Independent and Interwoven: A Qualitative Exploration of Residents' Experiences With Educational Podcasts

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Abstract

Purpose

Educational podcasts are an increasingly popular platform for teaching and learning in health professions education. Yet it remains unclear why residents are drawn to podcasts for educational purposes, how they integrate podcasts into their broader learning experiences, and what challenges they face when using podcasts to learn.

Method

The authors used a constructivist grounded theory approach to explore residents' motivations and listening behaviors. They conducted 16 semistructured interviews with residents from 2 U.S. and 1 Canadian institution from March 2016 to August 2017. Interviews were recorded and transcribed. The transcripts were analyzed using constant comparison, and themes were identified iteratively, working toward an explanatory framework that illuminated relationships among themes.

Results

Participants described podcasts as easy to use and engaging, enabling both broad exposure to content and targeted learning. They reported often listening to podcasts while doing other activities, being motivated by an ever-present desire to use their time productively; this practice led to challenges retaining and applying the content they learned from the podcasts to their clinical work. Listening to podcasts also fostered participants' sense of connection to their peers, supervisors, and the larger professional community, yet it created tensions in their local relationships.

Conclusions

Despite the challenges of distracted, contextually constrained listening and difficulties translating their learning into clinical practice, residents found podcasts to be an accessible and engaging learning platform that offered them broad exposure to core content and personalized learning, concurrently fostering their sense of connection to local and national professional communities.

Podcasts (streams of digital audio files available to download from the Internet to a computer or mobile device) have become an increasingly popular platform for teaching and learning in health professions education.[1] The use of podcasts has grown in most clinical specialties and the basic sciences,[2] and many major academic journals have adopted podcasts as a means to disseminate new content to a broader audience.[3] Podcasts may provide a useful adjunct to traditional learning modalities, offering portable and easily accessible supplemental learning material, with prompts for reflection and the option for trainees to repeat or slow down difficult segments.[4–6] In light of the 24 million downloads of a critical care podcast, 23,000 monthly subscribers to an emergency medicine podcast, and up to 13,000 weekly downloads of a neurology journal podcast,[7–9] it is not surprising that surveys of residents have found that some trainees spend more time with podcasts than with any other educational resources, including textbooks and journals.[10–12]

Despite widespread adoption of podcasts as a learning tool, there is a paucity of research exploring why trainees find this learning modality so compelling.[2,12–17] Preliminary studies using both podcasts and vodcasts (video podcasts) seem to show some learning benefits,[18–23] though it remains unclear how residents situate their use of podcasts in the broader context of the educational materials available to them (e.g., textbooks, online learning materials, lectures) and why they listen to some podcasts more than others.[10] A deeper understanding of residents' experiences with educational podcasts would enable educators to think more broadly about how this medium can be optimized for learning, how best to leverage this learning tool in the context of existing curricular structures, and how trainees' experiences link to existing conceptual frameworks for learning. Therefore, the intent of this study was to explore residents' motivations for using educational podcasts, explain how they integrate podcasts into their broader learning experiences, and describe the challenges they face when adopting podcasts as a learning tool.

Method

We used a constructivist grounded theory approach to explore residents' motivations and listening behaviors. This approach recognizes that the investigators' experiences, backgrounds, and assumptions influence the analysis,[24] so we share the following contextual information to facilitate the meaningful interpretation of our work: The lead author (J.R.) and 2 coauthors (M.L., J.S.) are physicians with significant experience

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Acad Med. 2020;95:89–96.
First published online September 10, 2019
doi: 10.1097/ACM.0000000000002984

Supplemental digital content for this article is available at http://links.lww.com/ACADMED/A745.

An Academic Medicine Podcast episode featuring this report is available wherever you get your podcasts.

with recording, producing, and listening to medical podcasts. Two other authors (A.B., J.S.I.) are physicians with some experience listening to medical podcasts. One additional author (L.R.) has training in anthropology and extensive experience using qualitative research methods in medical education.

