

Utilizing Podcast Interviews as a Data Source in Engineering Education Research to Analyze Experiences of Women Engineers After a Career Break

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Abstract

In this methods Research Brief, the utility of podcasts as a qualitative data source is explored. The use of publicly available data sources within educational research has grown in recent years. Technologies, including the internet, social media, and cell phones, have led to copious amounts of public interpersonal communication. The number of published chat forums, blogs, articles, and podcasts has also increased. Some public forums, such as Reddit and TikTok, have been utilized as qualitative data sources in educational studies; however, defined processes for utilizing available qualitative data remain scarce. This methods paper describes the process of using publicly available podcast episodes as a data source for an exploratory study in engineering education. The podcast we used (*3,2,1...iRelaunch*) features interviews with individuals who have taken a career break, and it explores their strategies and experiences as they return to the workforce. The authors were interested in studying the unique experiences of women engineers who relaunched their careers through an analysis of podcast interviews. This paper outlines the data source selection, ethical considerations, data retrieval, analysis, and reporting decisions. The advantages of utilizing podcast data include context-embedded data, eliminating the need for data collection or recruitment, and ensuring public availability. Accompanying disadvantages include ethical ambiguity, a lack of control during interviews, and a lack of follow-ups. Balancing these trade-offs, we believe that podcasts are a valuable, existing data source for engineering education researchers and the larger qualitative research community. This paper introduces a new process to significantly reduce the overhead time and resources required to collect qualitative data when similar podcast data already exists, which has important implications for qualitative researchers.

Introduction and Background

Qualitative research typically involves analyzing interviews, focus groups, reflections, videos, and other types of documents. These data sources are in-depth and detailed, providing rich insights into the phenomenon being studied [1]. However, qualitative research data collection processes can be very time-consuming. Therefore, utilizing alternative qualitative data sources, such as publicly available data, may be a resource-efficient option for some qualitative research studies. Publicly available interview podcasts represent an alternative data source because they often follow a similar format to qualitative research interviews and are widely available across a range of topics. Podcasts provide insights into people's lived experiences without requiring direct data collection by a researcher. Additionally, podcasts may feature a more diverse group of interviewees, depending on the podcast's reach and the host's connections.

Many forms of publicly available data have been used in qualitative research. For example, researchers have utilized newspaper comments in qualitative research, highlighting that this type of data should not be used solely because it is convenient, but rather because it captures lay opinions on common phenomena or events [2]. Furthermore, other research has demonstrated the utility of online forums for qualitative research, as they provide a natural setting for people to express their opinions without potential researcher influence [3]. Other examples of publicly available data used for qualitative research include blogs [4], radio broadcasts [5], and TV [6].

Furthermore, more contemporary types of publicly available data, such as Reddit and TikTok, have been utilized for research across multiple disciplines [7], including educational research [8], [9], [10]. These examples demonstrate that many qualitative studies have utilized publicly available data sources, showcasing the opinions of everyday people and highlighting their potential to provide insight into a specific phenomenon of interest for research purposes.

Podcasts have become increasingly popular over the past few years. Backlinko, a research and strategy SEO (search engine optimization) site, states that there are 546 million podcast listeners worldwide [10]. Another trend-tracking website, Exploding Topics, reported that over 3 million podcasts are easily accessible across multiple platforms [8]. The growing popularity of podcasts has led to a wide array of content, making podcasts a readily available resource for qualitative researchers seeking diverse perspectives. By leveraging podcasts as a qualitative data source, researchers can save time on data collection while still having the opportunity to explore phenomena of interest. Further, pre-recorded interviews from podcasts have been utilized as a data source to decolonize research methods [9] and represent diverse, traditionally oppressed voices [10]. This research brief details our experience utilizing podcast interviews as a data source in qualitative research. We will highlight the process of selecting the podcast, analyzing the data, and the implications of using this type of data source. The brief is part of a larger study that aims to understand the strategies, approaches, and experiences of women engineers who have taken a career break and returned to the workforce.

