

Countering a Culture of Disengagement: The Role of Dialogical Self Theory in Teaching Podcasting in an Engineering Communication Class

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A culture of student disengagement from concern with public welfare has been identified in engineering education, leading some educators to call for assignments and extra-curricular activities that promote student awareness of the role of engineering in society. This paper reviews a podcast assignment for engineering students, which asks them to create a short demo episode for a podcast called *Engineering Moment* about a topic addressing the social role of engineering. This paper proposes that the assignment fosters students' self-reflexivity and supports a process of identity construction in relationship to others, countering the culture of disengagement. Ninety-two of the engineering majors who completed the podcast assignment took a voluntary anonymous survey that included open-ended questions. This paper discusses the assignment and the survey results in the context of dialogical self theory because the theory addresses identity development as a dynamic process within a social context. Overall, the survey results indicate that in the context of completing the podcast assignment, engineering students expressed valuing the ability to shift perspectives and they conveyed a deepened appreciation for the role of engineering in society. In this way, the podcast assignment offers particular value in the engineering classroom.

Podcasting in higher education was relatively new in 2018 when I developed a podcast assignment for my course *Advanced Communication for Engineers*, so I justified its use by detailing its ability to meet the course learning objectives and to promote desired accreditation outcomes. However, in re-tooling my standard team presentation assignment into a podcast assignment, my intention was to upgrade instructional quality, so I explicitly asked, "What educational value, if any, [does a] podcasting assignment add?" (Ramsey, 2019, p. 2). Although I concluded confidently that this initial version of a podcast assignment addressed key learning objectives appropriate to an upper division communication course, I could not articulate a compelling new value

that it added to the class. In Spring 2021, I revised both the assignment and my research question to more specifically address engineering majors. The assignment prompt was revised to present a clearer rhetorical situation of students creating a demo episode for a podcast about the role of engineering in society, and the updated research question considered the value of the assignment within the broader context of engineering education.

This reframing of the podcast assignment was inspired by increasing calls from engineering education researchers that we must promote student awareness of engineering's social dimension, for instance by considering social justice (Riley, 2008) and the intertwined relationship of technology and society (McGowan & Bell, 2020). In particular, in "Culture of Disengagement in Engineering Education?" a longitudinal study of engineering students at four institutions, Erin A. Cech (2014) examined students' concern with "public welfare," defined as the effect of engineering on the general public beyond their use of technology, for instance, in terms of "social justice, [...] inequality of access, the spread of risk and benefit, and issues of privacy, monitoring, and control" (p. 45). Cech found "students' public welfare concerns *decline* significantly over the course of their engineering education" (pp. 42–43, emphasis original), leading her to suggest that engineering education may be creating a culture of disengagement. Presumably, students are encultured to focus on the technical aspects of engineering while the social context of their future work is relegated to an afterthought or considered a distraction from their technical education.

With this culture of disengagement as the impetus for revising the podcast assignment, the research question shifted from identifying the value of a podcast assignment within a particular course to considering its broader educational relevance for engineering students. To that end, this chapter asks what value, if any, does a podcast assignment add *for engineering students*?

This chapter proposes that the podcast assignment fosters self-reflexivity and models a construction of identity in relationship to others, which may support students' engagement with public welfare. The Background section presents the assignment and reviews dialogical self theory in the context of fostering engineering students' self-reflexivity and social awareness. Dialogical self theory is used because it addresses identity development as a dynamic process within a social context. The Methods section describes the data collection and analysis. The Results section presents survey results. The Discussion section analyzes the results in the context of dialogical self theory and the potential to counter a culture of disengagement, finding that the podcast assignment promotes students' construction of their identity as engineers within a social context. The conclusion notes limitations of the study and avenues for future work.

Background

In the updated version of the assignment, students create a demo recording for an episode of a podcast called *Engineering Moment*. Production of the *Engineering Moment* podcast is supported by the University of Southern California Engineering School's Dean's office; while it is available on most major podcasting platforms, its primary purpose continues to be as a class assignment. The broad prompt is tied to a specific rhetorical situation, the potential to share their ideas about engineering and society through an actual podcast production:

The podcast series *Engineering Moment* incorporates student voices in a variety of ways, and while you're welcome to submit to your work the series, you will not be required to do so. It's possible, too, that our 'moment' will change quickly and the topic you explore for this class may need to be updated. With these caveats in mind, approach your work for this class as a prospective demo tape for the series.

