mohammadi-Aragh also investigates fundamental questions about community, identity, messaging, and diversity, which are all critical to improving undergraduate engineering degree pathways.

Shaylin Williams, Mississippi State University

I am a current doctoral student in the Engineering Education program at Mississippi State University. As a recent graduate of the University of Mississippi, I have participated in undergraduate chemical engineering research projects, an REU at the University of Wisconsin- Madison's industrial engineering department, and the Ronald E. McNair Post-baccalaureate Achievement Program.

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Workshop Summary

First-year engineering (FYE) experiences vary greatly across the country. Each FYE experience has its own goals and structure. Additionally, some FYE experiences have multiple courses that are run simultaneously, adding a layer of complexity as each instructor likely has their own set of outcomes and goals for students to complete. Effectively communicating these goals to all who are involved in a FYE programs, all the way from students to administrators, can be a challenge. Through our work, we have used focus groups to better understand our teaching teams' perspectives on FYE experience goals.

Evaluating the alignment of program goals across different groups can be difficult, but conducting focus groups can mitigate some of the challenges. Focus groups allow engagement among teaching team members about their courses. Focus groups also allow multiple members of a FYE experience to discuss program goals and develop a shared understanding of the FYE experience outside of their own individual classes.

The target audience of this workshop includes those who are interested in utilizing focus groups as a way to answer questions about their first-year engineering experience or program, as well as those still wondering if focus groups are the correct mechanism for answering their questions. Each participant should come to the workshop with a broad question they wish to answer about their FYE experience or program. This question will be used to guide their work within the session.

This workshop will bring attention to the logistics, structure, content, and data collection practices of conducting focus groups with various members of a FYE experience. We will draw on published best practices in conducting focus groups, as well as our own experiences in FYE focus group discussions.

Overall, this workshop will teach attendees the purpose and practices associated with effective focus groups. Participants will leave with tools and documentation regarding how to address their research questions through focus groups. Participants will practice leveraging the use of focus groups to explore FYE experiences.

Workshop Outline

The first 5 minutes of the workshop will be used to introduce the workshop facilitators to the participants and vice versa.

The next 10 minutes will be used to introduce the audience to the background, purpose, and benefits of focus groups. After this, the activity-based portion of the workshop will begin

The first 10 minutes of the activity will be dedicated to participants filling out a worksheet created by the workshop facilitators. This worksheet will guide participants through the process

of using their broad question to identify their target research subjects, how the research subjects should be organized into focus groups, and the questions that should be asked to the focus group participants.

After workshop participants complete their worksheet and have a small example question set, participants will practice their focus group skills through mock focus groups. This will give participants a chance to experience facilitating and participating in a focus group. Participants will be sat in groups of 4-5, and each member of the group will be given a notecard describing the role they will play. These roles include facilitator, note-taker, and participant. The facilitator of each group will describe to the participants who they are portraying within the facilitators FYE experience study. The facilitator will ask questions to the participants, and the note taker will practice taking well-formatted focus group notes. The workshop will be structured in a way such that each facilitator will be given about five minutes to practice facilitating focus group conversation and then roles will rotate. This structure allows for each participant in the workshop to experience facilitating and taking notes in a focus group setting.

The last 10 minutes of the workshop will be used to debrief the mock focus groups. Discussion with workshop participants will include how various focus groups were conducted and what was valuable about participating in the exercise. If time allows, the workshop facilitators will share the inspiration for using focus groups for their own FYE research, as well as lessons learned throughout their study.