We recruited emergency medicine residents using a purposive sampling technique in which we sought a heterogeneous sample of residents across postgraduate years (PGYs), genders, and institutions. Emergency medicine was selected because podcasts have been identified as a frequently accessed educational medium among this population.[10–12] Further, there are now more than 42 different emergency medicine–related podcasts,[1] offering opportunities for residents to make listening choices based on identifiably distinct features. Participants were recruited from 2 universities in the United States (University of Washington School of Medicine and University of California, San Francisco, School of Medicine) and 1 university in Canada (McMaster University Faculty of Health Sciences); each participant received a $25 gift card for their time.

To recruit participants, a local author at each institution (J.R., J.S., M.L.) made initial in-person contact with the residents, and the lead author (J.R.) then followed up with an email invitation to participate in a 1-hour, semistructured, one-on-one interview. Participants were not required to have any prior experience with podcasts to participate. To enrich the dataset with potentially disconfirming narratives, we purposively included a resident who initially reported not listening to podcasts. Though this participant did not listen to podcasts regularly, he revealed during the interview that he had occasionally listened to 1 educational podcast. All participants provided informed consent. The research ethics boards at each of the 3 participating institutions approved this study.

Interviews were conducted by one author (J.R.) in person or via Skype video chat (Microsoft, Redmond, Washington) from March 2016 to August 2017 and were guided by open-ended questions with probes developed from gaps found in an initial literature review we performed. The initial interview guide was developed to elaborate on findings from previous surveys[10–12] and drawn from our personal experiences with podcasts. It was adapted iteratively as the study proceeded,[25] incorporating questions about notions of community and trust that surfaced in early interviews. The final interview guide is available as Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/A745. Each interview was recorded, and the audio recordings were transcribed and deidentified. Dedoose (Version 8.0.35, SocioCultural Research Consultants, LLC, Los Angeles, California) was used to manage the data analysis.

Four authors (J.R., A.B., J.S.I., L.R.) initially coded the transcripts line by line using a constant comparative process to organize the text into focused codes, key conceptual categories, and then major themes.[24] As data collection proceeded, the 4 coders continued to refine the analysis and compare new data with previously gathered data and existing codes. As the analysis shifted to relating codes and categories to one another and developing an explanatory theory that accounted for the relationships among themes, key aspects of the analysis were shared with the entire team. The final 6 transcripts were coded primarily by 1 author (J.R.). We continued data collection until we had sufficient data to enable an adequate understanding of the dimensions and properties of our key concepts.[26,27] To enhance the trustworthiness and credibility of our data analysis, we employed memoing, reflexivity, triangulation of data among the researchers, and the formation of an audit trail of the analytic process. We shared our results in writing with a group of the participants to ensure that our findings were consistent with their experiences.

Results

We interviewed 16 emergency medicine residents representing multiple training years (PGY 1–5). Five (31%) identified as female (see Table 1 for a breakdown of participants by institution). Below, each participant is identified by an interview number and year in training (e.g., 9, PGY-4).

All participants reported using podcasts for their education. They described their motivations for incorporating podcasts into their learning as well as the positive and negative consequences of adopting this technology as an educational tool. Within these narratives, we identified 3 broad, interconnected themes: (1) how the podcast medium afforded unique learning opportunities (opportunistic engagement), (2) how podcasts helped participants initiate and enrich relationships in their professional communities (community), and (3) how podcasts facilitated personalized learning (personalized learning). See Figure 1 for an overview of the themes and subthemes we identified.

Opportunistic engagement

Participants reported that podcasts are easy to use and entertaining and that they can listen while doing other activities, though they acknowledged the drawbacks of passive listening and divided attention on their learning.