Create an episode for *Engineering Moment*, addressing a topic of your choice at the intersection of engineering and society.

Students work in teams of two or three, and each team member is expected to speak for 5-7 minutes. The podcast needs to be based on research (typically about five sources per team member), and students submit an annotated bibliography as one of the scaffolding assignments. Scaffolding assignments are a key component of successful podcast assignments (Detweiler, 2019; Faris et al., 2019; Jennifer, 2022; Jones, 2010; Lee & Geraci, 2022), and additional scaffolding assignments include using a focus group for topic refinement, crafting a storyboard, and writing show notes. Students are introduced to the chat show (Drew, 2017; Ramsey, 2023) as the recommended genre, so all team members share equal speaking time and convey information, instead of using a host and expert guest format or a narrative format with fewer voices. The chat show format presents a prepared but unscripted conversation.

Fostering a Dialogical Self to Promote Social Engagement

Engineering Moment is more than a short chat about engineering, which the title (and the chat show genre) might suggest; it is also more than an invitation for students to consider the social impact of engineering in this moment of time. At heart, it is an opportunity for students to experience constructing a dialogical self, which is constructed and reconstructed by actively engaging

with the perspectives of others (Hermans, 2001; Hermans, 2003). The chat show podcast enacts these dynamics as students strive to present a “diversity of perspectives on the topic” (Drew, 2017): the podcast facilitates engagement with multiple viewpoints and promotes the perspective-shifting abilities needed in constructing a dialogical self.

The dialogical self is fundamentally playful, engaging in low-stakes and high-agency identity exploration. While “fun” may not be an adjective commonly associated with engineering education, it *is* an adjective associated with podcasting in the classroom (Almendingen et al., 2021; Detweiler, 2019; Jones, 2010; McCarthy et al., 2021) and podcasts have opened new possibilities for assessment in interprofessional learning (IPL). The chat show genre in particular encourages linguistic playfulness; Drew (2017) identified wit as a signature move of the genre, citing a blending of humor and intellectualism. A similar playfulness is clear in Hermans’ description of the multi-subjective nature of the dialogical self:

In contrast to the individualistic self, the dialogical self is based on the assumption that there are many *I*-positions that can be occupied by the same person. The *I* in the one position, moreover, can agree, disagree, understand, misunderstand, oppose, contradict, question, challenge and even ridicule the *I* in another position. (Hermans, 2001, p. 249)

The dialogical self, then, hosts a conversation between competing perspectives—much like some genres of podcasts (Detweiler, 2021; Drew, 2017). As an internal conversation, constructing a multi-subjective dialogical self seems as easy as putting on a new hat, a simple trying on of a different perspective.

While this ability to imagine the world through another’s perspective might increase student awareness of engineering’s impact on public welfare, that is not enough: students must also be able to view engineering and their own identities from the perspective of another. This, too, is an aspect of the dialogical self:

The dialogical self is “social,” not in the sense that a self-contained individual enters into social interactions with other outside people, but in the sense that other people occupy positions in a multivoiced self. [...] I’m able to construe another person or being as a position that I can occupy and as a position that creates an alternative perspective on the world *and myself*. (Hermans, 2001, p. 250, emphasis added)

Hermans’ formulation of the dialogical self here isn’t simply playful—it is privileged. When the dialogical self occupies another perspective, it does so willingly (even willfully), one-sidedly, and with no risk: if a disagreement with an assumed *I*-position becomes uncomfortable, the position can simply

be abandoned, which is problematic when trying to foster genuine self-reflexivity. In contrast to this privileged formulation, scholars from oppressed communities have offered powerful descriptions of the necessity of seeing oneself from the perspective of another. For instance, W.E.B. Du Bois formulated the concept of “double consciousness”—“this sense of always looking at one’s self through the eyes of others” (Du Bois, 1903, para. 4). Double consciousness as articulated by Du Bois is not a theoretical framework of identity but a lived intergenerational struggle, a thwarted “longing to attain self-conscious manhood, to merge his double self into a better and truer self” (para. 5). Similarly, Gloria Anzaldúa’s theory of *mestiza* consciousness (Anzaldúa, 1987) and current discourse on intersectionality describe a self that must be able to view itself as an other, with an ability to shift between multiple aspects of its identity.

