



# Audio Engineering Society

# Conference Express

# Paper 6

Presented at the AES International Conference on  
Breaking Barriers in Audio  
2025 April 3–5, Virtual

*This Express Paper was selected on the basis of a submitted synopsis that has been peer-reviewed by at least two qualified anonymous reviewers. The complete manuscript was not peer reviewed. This Express Paper has been reproduced from the author's advance manuscript without editing, corrections, or consideration by the Review Board. The AES takes no responsibility for the contents. This paper is available in the AES E-Library (<http://www.aes.org/e-lib>), all rights reserved. Reproduction of this paper, or any portion thereof, is not permitted without direct permission from the Journal of the Audio Engineering Society.*

---

## Music for the Masses: Expanding Diversity in Music Technology Through Representation and Sonic Empowerment

Emelia Piane<sup>1</sup> and Zeynep Özcan<sup>2</sup>

<sup>1</sup>*University of Michigan*

<sup>2</sup>*University of Michigan*

Correspondence should be addressed to Emelia Piane (epiane@umich.edu)

### ABSTRACT

This paper examines “Music for the Masses,” a community engagement project designed to introduce K-12 students to the many creative and technical careers within music technology and encourage critical discussions about the industry’s existing disparities. For this project, a 20-minute lecture, adaptable to students’ prior knowledge, was developed to introduce the field of music technology and encourage critical reflection on the field’s lack of diversity. The fieldwork for this project was conducted at Pattengill Elementary in Ann Arbor, Michigan, and The University of Chicago Laboratory Schools in Chicago, Illinois. Completed as a final community-engaged assignment for PAT 315/525: Diversity in Music Technology in the Department of Performing Arts Technology at the University of Michigan, “Music for the Masses” investigates the impact of early intervention on students’ awareness of diversity within music technology.

### 1 Introduction

The field of music technology faces significant challenges regarding diversity and representation, particularly for women, gender-expansive individuals, and individuals from underrepresented racial and ethnic backgrounds. “Music for the Masses” was developed to address this issue by introducing K-12 students to

the diverse roles within music technology and encouraging critical discussions about the industry’s existing disparities.

Many organizations follow a similar mission to introduce students to music technology through representation and empowerment. AfroRack<sup>1</sup>, for example,

---

<sup>1</sup><https://www.afrorack.org>

aims to promote diverse community access through workshops, seminars, and programming focused on STEM education. They nurture musical innovation and promote a sense of belonging in music technology by providing children and young People of Color with access to modular synthesizers and sound design tools. Similarly, Girls Rock Detroit<sup>2</sup> empowers girls, women, and gender-expansive youth through music education and activism, emphasizing the importance of access to equipment and community. SoundGirls<sup>3</sup>, We Are Moving the Needle<sup>4</sup> and Women's Audio Mission<sup>5</sup> specifically target women and gender-expansive individuals in the recording industry, offering education, mentorship, and career support. These organizations highlight a growing recognition of the need for targeted initiatives to promote diversity in music technology. Observing their impactful work, particularly their focus on empowering underrepresented groups, served as a significant source of inspiration for this project. These organizations demonstrate a clear commitment to creating inclusive spaces and providing educational and technical resources. Their efforts underscored our belief in the potential for early intervention to raise awareness and drive change. Introducing diversity concepts and practical opportunities within music technology at a young age could profoundly influence students' perceptions and future aspirations, potentially leading to a more equitable and representative field [1]. This project, therefore, aims to explore the efficacy of such early engagement, building on the foundational work of these inspiring organizations and contributing to a deeper understanding of how to effectively address diversity challenges in the field.

## 2 Curriculum Design and Implementation

"Music for the Masses" was structured around a 20-minute lecture designed to introduce students to the multifaceted world of music technology and to spark critical thinking about diversity. The curriculum was developed based on Emelia Piane's experience as a female sound engineer and a senior Performing Arts Technology student at the University of Michigan and

inspired by the goals of organizations like We Are Moving the Needle. The lectures focused on four core objectives: to familiarize students with the various roles in music technology, to highlight the existing lack of diversity, to instill a sense of individual agency in promoting diversity, and to encourage the exploration of artistic interests [2].