Methods

In this section, we detail the process we took to analyze podcast data for our project. Since completing the analysis, a paper outlining a seven-step methodology for utilizing podcast data in qualitative research has been published by Kulkov et al. [11]. We will utilize Kulkov et al's framework as a point of comparison, highlighting both alignments and divergences between our approach and the published methodology. Our podcast methodology features three main steps: Podcast and Episode Selection, Ethical Consideration, and Data Collection and Analysis. These steps are illustrated in Figure 1 below.

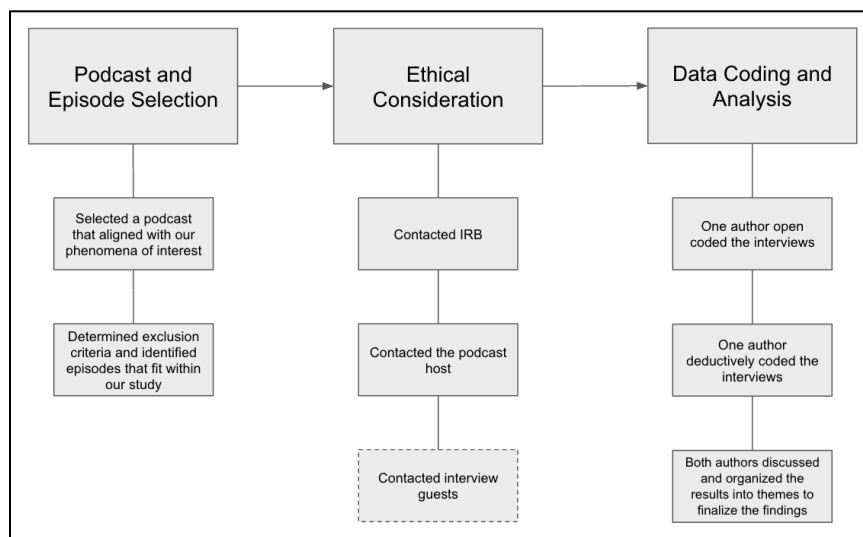


Figure 1: Podcast Methodology

Podcast and Episode Selection

To study authentic stories of engineers who returned to the workforce after a break, we utilized interview data from the *3,2,1...iRelaunch* podcast [12]. Podcasts provide a context-embedded, co-created narrative between host and guest [13]. Utilizing podcast interviews as a data source follows a growing trend in educational research, which involves mining data from publicly available sites such as Reddit and TikTok.

We identified the *3,2,1...iRelaunch* podcast through its parent company, iRelaunch. iRelaunch implements return-to-work programs at companies and promotes resources and opportunities for individuals looking to relaunch their careers after a break (hereafter referred to as ‘relaunchers’). The podcast is one such resource that seeks to “feature strategies, advice and success stories about returning to work after a career break” [14]. The Successful Relaunchers series features 30-minute interviews with an employed relauncher and the iRelaunch CEO. The series shares strategies and advice from individuals who have successfully relaunched their careers. The intended audience is relaunchers, which adds credibility and authenticity to the data.

Our larger study focuses on understanding the experiences of women engineers who took a significant career break and returned to the field. Therefore, we were interested in podcast episodes featuring women engineers who had taken a significant break from the workforce. Using the episode descriptions and transcripts available on the iRelaunch website, we identified 14 episodes published between 2018 and 2024 that feature women engineer relaunchers. Episodes were selected if they included an interview with a woman relauncher who took a career break of longer than two years and has an engineering degree and/or previous experience in the engineering industry. Episode transcripts were downloaded from the iRelaunch website or transcribed from the episode audio file using Riverside.fm and uploaded to Atlas.ti for analysis.