Both approaches—incorporating the perspectives of others into one’s own perspective and viewing oneself from the external position of another—are valuable in promoting students’ self-reflexivity and potentially supporting an engagement with public welfare. Podcasting can facilitate such perspective-shifting: in creating the podcast, students must research a contextualized engineering topic and foreground its social implications, prompting them to consider the views of multiple stakeholders; at the same time, inherent in podcasting is the potential that their voices may be heard and interpreted by others, potentially prompting students to access the dynamics of double-consciousness models. Podcasting enables the combining of these identity-making models through the ethos of playfulness on the one hand and social justice awareness on the other hand.

Additionally, dialogical self theory is particularly appropriate in a discussion of engineering education because it explores the construction of identity through dynamics that align readily with engineering qualities. The dialogical self “is always tied to a particular position in space and time” in contrast to a static and atemporal Cartesian self (Hermans, 2001, p. 249), making it inherently contextualized. Similarly, Steven L. Goldman located engineering within in a contextualized and contingency-based framework in opposition to a universal framework of scientific certainty and necessity (Goldman, 2004). Overall, the concept of a dialogical self resonates with key engineering ideals: it is creative, dynamic, and flexible (National Academy Engineering, 2004, pp. 53-57).

Priming Students through the Presentation of the Assignment: Bridging the Dialogic Self and Social Engagement

Students are introduced to the assignment through a presentation intended to prime (Kapkin & Joines, 2021) their receptivity to both aspects of the

dialogical self (considering other’s perspectives and viewing themselves from the viewpoint of another). The introduction of the podcast assignment has two aims: first, to have students consider engineering’s social impact from a general perspective; and second, to jolt them into an awareness of their particular perspective as engineering students. Additionally, the introduction is intended to excite the students about the process of making a podcast episode.

To begin, I share slides from a conference presentation about *Engineering Moment* for an audience of composition instructors. I ask the students to imagine themselves as a writing instructor, probably 30–60 years old, and to play along with a word association exercise from this perspective. I create a clear context in space and time (crucial in the construction of the dialogical self) and note that the conference was during the end of Fall semester in 2020—the height of the COVID-19 pandemic. Figure 6-1 shows the final composite slide of an unfolding series: the word “stress” leads to an image of excessive paperwork (usually, students realize that while they might be stressed with writing papers at the end of the semester, instructors would be stressed grading the work); adding the word “tension” leads to an image of a tension headache (students aren’t typically aware of this phrase, and I explain the older writing instructor at the conference would likely recognize it); adding the word “moment” leads to multiple images conjuring current social stress and tension (students connect easily with these images). After this first set of word associations, students generally feel confident imagining the responses of a writing instructor.

