Audio Narratives as a Way of Voicing Marginalized Student Experience

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Gabriel Van Dyke is a Graduate Student and Research Assistant in the Engineering Education Department at Utah State University. His current research interests are engineering culture and applying cognitive load theory in the engineering classroom. He is currently working on an NSF project attempting to improve dissemination of student narratives using innovative audio approaches. Gabe has a bachelor's degree in Mechanical Engineering from Utah State University (USU).

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Vanessa Tran is a Ph.D. candidate in Engineering Education at Utah State University (USU). She earned a Bachelor's degree in Civil Engineering from the University of Architecture (UAH) and a Master's in Global Production Engineering and Management from the Vietnamese-German University (VGU) in Vietnam. Her research interest lies in enhancing the well-being of engineering students and educators. She is currently working on an NSF-funded project promoting student narratives through audio-based methods.

(Poster) Audio Narratives as a Way of Voicing Marginalized Student Experience

Abstract

The marginalization of minoritized students in undergraduate engineering education is an important equity issue created by the racism, sexism, homophobia, transphobia, and other systemic discrimination in the system. Qualitative research to understand and listen to student voices has been an important tool for documenting marginalization, but research solely to create conference and journal publications could be re-traumatizing and limited in its ability to help students or change the system. In prior work, we have argued that qualitative research should progress beyond simply documenting marginalization, to try new methods to actually change faculty perspectives. This arts-based research paper and interactive poster presentation presents an innovative audio-based project methodology to center the voices of students experiencing marginalization. The existing narratives are presented on YouTube, approximately 10 minutes long for each of 10 student narratives, and include subtitles for accessibility. The narratives are intended to inform faculty practice and understandings of systemic marginalization. Our primary implications will be for engineering education researchers of marginalization, to potentially incorporate our methodology to help create a more impactful and engaged research agenda.

Proposal

This proposal is for an arts-based research and interactive poster session. Following the requested format of the interactive poster session particularly, we outline the following key aspects of the proposal:

Topic and Alignment with ECSJ Mission:

The proposed interactive poster focuses on researcher and faculty roles regarding the marginalization of engineering students. First, we note that due to the efforts of many researchers and funding agencies to understand broadening participation, the realities of engineering and engineering education as a system that marginalizes students and perpetuates systemic inequities is well known. In her 2022 ASEE presentation (Grant et al., 2022), Stephanie Masta called attention to this reality, noting that we already know about student marginalization (broadly in the research literature, locally in our own settings). And, she named research on marginalization as frequently re-traumatizing for students. While at one point there may have been a worthwhile tradeoff between telling the truth about these realities versus re-traumatization, over time the tradeoff looks more dubious. If we already know that students are marginalized, why should we conduct the same study again to find the same answers? If we have the knowledge, what are we doing productively with that knowledge to help change the marginalizing systems? This is a worthy topic of ECSJ community discussion, and our poster presentation aligns with it.

While many realities are known, some realities are hidden or unknown to specific engineering stakeholders. That is, many engineering faculty are relatively uninformed about the realities of student marginalization in their own classes, research labs, and institutions. This gap in understanding can be for a variety of reasons: marginalization is often painful and private and something a student will not share with everyone; faculty have sometimes demonstrated themselves to be less understanding or worthy of the trust of students; and faculty and students share physical space but largely different social and cultural realities and networks that reinforce their own views of the world. Communication, empathy, and understanding would be key to

helping construct a more equitable and just version of engineering education. Thus wthin this gap in communication, empathy, and understanding, researchers could in fact have a worthy role to help faculty understand their students. Researchers could make their explicit research goal to help faculty better understand their students specifically or students in general.

Nevertheless, the typical broadening participation research practice is to simply interview different populations and present the findings in research papers, research papers which average engineering faculty do not read or learn from. Why is this the status quo for engineering education research and practice? What else can we be doing as a community? In short, there is an opportunity for both engineering faculty and engineering education researchers to reconsider their roles regarding student marginalization and to work together to create change.

Approach to Exploration of topic:
The interactive poster presents one methodological approach that could help enhance the role of researchers and faculty educators. As the key innovation of a NSF-funded research project, we have developed audio narratives of student marginalization to provide faculty with a window into student experience. Although this approach does risk re-traumatizing students, as all interviews on marginalization do to some extent, we emphasize the dialogic nature of these interviews to invite faculty to decide what they'd like to express publicly, and we repeatedly member check with them to ensure they are comfortable. We frame the interviews around what they would like to say to faculty, enhancing this communication and understanding gap by speaking directly from student to faculty on topics that are otherwise not spoken about. There seems to be a benefit for students in knowing their words will at least be told directly to faculty– perhaps not faculty at their own university but faculty in general. As others who have experiences of expressing painful experiences in public (e.g., coming out stories, sexual assault stories) there is meaning for survivors if the stories can have a chance to go on to make the lives of someone else better in the future.

Thus, we adapt the methodological norms of our community to provide more direct feedback and communication to faculty stakeholders. In this way, we hope we have taken more responsibility for the stories student tell us, and we have at least tried something new to create more impact with our research efforts.

Example poster:
This poster is from the ASEE 2023 NSF poster session. The cartoons and QR codes in the middle top of the poster opened up to YouTube audio narratives of the student stories with closed captions for accessibility. For the ECSJ interactive poster session, we would update this with our fuller list of audio narratives to date and make the focus of the paper more on the audio narratives, engaging faculty, and offering guidance and food for thought to researchers. We will also explore iPad and other digital ways of presenting the interactivity so that those without smart phones at the session can engage as well.