Participants reported that listening to podcasts was convenient and required less "mental energy" (9, PGY-4) than more traditional learning formats such as textbooks. They described podcasts as

Table 1

Characteristics of 16 Emergency Medicine Residents Interviewed About Their Experiences With Educational Podcasts, 2016–2017

	No. of residents				
Institution	PGY-1	PGY-2	PGY-3	PGY-4/PGY-5	Total
University of Washington School of Medicine	1	4	—	1	6
University of California, San Francisco, School of Medicine	—	3	2	—	5
McMaster University Faculty of Health Sciences	1	—	2	2	5

Abbreviation: PGY indicates postgraduate year.

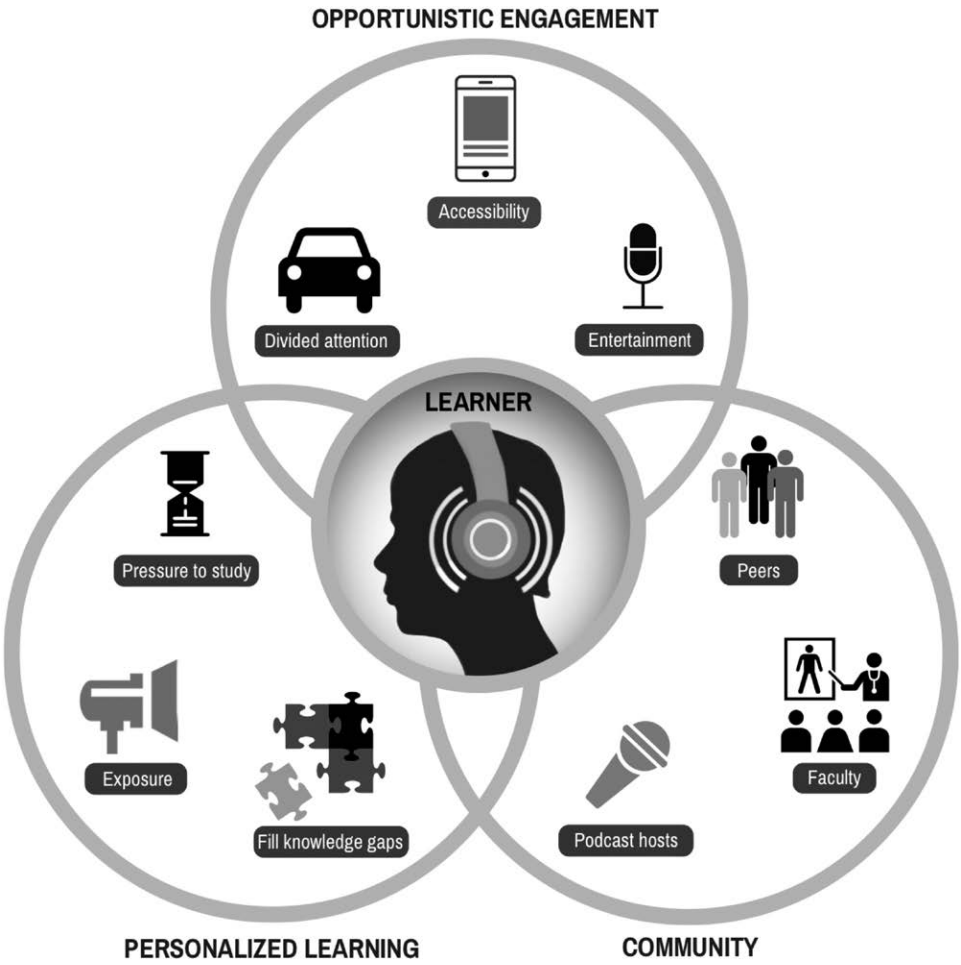

Figure 1 A model of how emergency medicine residents use educational podcasts from a qualitative study of their experiences with podcasts during training, 2016–2017. Themes are represented as circles with their respective subthemes represented by icons.

a "more relaxing way of studying, where it feels like it demands less of me" (12, PGY-2). Podcasts delivered content that an expert had already digested, which 1 resident referred to as "spoon-fed, high-yield information" (5, PGY-2), that is, "cognitively easier to absorb [through listening] than it is to read" (9, PGY-4). One resident noted:

> I am more likely [to] listen to a podcast than I am to read another journal article because it's less work for me . . . the thresholds to maintain the energy to actively listen is much lower than the energy required to be doing the research and reading the journal articles and maintaining your focus that way. (3, PGY-3)

Residents also explained that podcasts are more engaging compared with other learning formats.

