

## **GIFTS: Three Methods to use Podcasts as Effective Learning Tools**

**Dr. Haritha Malladi, University of Delaware**

Haritha Malladi is an Assistant Professor of Civil and Environmental Engineering and the Director of First-Year Engineering at the University of Delaware. She received her Bachelor of Technology degree in Civil Engineering from National Institute of Technology, Warangal, India, and her MS and PhD in Civil Engineering from North Carolina State University. She is a teacher-scholar working in the intersection of undergraduate engineering education, sustainable infrastructure, and community engagement. She teaches the introductory engineering course for all first-year undergraduate students in the College of Engineering at UD. Her undergraduate teaching experience includes foundational engineering mechanics courses like statics and strength of materials as well as courses related to sustainability and infrastructure. Her research interests are in foundational engineering education, sustainability in engineering curriculum, and green technologies in infrastructure.

## **GIFTS: Three Methods to Use Podcasts as Effective Learning Tools**

A podcast is a program—typically in audio medium—that is available for download to personal devices from the Internet. They are like radio programs that can be played on demand. Podcasts are distributed using RSS feeds and are available to stream on popular streaming services like Spotify. Listen Notes, a podcast search engine and database, reports that there are over 3,000,000 podcasts in the world [1]. There are a multitude of podcast episodes relevant to engineering that can be used as high quality free educational resources. This Great Ideas for Teaching, or Talking with, Students (GIFTS) paper describes three ways to incorporate podcasts in an engineering classroom and ways to scaffold their use to enhance learning; the author has successfully implemented all three to positive student feedback. Enabling student choice in listening to podcasts, reading the transcripts, and/or creating podcasts or podcast scripts is in line with Universal Design for Learning (UDL) guidelines of creating multiple means of engagement, representation, action and expression [2].

The first and easiest method involves assigning students to listen to a podcast episode accompanied by a written reflection response. Podcast listening assignments are a good alternative to assigning a reading. Before assigning students in course to listen to a podcast episode, the author suggests polling students about their familiarity with podcasts and the use of podcast player apps. Many podcasts provide access to full transcripts for each episode, which can also be provided to the students. An effective way to help students reflect on a podcast listening assignment is to use the double-entry journal technique, which has been shown to increase reading comprehension [3], [4]. Double-entry notes follow a two-column format; in the left column, students capture information or concepts from the podcast and in the right column students respond to the information, ask questions, and/or make connections to other material.

The second method is an instructor-created regular podcast series or a weekly talk show for the course. This method is an effective alternative to bringing in guest speakers to the classroom. In her large-enrollment Introduction to Engineering class (ca. 650 students), the author interviews faculty members, students, staff, and alumni in weekly episodes to discuss topics like academic honesty, the importance of professional skills, diversity and inclusion in engineering, etc. Students can choose to watch videos of these interviews or listen to just the audio. Double-entry notes can again be utilized to help students reflect on these podcasts.

The third (and most effortful) method involves assigning students to create their own podcast as a summative assessment for a course. Podcast creation assignments address the highest level in Bloom's Revised Taxonomy—creating [5]. As a replacement for paper or report, they can be customized to be a minor or major assignment and be an individual or group project. It is important to scaffold a podcast assignment over several weeks with opportunities for students to submit scripts, obtain peer and/or instructor feedback, record, and produce the podcast. While university libraries often have professional microphones available for loan, podcasts can even be recorded on a platform like Zoom. Free open-source software programs like Audacity can be used to edit audio files [6]. The author uses a podcast assignment in a 40-person technical elective class as a way for student teams to synthesize research on their project topic.

## References

- [1] “Podcast Stats: How many podcasts are there?,” Listen Notes. Accessed: May 17, 2024. [Online]. Available: <https://www.listennotes.com/podcast-stats/>
- [2] “UDL: The UDL Guidelines.” Accessed: May 17, 2024. [Online]. Available: <https://udlguidelines.cast.org/>
- [3] B. Amin, “Double Entry Journal Technique for the Students’ Reading Comprehension,” *Exposure*, vol. 1, no. 1, pp. 25–34, 2012, doi: 10.26618/ejpb.v1i1.762.
- [4] B. W. Scofield, “Double entry journals: Writer-based prose in the intermediate accounting curriculum,” *Issues in Accounting Education*, vol. 9, no. 2, p. 330, Fall 1994.
- [5] D. R. Krathwohl, “A Revision of Bloom’s Taxonomy: An Overview,” *Theory Into Practice*, vol. 41, no. 4, pp. 212–218, Nov. 2002, doi: 10.1207/s15430421tip4104\_2.
- [6] “Audacity ® | Free Audio editor, recorder, music making and more!” Accessed: May 17, 2024. [Online]. Available: <https://www.audacityteam.org/>