Ethical Considerations

The protection of participants was of utmost importance throughout this study, which influenced our decision to use an existing, publicly available data source. It was unnecessary for women relaunchers to give up their time and energy to conduct interviews when interviews were already available via *3, 2, 1...iRelaunch*. We obtained permission from the podcast host to utilize the episodes in this study. Our IRB approval did not require obtaining permission from podcast participants to extract data from the podcast; however, we also plan to reach out to the podcast guests who have LinkedIn profiles to ask if they would like their names to be used and share the paper for their review. We do not expect to receive responses from all interviewees, and therefore, we chose to mask the last names of the interviewees. We recognize that this information is available online, but we hope that readers can recognize the interviewees as representative of a large group of relaunchers rather than individual stories.

Data Coding and Analysis

The research team engaged in the six-step thematic analysis process outlined by Braun and Clarke [15]. To familiarize ourselves with the interview structure and prominent patterns of experience, two authors listened to several podcast episodes. The interview structure for each episode was similar, much like a semi-structured interview protocol. This structure enabled us to

collect several perspectives on similar relaunch experiences. The first author performed open coding, keeping the conceptual framework used in the larger study in mind [16] to construct a codebook. The second author subsequently returned to the transcripts to deductively code and refine the codebook. Codes were reorganized into themes collaboratively. Our final step was to organize the themes in a way that allowed us to answer our research questions. The analysis process we utilized was aligned with standard qualitative research methods in our field.

Comparison Between Our Method and Kulkov et al.

As we mentioned, since performing this analysis, we became aware of a paper by Kulkov et al. [11] that outlines using podcasts as a method. Kulkov et al.'s method includes seven steps, compared to our three. The seven steps include Selecting Podcasts, Ethical Consideration, Sampling Approach Using Scoring System, Data Collection, Data Coding, Data Analysis, and Adherence to Best Research Practices. Although we had a different number of steps, we generally followed a very similar methodology. One of the main differences is that their methodology features scoring systems for selecting podcasts, episodes, and analysis. We didn't go through a formal process of selecting a podcast because one of the authors was already familiar with *3, 2, 1...iRelaunch* through the iRelaunch parent company. Moreover, we chose episodes based on the guest. Since we were looking for a very particular subset of iRelaunchers, not all podcast episodes could be used in our analysis. We followed very similar approaches for the Ethical Consideration and Data Collection steps. Kulkov et al. use a scoring system to determine what type of coding they should use for data analysis. We relied on our experience as qualitative researchers to determine which coding methods were most suitable. The Adherence to Best Research Practices they followed was very similar to practices we used in our analysis. The similarities between our methodology and Kulkov et al.'s methodology show that podcast data can be used reliably and effectively in qualitative research, especially when approached with a clear methodological framework and attention to ethical and methodological rigor.

Implications

We believe that utilizing podcast data for qualitative research has significant advantages. First, the data is context-embedded, meaning that all interviewees on the podcast share similar experiences that led them to be guests, and the interviewer is familiar with those experiences. Context-embedded data enhances the richness of the data, as it captures not only individual perspectives but also the social, cultural, and situational factors influencing those perspectives. Furthermore, utilizing pre-existing podcasts significantly reduces the time required for data collection. Since we did not conduct interviews with the participants, we also did not need to recruit them, which can be time-consuming for both participants and researchers. However, significant care must be taken when selecting the podcasts and episodes that are used in this type of analysis. Some podcasts, for example, may be heavily edited, have a limited number of episodes, or lack deep discussions about the topic of interest, among other limitations. These potential concerns could impact the credibility of podcasts and their suitability for research purposes. Furthermore, since podcasts are publicly available, anyone can listen to the interviews, which ensures that we aren't taking quotes out of context.