> I find the podcast just way more entertaining. . . . I just think those guys are pretty funny. I get entertainment value out [of] that that I definitely don't get when I'm reading a textbook. (4, PGY-2)

The flexibility and portability of the podcast medium enabled residents to listen in situations they traditionally would not use for studying, such as while exercising and commuting. Podcasts extended the possibilities for learning by enabling residents to feel that they were being "efficient" with their time by "multitasking" (10, PGY-4) or "accomplishing 2 goals at the same time" (3, PGY-3). One resident described:

> It's something that you can do while you're doing other things. . . . So, I feel like I'm both learning and cleaning my kitchen. . . . (4, PGY-2)

Though the portability and entertainment aspects of podcasts were a draw, residents recognized that easy listening did not always translate into deep learning. They recognized that they were "a more passive member in the process" (9, PGY-4) when listening to a podcast and admitted that "less demand usually means that things are less effective" (12, PGY-2). Further, if residents did not feel entertained or "engaged enough" (4, PGY-2) by a podcast—independent of the importance of the topic or their understanding of the content—some would simply stop listening or unsubscribe. Such podcasts were frequently described as "boring . . . like someone is reading [a textbook] to me" (7, PGY-2).

Residents described frequent struggles to maintain the attention needed to comprehend and remember material, explaining that their "attention wanders a little bit more" (6, PGY-2), that they "can pay a little less attention" (1, PGY-1), and consequently that their "retention from podcasts is not great" (6, PGY-2). With their attention drawn in different directions while listening, podcasts became "a bit of background noise" (10, PGY-4), which led some residents to relisten to segments because they were "pretty distracted" (4, PGY-2). Yet residents seemed to accept this trade-off.

> I don't think any of us juggle that divided attention all that effectively. We know that we are not cognitive multi-taskers and we are fast task switchers. So, I'm very aware of that and so I guess I just let it be what it is. . . . But as with all things I'd rather do something than nothing. So, if I'm faced with a decision to do no studying or listen to a podcast, I'm going to choose to listen to a podcast at that time. (12, PGY-3)

Residents often made their podcast selections based on how well the length of the podcast episode fit within their expected activity time (such as a commute to work). And, rather than listening to achieve deep understanding, they described pausing podcasts when the activity in which they were engaged ended. Residents acknowledged the negative aspects of these sporadic, nonsystematic, truncated listening experiences, but hoped they would provide some cumulative educational benefit. One resident explained:

> I still think somehow that I'm retaining some of that knowledge, even if it's a bit here and pieces there. Some of it does seem to stick over time, and I think if the alternative is not learning . . . then . . . I'm still getting something out of it. (10, PGY-4)

Community

Residents reported that podcasts create a sense of connection with local peers and faculty and with the professional community at large.

Participants described several ways that podcasts helped them to feel "connected" to others within their training programs and the larger professional community. Residents likened their podcast listening to a local "book club" (2, PGY-2), and podcast content served as an ongoing catalyst for dialogue with peers regarding clinical knowledge and practice, recently published articles, and approaches to patient problems based on a "shared experience of listening to the same thing" (11, PGY-2). Senior team members shared podcasts with more junior members, "passing it on to other residents" (5, PGY-2) in ways that furthered their relational connection. Feeling like a member of a "podcast listening community" (11, PGY-2) helped residents feel aligned and connected with their peers. One resident elaborated:

> I think it is funny because we're all kind of in sync, because it's like we have this curriculum amongst us and among residents . . . I don't think we actively have a lot of thoughts about it. But if it comes up in conversation or clinically, we may sort of talk about that particular sound bite . . . we don't tease it apart necessarily, but . . . we're on the same page in some ways. (9, PGY-4)

Listening to podcasts also provided language and context that helped residents initiate and deepen conversations with faculty from their program, providing a vocabulary that "helps [them] speak the language" (2, PGY-2) and insight into how problems are approached and managed by experts so that they can "feel like more of an insider" (15, PGY-1). In reference to a particular podcast, one participant noted:

> So it allowed me to have a smarter conversation about it with my attending and learn from her even better than I would otherwise . . . you've heard other people talk about it now, so you can talk about it in a way that it doesn't sound like you are an idiot. (1, PGY-1)

While residents typically listened to podcasts alone, they frequently described feelings of fellowship and connection to the hosts and contributors to the podcasts, making them "feel like [they] know them from listening over a period of time" (5, PGY-2). One participant described how "hearing someone's voice feels to me more human, social, than just reading letters on a page. You get that sense of someone's personality. . . . " (5, PGY-2).

Listening to others' descriptions of common experiences and challenges helped residents feel supported, giving them a sense that "we're all in this together" (12, PGY-3) and fostering a connection to the professional community at large.

> So, you get more of a sense of "okay, other people are going through this too". . . . It's really easy to feel alone in a lot of the struggles that we face and alone in what can be an isolated specialty. . . . So, I think that just knowing that there are other people out there who are doing things that you are doing can be really helpful. (12, PGY-3)

Residents described the experience of listening to podcasts during training as a means of acculturation into the "community as a whole" (8, PGY-3), even if they considered themselves only "peripheral community member[s] participating by absorbing what the experts have to say" (13, PGY-5). One resident described it as:

> [Podcasts] have become part of the common knowledge, the culture, the collective subconscious . . . doctors are all listening to it and so it's part of the discussion, it's on people's minds . . . we're all learning something together and I'm on the same page with them and it is part of the culture. . . . (2, PGY-2)

While listening to a podcast helped residents feel like "insiders," choosing not to listen made 1 resident feel like a "luddite" (11, PGY-2) and some to feel disconnected from others' conversations: "If I listen to a [podcast] like 3 months after it happened I feel like, 'oh this is what they were all talking about'" (4, PGY-2). Participants also described potentially negative consequences of being "in sync" in this way with their peers due to their shared listening experiences, citing the risk of "groupthink."

> I guess the flip side of that is, sometimes there can be a bit of a bias potentially, if everyone listens to the same one or two podcasts . . . it becomes an echo chamber in the sense there is a bit of group think. It's like, "Oh, yeah we all listen to the same podcast, we all do things the same way, because [a popular podcast host] said to do it this way." (10, PGY-4)

While frequently described as a means to build bridges with supervisors, residents also described several ways in which podcasts created new tensions in their relationships with supervisors. Some described attendings' general dismissal of this mode of learning, causing residents to only share that they had learned something from a podcast "selectively, because some [attending physicians] . . . as soon as you bring up a podcast are going to discredit anything you say" (12, PGY-2). Others described tensions that arose when various clinical management approaches proposed on podcasts differed from local practices. In most cases, residents followed the guidance of their local attending physicians, opting to "defer to what our clinical practice is or what I'm taught on shift or by my teachers as opposed to [a podcast]" (1, PGY-1).

In contrast, residents acknowledged that their feelings of relational connectedness to podcast hosts influenced their learning and practice, and they recognized the limitations of podcasts as an information source. As 1 resident explained: "You

hear a familiar voice, somebody that has said stuff that resonates with you, then probably it influences you. Even if you don't cite it, it influences how you think." (6, PGY-2).