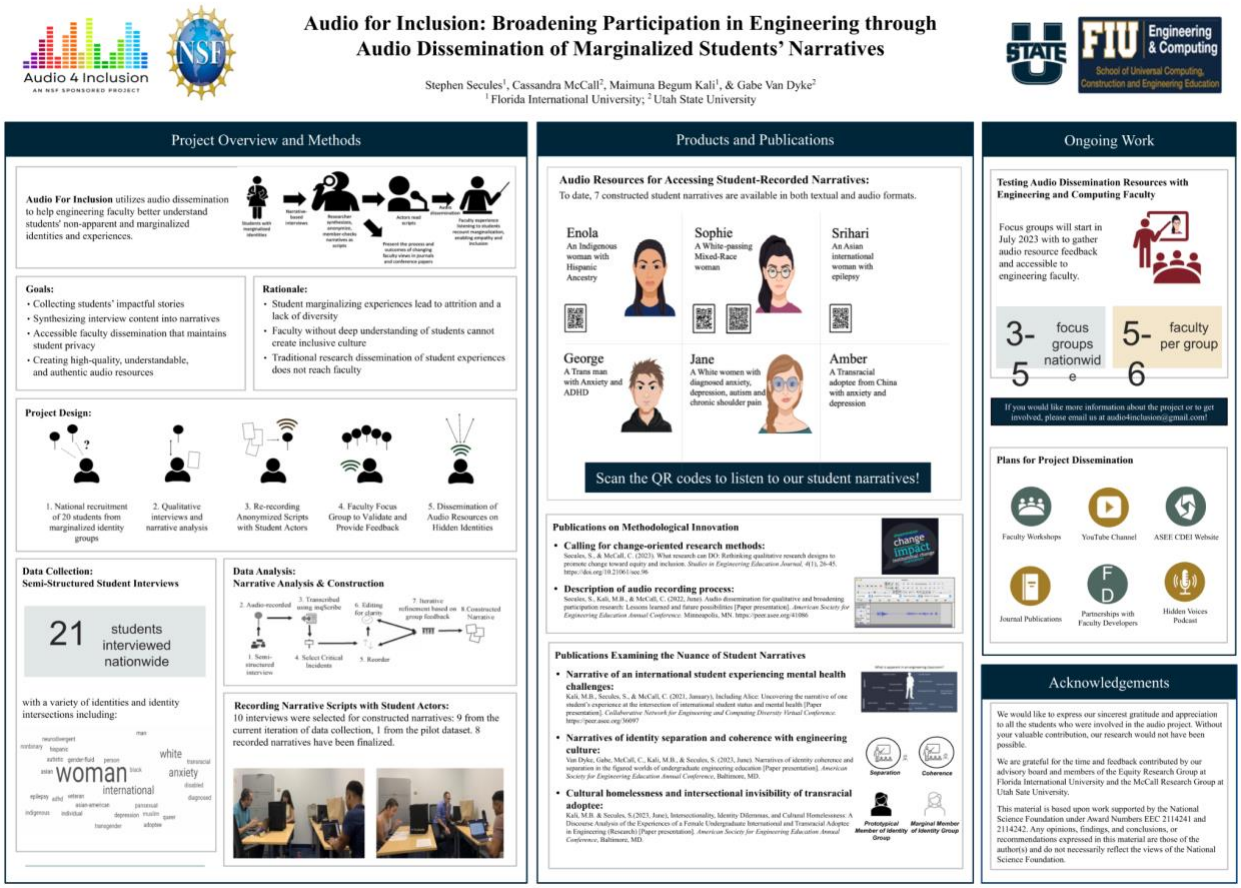

Figure 1: Example poster from 2022 NSF

Example audio narrative:

This is an example audio narrative created for the project. A video like this would be pulled up when participants scan the QR code.

https://www.youtube.com/watch?v=ZuzMpJ30zg4&list=PLGtUPyPaSQBb1oiZzdtYybIlP-DNi8E0F&ab_channel=AudioforInclusion

Figure 2: Example YouTube Clip of Audio Narrative

Suggested Process for the Session:
We suggest Stephanie Masta as a possible discussant for the session, given that her words at the 2022 ASEE conference were inspiration for this paper focus. As for our own part of the session, we will explore ways to bring headphones and speakers to help people experience the arts-based research effort (without being too disruptive to others in the room). We want to aim for an experience like a museum exhibit, where individuals can select and engage with student narratives of interest to them. We will also provide a handout that helps people access and remember to access these narratives later. We will primarily highlight the narratives and the overall objectives of the research, but will also be able to help explain details of the methodological approach if researchers are curious.

Further actions suggested:
We suggest that engineering faculty can listen to our audio narratives to better understand student perspectives. We present these narratives so that they are considered individually and holistically. We do not present them as collated themes where a singular quote is used to reference one piece of marginalization or trauma that resonates as one among many. We engage story telling to help faculty better understand the individual student. We hope that the telling and listening of these stories helps develop awareness and empathy without essentializing the student. While we tried to engage with and tell a variety of individuals' stories, we do not intend to showcase the singular Black student or singular gay student to represent the general population.

We also suggest that researchers can borrow from the demonstration of these audio based methods to create more useful faculty development or change tools. There may be many datasets

among those of us who have conducted education research for years, and across the community. What are the ways we can take Stephanie Masta's words to heart– how can we use what we already know to create the change we seek in the world? What would it mean to focus our research on creating that change and not simply rediscovering the marginalization? What does it mean for us to take our responsibilities to actually broaden participation, to actually disrupt marginalization, more seriously? We offer these as discussion openings for the session and for the larger community.

References:

Grant, J., Masta, S., Dickerson, D., Pawley, A. L., & Ohland, M. W. (2022, July). "I Don't Like Thinking About this Stuff": Black and Brown Student Experiences in Engineering Education. In *2022 ASEE Annual Conference & Exposition*.