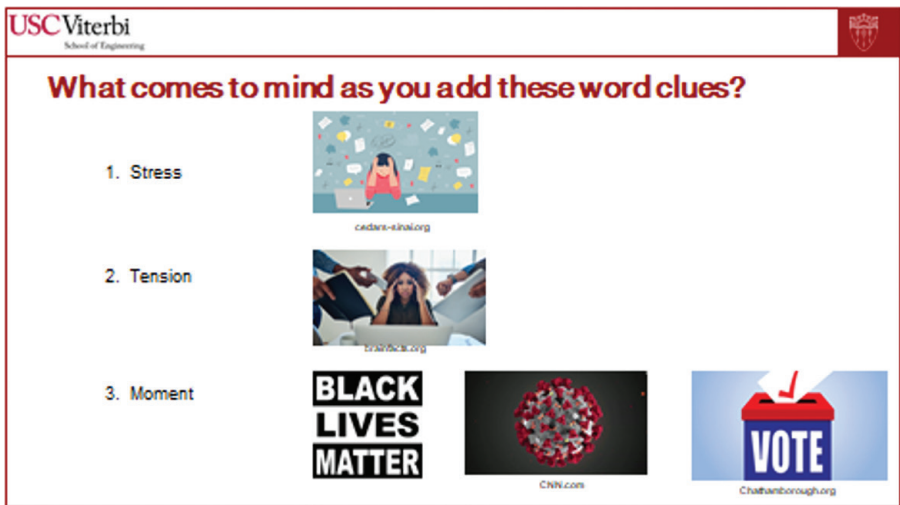


Figure 6-1. Slide prompting students to consider composition instructors’ perspective

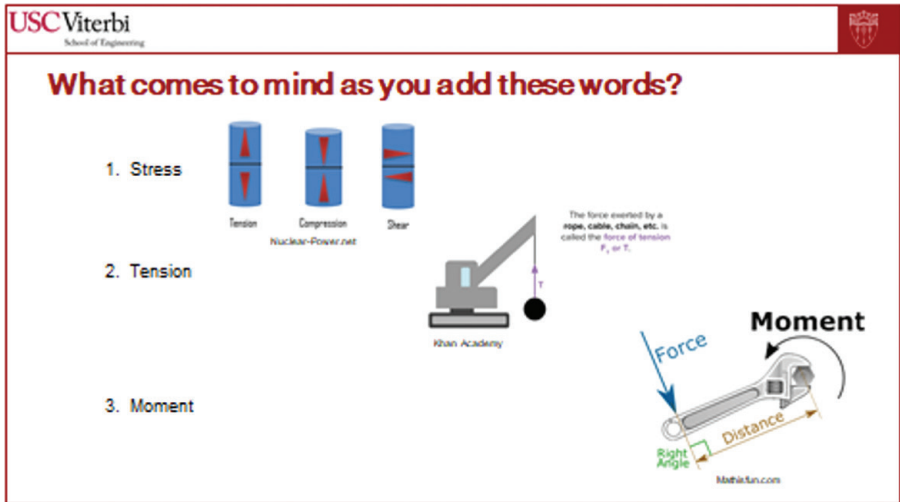


Figure 6-2. Slide prompting students to imagine composition instructors trying to consider engineering students' perspective

Then, I tell them that the next few slides attempt to put the conference audience members into *their* perspective, considering the words from the perspective of an engineering student. I ask students to imagine that they are writing instructors who are trying to imagine being engineering majors—students typically laugh at this complication. The same words unfold, with drastically different images, shown in Figure 6-2: “stress” leads to figures of tension, compression, and shear force vectors. Reliably, students lean back in their chairs with laughter as I point out that I needed to explain to the audience of writing instructors that in engineering “stress” is neither good nor bad but simply a phenomenon that must be considered. This moment serves as a shock of (self) recognition, with students realizing that they have a specialized knowledge base which yields a unique perspective. “Tension” leads to an image of a crane with a chain moving an object, and I tell students that I informed the conference audience that, like stress, tension is neither good nor bad, but it can be usefully harnessed. Lastly, the word “moment” leads to an image of a wrench, and I note that I needed to explain to the conference audience that moment equals force times distance, and it is a foundational engineering concept.

The students are now aware that as engineering majors they have a unique perspective, and I remind them that they are not only engineers and that as concerned citizens they share the perspective of the first series of slides. Then, I share a third series of slides that merge the first two perspectives, shown in Figure 6-3. When most citizens consider social justice, they may think of movements like Black Lives Matter; engineering students think of this too,

but they might consider also the need to reduce racial bias in facial recognition, AI, and other technologies. When most citizens reflect on current causes of public stress, COVID-19 comes to mind; engineering students are aware of COVID-19, but they imagine creating a vaccine or improving contact tracing. When most citizens ponder political controversies, they think of potential election inference; engineering students would go a step further and consider cybersecurity solutions.