Personalized learning

Driven by a desire to feel productive, residents reported that podcasts provide broad exposure to a discipline and opportunity for individual targeted learning, though they recognized the difficulty of retaining and translating that information into their clinical work.

Many participants described feelings of "academic insecurity" because of the large quantity of information they needed to learn to thrive in their specialty. This insecurity manifested as a perpetual motivation "to keep learning. If you stop . . . you're not going to be doing right by your patients." (11, PGY-2). Podcasts thus were used to transform what residents perceived to be idle time—though they were often active doing other things—into time where they could feel like they were being academically productive. Doing this helped one resident to "feel like I'm not lagging behind" (2, PGY-2) and another to "feel better about myself. Saying, 'oh yeah at least I did something in the car.'" (10, PGY-4). One resident noted:

> I want to be learning all the time during residency. I feel both internal and external pressure to learn and study continuously. Often that's hard because that's a pressure to study that combines with, kind of, just the need to live your life and you don't have that much free time while you're in residency. Podcasts give me an opportunity to incorporate more learning time, more learning-rich time in my day-to-day life without necessarily having to dedicate that time solely, specifically to studying. (8, PGY-3)

Many residents used podcasts as primers for broad exposure to new concepts and language. Regularly listening to all the content from a given podcast allowed them to "expand [their] horizons" (5, PGY-2) and "broaden [their] exposure to topics, concepts, approaches that [they] otherwise wouldn't have had time to be exposed to" (8, PGY-3). This practice cued them "into the fact that there is way more out there that you haven't seen" (2, PGY-2).

Listening to podcasts in this way cued some residents to revisit topics that they had not seen in a while or to engage with topics on a deeper level. Thus, podcasts functioned as a "jumping-off point" (12, PGY-3) for exploration using more traditional resources. One resident noted: "It might spark me to say okay, I have to read more on this or on that given that there is a buzz about it." (13, PGY-5).

As residents' learning needs matured over time, many described more selective listening habits. While participants at all levels sought podcasts for exposure to new topics, many residents went through an evolution where "the targeted learning came more in my second and third year" (14, PGY-5). Using a more intentional and nuanced approach, more experienced residents listened to fill self-identified gaps in their knowledge, seeking topics on which they had a "need to brush up on or stuff that I appreciate that I don't know a ton about" (10, PGY-4). One resident described this evolution:

> I think as you find your own niche, you understand what you already know, what you don't know, you look to fill the gap. I think before I was just trying to put anything extra in my brain when you're starting out, whereas now I'm trying to fill something that's not there. (13, PGY-5)

Some residents used recent clinical experiences as a catalyst for choosing which podcasts they listened to, especially if they felt their clinical performance had been suboptimal. Podcasts on these selected topics provided avenues for them to consider subtle variations in practice, using others' guidance both as a means to "modify or tweak [their] approach" (10, PGY-4) and to reaffirm their own clinical practice. One resident noted:

> It gives you a chance to hear expert perspective, in an easy to use way . . . and beyond that I'm also going to get stuff that is not found in any textbook, you know, like a personal approach of things that somebody who is an expert has found. While it has worked for them it might not necessarily be backed by a clinical trial, but it's their professional experience. To me that carries a lot of weight when you are talking about how to practice medicine. (10, PGY-4)

Residents cited struggles to retain and translate the information they heard on podcasts into their own clinical contexts. While they seemed to appreciate knowing that a particular topic was "out there," they expressed frustration when they could not remember the details of a discussion completely. One resident noted:

> I think that often times I recall things from podcasts, like when I'm at work or when I am doing something clinically, and I can remember most of it but I can't remember all of it. So, it can be a little frustrating in that it primes me with just enough, so that I know what is just out of the grasp of my knowledge. (11, PGY-2)

These difficulties with retention did not lead to consistent action plans for resolving this confusion, though many residents performed quick literature searches to supplement or check their knowledge.