Although there are many advantages to utilizing podcasts in qualitative research, there are also potential limitations. For example, there is ethical ambiguity regarding the consent process. We

submitted an IRB to our institution, but the use of publicly available data did not require approval. When using this data source, we still felt it would be helpful to attempt to contact the host and interviewees as a means of informing participants and conducting member checking. As podcasts and other similar types of media become more common data sources in qualitative research, it is essential that researchers document their process to enhance trustworthiness and ensure ethical rigor in their studies. Transparent documentation is crucial for this type of qualitative research, as it helps build credibility and establish best practices.

Another limitation is the lack of control over interviews and follow-up interviews. Since we used podcasts as our data source, we had no control over the questions asked and couldn't ask follow-up questions to the interviewees. While the interview questions are similar between episodes, there is no standard interview protocol, and the researchers were not involved in the interviews. The interviews do, however, exhibit similarities to a semi-structured protocol [17]. The podcast host is a relauncher and very familiar with the experiences of relaunchers, and in qualitative research, a peer interviewer with membership in the group of interest (i.e., relaunchers), which can yield richer data. [18]. However, there are also instances of leading questions and conversational tone that may not be present in an interview with a researcher.

In general, podcasts differ from research interviews in terms of their purpose, approach, and editing. For example, the goal of the podcast we analyzed is to showcase the success and importance of the programs created by the parent company, which may render some interview content less helpful to researchers and also indicate a potential bias toward focusing on success stories. Similarly, the podcast may be shaped to appeal to the intended audience, which can influence who they have on the podcasts and the conversations they have. This shows that although podcasts and research interviews are similar in practice, the context and nature are quite different.

Lastly, podcasts are often edited to improve the listening experience. While we do not know how the interviews were edited for the episodes, we believe that both the host and podcast guests are interested in representing the real stories of relaunchers. As researchers steeped in the data and context, we have spent time reviewing the literature about women returning to their careers after a career break, and we have listened to multiple episodes of this podcast. In our opinion, this podcast was not created for mainstream media and is not heavily edited; its purpose is to share stories of the relaunchers. Nevertheless, our inability to verify the authenticity of the podcast production is a significant methodological limitation compared to interviews collected by researchers.

We have highlighted many limitations of using podcasts as a data source. While podcasts present certain limitations as a data source, such as ethical ambiguity, lack of control over interviews, and differences between podcasts and research interviews, they can offer insights into emerging issues. Our analysis of the podcast interviews with women engineers returning to the workforce serves as a starting point for future research. We are not attempting to make broad transferable claims; rather, we aim to identify areas of research that warrant further exploration. Our future work will utilize findings from the analysis of podcast interviews to develop our interview protocols.

Conclusion

We believe there is significant potential to use publicly available data, like podcasts, as a data source for qualitative research. Through this research brief, we presented our approach to using podcasts as a data source for an engineering education application. We demonstrate the feasibility of utilizing publicly available data in qualitative research, while also emphasizing the importance of ethical considerations and methodological rigor. This paper aims to contribute to the literature on innovative qualitative research methods and encourage others to explore podcasts as a potential data source for understanding complex phenomena in engineering education.