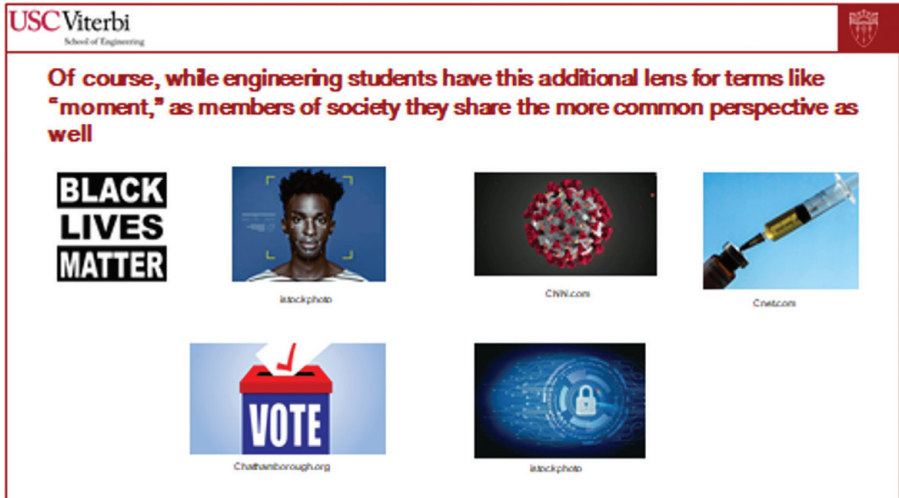


Figure 6-3. Slide demonstrating that engineering students simultaneously hold the perspective of a citizen and a special knowledge base as engineers

In short, the assignment’s introduction establishes two points: first, engineering students are part of a larger social community and understand the pressing issues of our time; and second, as engineers they have a useful perspective on potential solutions for these issues. Ultimately, by priming students to step outside themselves—first attempting to think from another’s perspective and then imagining that other perspective considering their own perspective—the students experience the construction of the dialogical self.

Methods

IRB approval was received for this study in 2021. From the spring 2022 to spring 2023 semesters, this podcast assignment was delivered to 264 students in classes of Advanced Writing for Engineers, who produced 82 podcast demo episodes as their deliverables. All classes were introduced to the assignment through the priming protocol described in the Background

section. After the podcasts had been submitted, a data collector emailed students invitations to take an anonymous online survey. One hundred and forty-nine of the 264 students took the survey; not all students answered every question. Of the 149 respondents, 92 identified themselves as engineering majors. Only the responses of self-identified engineering majors are considered in this chapter. The survey included a validated Engineering Identity Scale (Patrick et al., 2018), which will not be discussed here because the constructs do not address this chapter's research question. The survey also included open-ended questions directly asking students what aspects of the assignment they found most and least valuable; these questions will be considered in the sections that follow. A theoretical thematic analysis will be applied (Braun & Clarke, 2006), using dialogical self theory within the context of a culture of disengagement.

Results

The open-ended question, "What did you find most valuable about the podcast assignment?" received 68 responses. Repeated throughout the responses were four themes connected to the dialogical self and a culture of disengagement: perspective, fun, society, and collaboration. Of the 68 students who responded to what they found most valuable about the assignment, 49 also responded to the question about what they found least valuable. No student only responded to the question about the least valuable aspect.

Table 6-1 presents the relative frequency of themes noted in response to the most valuable aspect of the assignment.

Table 6-1. Relative frequency and description of themes in responses to what students found most valuable about the assignment

Theme	Description	Relative frequency
Perspective	Comments noting self-reflection on their own perspective; comments noting the value of expressing their perspective to others; comments noting the value of considering others' perspectives	31%
Fun	Words such as "fun," "enjoyed," "excited," "interesting," "playing," "creative"	29%
Society	Comments discussing the role of engineering in society (not comments with students imagining the perspective of society)	18%
Collaboration	Comments about teamwork	15%

Table 6-2 presents representative quotations reflecting the range of responses for the four common themes.