> So many times you hear the podcast and then a week later, you've learned something and you want to try it out. Then that moment comes and you're like, "Oh I kind of sort of remember it but I don't remember it exactly." Then . . . it's harder to go back and search through audio content than it is written content. (5, PGY-2)

Discussion

This study explored why and how residents incorporate educational podcasts into their learning. Our findings highlight the unique place that podcasts occupy in the social and educational landscapes of physicians in training. Residents appreciated podcasts as a readily accessible and entertaining learning tool that can be easily integrated into their busy schedules. They valued the broad content exposure that podcasts afforded and the ability to personalize that exposure by choosing podcasts and episodes to meet their learning needs and stylistic preferences. Residents appreciated the sense of connection that podcast listening facilitated with local peers and faculty, as well as with the larger professional community. All these factors likely help to explain the popularity of educational podcasts in the medical community. Yet residents also highlighted several challenges they faced when adopting podcasts as a learning tool, specifically describing the passivity of these educational experiences, listening patterns that were driven by time constraints rather than mastery of the material, and difficulties translating what they heard into practice.

The residents in our study described podcast listening behaviors that were

fragmented and opportunistic, timed to coincide with commuting, cleaning, and other casual venues for learning. Their engagement with this learning modality was unique; they "tuned in" selectively and intentionally to particular podcasts because they found them to be engaging, relevant to their practice, or accepted among their peers. The ways that this technology seems to affect the behaviors of its users align with sociomateriality, which is a collection of frameworks[28–30] that consider the ways in which objects or materials become "complexly interwoven"[31] with the individuals who use them.[32]

Examining podcasts through the lens of sociomateriality allows for a more intentional exploration of the "constitutive entanglement"[33] between the podcast technology itself, podcast listeners, and podcast producers. Our participants emphasized how the unique technological features of podcasts (e.g., easily downloaded to mobile devices, played while doing other activities) enabled them to readily pursue learning in new spaces and in ways that are fundamentally different than traditional classroom instruction. Consideration of the "geographies and mobilities"[30] of learning—in this case, how, when, and where listeners use podcasts—may guide podcast producers' decisions about instructional designs that attend to users' listening behaviors (e.g., creating content in short time segments so that listeners can fit them into their daily activities). Centering future research on the materials of learning—in this case, the podcast technology and its variety of features—would provide greater nuance around the "microdetails of how materials act in practice."[32] This research would provide educators with a richer understanding of how podcast listeners are "interwoven" with the podcast technology itself.[28,31]

More detailed research into trainees' experiences with podcasts would permit better alignment of this technology with existing frameworks of instruction and cognition. Trainees' struggles to retain the content they learned via podcasts should be explored more deliberately, for example, by aligning future qualitative or quantitative work with cognitive load theory to attend to how learning is affected by contexts where multiple tasks are occurring simultaneously.[34] We anticipate that trainees will continue to struggle to absorb material they learn while they are engaged in other tasks or distracted by the activities around them, which raises questions about podcasts' ability to effectively disseminate content for deep learning. Instead, our findings suggest that podcasts are most effective when used to catalyze trainees' curiosity about a subject, provide them with language to engage in discussions with faculty and peers about these subjects, and allow them to hear experts discuss the nuances and complexities of topics germane to their practice.

Based on what we know about effective learning, we recommend that podcast producers intending to create podcasts that lead to deep understanding intentionally build in instructional design features such as repetition and short curricular segments. Focusing simply on delivering instructional content, however, could cause podcasts to lose their other attributes that listeners value, such as feeling connected to others in their professional community. It was clear that the residents in our study deeply valued the informal, conversational nature of existing podcasts and that they were moved by the intimately social experience of hearing a human voice tell a story. Learning in this fashion brings material to life in ways that textbooks and journal articles cannot, simultaneously highlighting nuances and variations in expert clinical practice. By using patient narratives or expert opinion, podcasters can create powerful learning tools that motivate listeners to expand their clinical imaginations, learn through others' lived experiences, and critically reflect on their practice.[35–37]