5. References

- [1] J. W. Creswell and J. D. Creswell, *Research design: qualitative, quantitative, and mixed methods approaches*, Fifth edition. Los Angeles: SAGE, 2018.
- [2] J. Meredith, E. Richardson, A. Kent, and K. Budds, "Designing Qualitative Research Using Online Newspaper Comments," in *The SAGE Handbook of Qualitative Research Design*, 1 Oliver's Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd, 2022, pp. 821–834. doi: 10.4135/9781529770278.n50.
- [3] A. Jowett, "A Case for Using Online Discussion Forums in Critical Psychological Research," *Qual. Res. Psychol.*, vol. 12, no. 3, pp. 287–297, Jul. 2015, doi: 10.1080/14780887.2015.1008906.
- [4] E. Wilson and N. Johnson, "Designing Qualitative Research for Working with Blogs as Data," in *The SAGE Handbook of Qualitative Research Design*, 1 Oliver's Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd, 2022, pp. 903–923. doi: 10.4135/9781529770278.n55.
- [5] B. Pompeii, "The use of public radio as a tool in qualitative geographic research," *GeoJournal*, vol. 80, no. 6, pp. 791–802, Dec. 2015, doi: 10.1007/s10708-015-9647-1.
- [6] M. D. E. Meyer and A. L. Yermal, "Representing illness in medical melodramas on television: a qualitative content analysis of medical diagnoses in Grey's Anatomy," *Qual. Res. Rep. Commun.*, vol. 22, no. 1, pp. 22–29, Jan. 2021, doi: 10.1080/17459435.2020.1817139.
- [7] N. Proferes, N. Jones, S. Gilbert, C. Fiesler, and M. Zimmer, "Studying Reddit: A Systematic Overview of Disciplines, Approaches, Methods, and Ethics," *Soc. Media Soc.*, vol. 7, no. 2, p. 20563051211019004, Apr. 2021, doi: 10.1177/20563051211019004.
- [8] J. Howarth, "How Many Podcasts Are There? (New 2024 Data)," Exploding Topics. Accessed: Jan. 15, 2025. [Online]. Available: <https://explodingtopics.com/blog/number-of-podcasts>
- [9] L. Day *et al.*, "THE EXPANDING DIGITAL MEDIA LANDSCAPE OF QUALITATIVE AND DECOLONIZING RESEARCH: EXAMINING COLLABORATIVE PODCASTING AS A RESEARCH METHOD," no. 1, 2017.
- [10] R. Tiffe and M. Hoffman, "Taking Up Sonic Space: Feminized Vocality and Podcasting as Resistance," *Fem. Media Stud.*, vol. 17, no. 1, pp. 115–118, Feb. 2017, doi: 10.1080/14680777.2017.1261464.
- [11] I. Kulkov, J. Kulkova, R. Rohrbeck, and L. Menvielle, "Leveraging Podcasts as Academic Resources: A Seven-step Methodological Guide," *Int. J. Qual. Methods*, vol. 23, p. 16094069241266197, Jan. 2024, doi: 10.1177/16094069241266197.
- [12] "3, 2, 1 iRelaunch Podcast," iRelaunch. Accessed: Jan. 09, 2025. [Online]. Available: <https://www.irelaunch.com/podcast>
- [13] B. Van Den Berg, K. Poldner, E. Sjoer, and A. Wals, "Practises, Drivers and Barriers of an Emerging Regenerative Higher Education in The Netherlands—A Podcast-Based Inquiry," *Sustainability*, vol. 14, no. 15, p. 9138, Jul. 2022, doi: 10.3390/su14159138.
- [14] "Normalizing career breaks® ...for everyone, everywhere.," iRelaunch. Accessed: Jan. 09, 2025. [Online]. Available: <https://www.irelaunch.com/>
- [15] V. Braun and V. Clarke, "Using thematic analysis in psychology," *Qual. Res. Psychol.*, vol. 3, no. 2, pp. 77–101, Jan. 2006, doi: 10.1191/1478088706qp063oa.
- [16] J. Saldaña, *The coding manual for qualitative researchers*, 2nd ed. Los Angeles: SAGE, 2013.

- [17] H. Kallio, A.-M. Pietilä, M. Johnson, and M. Kangasniemi, "Systematic methodological review: developing a framework for a qualitative semi-structured interview guide," *J. Adv. Nurs.*, vol. 72, no. 12, pp. 2954–2965, 2016, doi: 10.1111/jan.13031.
- [18] S. Payne-Gifford, R. Brueton, G. Hamilton, T. Clark, Y.-S. Chang, and P. S. Gang, "Advantages and disadvantages of reciprocal peer-to-peer interviewing," *Soc. Res. Pract.*, vol. 10, no. 1, 2021, Accessed: Jan. 10, 2025. [Online]. Available: <http://uhra.herts.ac.uk/handle/2299/23955>