Table 6-2. Representative quotes of responses related to the themes

Theme	Representative quotations	Conceptual connection
Perspective	“Introduced a bunch of different perspectives” “Listening to myself from another perspective was helpful” “Consider my experiences with a wider scope”	Perspective-shifting
Fun	“The recording was fun because it made the process feel more lighthearted when we’d inevitably mess up—and then laugh and start over—because it’s not a format we’re used to as engineers, thus also being a point of growth”	Playful
Society	“Thinking about the connection between our topic/content and the mission of Engineering Moment and the role of the Engineer leveraging their knowledge for the benefit of society. It allowed me to think about my role in that as well as even outside of the assignment” “Talk[ing] about engineering holistically and ... what it means to be an engineer. I never really think about my responsibilities as an engineer in my day to day life” “It broadened my understanding of engineering as a discipline and also made me reflect on the past, present, and future of engineering”	Personal and professional self-reflexivity Increased awareness of social role of engineering
Collaboration	“Great because this topic needs a discussion with more than 1 person’s opinion” “A discussion to synthesize sources” “Working in a group made the assignment a lot more enjoyable”	Perspective-shifting Playful

None of the themes mentioned as most valued were mentioned more than three times as least valued (relative frequency of 6%), supporting the positive feedback. The response that “nothing” was least valuable (not simply leaving the response blank) occurred at a relative frequency of 20%. Only two other themes were mentioned as the least valuable aspect of the assignment with a relative frequency of at least 10%: 1) editing the podcast (relative frequency of 24%); and 2) inadequate time for the assignment (relative frequency of 16%).

Discussion

This paper's research question asks: What value, if any, does a podcasting assignment add for engineering students? Considering engineering education's culture of disengagement, the paper explores whether a podcast assignment could stoke student interest in engineering's social impact and promote student self-reflexivity and perspective-shifting through the dynamics of dialogical self construction.

Student responses to what they found most valuable about the assignment included four themes: perspective, fun, society, and collaboration. *Perspective* was the most frequently mentioned of the themes. Perspective-shifting included both dynamics discussed in the Background section, incorporating others' perspectives into their own perspective and seeing themselves through the eyes of another. Additionally, students noted a broadening of their perspective, which is the ultimate effect of constructing and reconstructing the dialogical self; these comments may reflect the nature of the podcast assignment having a potential public audience.

The theme *fun* was mentioned nearly as much as perspective. Playfulness is an essential aspect of the dialogical self, and, according to the student responses, it was cultivated by the medium of podcasting. In fact, the representative quote balances several items on the fulcrum of fun: collaboration, working in a new medium, thinking and working in new ways, and growth. The theme *society* conveyed engagement with public welfare issues and an awareness of the podcast's potentially wider audience. *Collaboration* was often mentioned in conjunction with fun and perspective. Collaboration connects to the dialogical self by embodying the multi-voiced self as team members—in effect, a scaled performance of the dialogical self with the team as the *I* and the members as various perspectives. The lack of comments about collaboration as a least valuable aspect of the podcast assignment is noteworthy: non-podcast forms of project-based learning activities are increasingly common as part of engineering education, and teamwork can “simultaneously be the most frequently reported positive and negative theme in the open-ended student comments” (Palmer & Hall, 2011, p. 363).

Overall, student responses indicate the assignment enhanced their understanding of engineering's role in society and promoted personal and professional self-reflexivity. Furthermore, these comments suggest that both the assignment's topic and the nature of the podcast medium promoted this self-reflexive broadening of awareness beyond the bounds of the assignment.

Conclusion

The sample size was a limitation of this study. While 264 students completed the podcast assignment, only 92 engineering majors took the voluntary anonymous survey with 68 answering the open-ended question. Future partnering with more instructors, potentially moving beyond engineering communication courses to other engineering courses, would produce a larger and potentially more diverse data set. Additionally, collecting demographic information and administering a pre-survey could provide valuable insight.

The recent revision of a podcast assignment to address concerns within engineering education shows promise in increasing students' self-reflexivity, their ability to shift perspectives, and their engagement with public welfare issues. Very soon, AI will cause both engineering and engineering education to evolve: this evolution will very likely intensify the need for student self-reflexivity and thoughtful consideration of public welfare concerns. The podcasting assignment is uniquely positioned to meet this challenge.

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