Our findings emphasize that educational podcasting is a social phenomenon. Podcasts influence social interactions among individuals in a local community and afford residents a virtual connection to a national community. Despite listening to podcasts independently, asynchronously, and outside the formal residency curriculum, residents described participating in a "shared" listening experience that transcended institutional boundaries and facilitated connections with local peers and faculty. They also reported that listening to podcasts helped them to acculturate to the norms and values of their professional community by signposting shared language connections and exploring common challenges.[38]

This technology's ability to rapidly disseminate content and dialogue across institutional boundaries provides the building blocks for virtual communities of practice. The residents in our study suggested that podcasts shape and inform a "shared repertoire" across the resident community at large, thereby providing a common language, history, and focus that gives them a sense of identity and belonging.[39] Though communities of practice are traditionally conceived of as colocated, some forms of social media can foster geographically dispersed virtual or mobile communities of practice.[40–42] This argument resonates with our findings, as our participants described having personally meaningful connections to podcast hosts and the larger professional community despite having no geographic connection. It will be important for future work to more intentionally consider how notions of "community" and "belonging" are experienced by trainees via podcasts, particularly because the dialogues between podcast producers and podcast listeners are almost entirely unidirectional and asynchronous. Future work also should consider how these sociocultural factors affect listeners' considerations of "trust" and "accuracy" as they interpret the material they hear on podcasts and assimilate these learning experiences into their practice.

The complex sociomaterial and sociocultural ways that our residents described their use of podcasts are represented in Figure 1. This framework highlights the complexity of the interactions between podcasts users, context, and the technology itself; how podcast use within a community may shape interactions between individuals; and how podcasts have the potential to influence local and interinstitutional professional norms. It highlights how podcast producers can more deliberately attend to a notion of "technology in use,"[43] purposefully considering the ways that social and material factors interact to affect learning.[44] Doing so will help podcast producers, training programs, and podcast listeners to work collaboratively in ways that best support residents' asynchronous learning in the context of their broader training experiences.

This study has several limitations. Our purposive sampling was limited to emergency medicine residents in the United States and Canada because podcast use had been widely adopted by these communities. In doing so, however, it is possible that our findings miss the lived experiences of trainees in different professions (e.g., nursing, pharmacy), different medical disciplines, or individuals at different stages of training (e.g., medical students or faculty). Future work that examines how podcast users engage and disengage with content may provide useful perspectives to contextualize our findings. Finally, while we were very interested in the impact of podcasts on trainees' learning, our methodology did not measure learning itself. Our findings about the aspects of podcasts that were most influential or impactful for residents' learning thus should be contextualized within the vast literature on the limitations of self-assessment.[45,46] That said, several participants did seem to describe moments of self-monitoring and self-regulation; podcasts therefore may provide a useful medium for future explorations into how trainees make in-the-moment judgments about content alignment and learning goals.[47,48]

Conclusions

Despite the challenges of distracted, contextually constrained listening and difficulties translating their learning into clinical practice, residents found podcasts to be an accessible and engaging learning platform that offered them broad exposure to core content and personalized learning, concurrently fostering their sense of connection to local and national professional communities.

Acknowledgments: The authors wish to thank Rachel Howard for designing Figure 1 and Joshua Jauregui, MD, for his support.

Funding/Support: This work was funded by a grant from the University of Washington Center for Leadership & Innovation in Medical Education.

Other disclosures: None reported.

Ethical approval: This study was reviewed and deemed to be exempt by the University of Washington Human Subjects Division (January 19, 2016; HSD #51120) and the University of California, San Francisco Human Research Protection Program Institutional Review Board (February 7, 2016; IRB #16-18612). The Hamilton Integrated Research Ethics Board (September 2, 2016; 2016-1430-GRA) approved this study.

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