**Fig. 1:** Students playing with Ableton's Synth Playground at The University of Chicago Laboratory Schools.

Prior to each session, K-12 teachers provided insights into their students' knowledge of sound, recording studios, diversity, and artistic identity. This information facilitated the tailoring of the lecture to each class. The lecture opened with an introduction to key concepts related to sound and audio production, as well as the various roles within the field. It then addressed issues of representation and diversity, highlighting current inequalities and encouraging students to consider the importance of inclusion in creative industries. Students were invited to reflect on their own practices and explore ways to engage with a wider range of perspectives and experiences. The session concluded with a hands-on demonstration of Ableton's Synth Playground<sup>6</sup>, which provided an interactive introduction to synthesis, getting students directly involved with music technology as can be seen in Figure 1.

The curriculum was implemented in three distinct classroom settings: a second-grade class, a fourth-grade

<sup>2</sup><https://www.girlsrockdetroit.org>

<sup>3</sup><https://soundgirls.org>

<sup>4</sup><https://www.wearemovingtheneedle.org>

<sup>5</sup><https://womensaudiomission.org>

<sup>6</sup><https://learningmusic.ableton.com/the-playground.html>

general music class, and a high school electronic music class, at Pattengill Elementary and The University of Chicago Laboratory Schools. Observations of student engagement, student responses during discussions, and teacher feedback were collected to assess the lecture's effectiveness.

### 3 Classroom Interactions and Outcomes

#### 3.1 Second Grade

The lesson for 2nd-grade students at The University of Chicago Laboratory Schools focused on the physics of sound, sound engineering, music production, and diversity within the field. It was presented to 20 students. An image from the first section of the lecture, where the physics of sound is discussed, can be seen in Figure 2.



**Fig. 2:** 2nd-grade students at the University of Chicago Laboratory Schools learning about the physics of sound.

A significant portion of the presentation focused on the responsibilities of a sound engineer in preparing music for distribution. A slideshow included graphics from We Are Moving The Needle's Fix the Mix Report [3], specifically those illustrating gender statistics for various genres of music. Students were asked to reflect on the impact that such a lack of diversity might have on both individuals within the field and the creative outcomes of the field. This group of students was able to discuss issues of diversity easily, likely due to prior classroom discussions. One challenge in designing the curriculum was determining how to discuss

diversity in an age-appropriate way; however, these students discussed the topic without difficulty. The group quickly identified the issues associated with limited diversity, and several students expressed confusion and frustration. They could not comprehend how the inequity could be so extensive. During this lecture, we realized that, as a female sound engineer giving this presentation, Emelia Piane was serving as a form of representation within the classroom. A few students were then selected to experiment with the Synth Playground, and the link was distributed to the rest of the class for independent exploration at home. The group showed interest and excitement in this aspect of the lecture. Students were encouraged to seek out diverse collaborators for their future creative endeavors, highlighting the impact they individually have on expanding diversity in the field.

#### 3.2 Fourth Grade

The lecture for the 4th-grade General Music class at Pattengill Elementary in Ann Arbor, Michigan, also focused on the physics of sound, roles within the field of music technology, and gender diversity within the field. The presentation was given to approximately 25 students. This group of students had been using Soundtrap<sup>7</sup> under the direction of their teacher; therefore, they all had prior experience with music technology. Students were shown the same graphics from the Fix the Mix Report, and they had a similar reaction to the second graders: confusion and frustration. Due to time constraints, we ran out of time during this lecture to experiment with the Synth Playground; however, their teacher distributed the link for independent exploration at home. Students were given the same action items as the second graders, encouraging them to intentionally seek out diverse collaborators and empowering them to effect change within the field.

#### 3.3 High School

The lecture for the high school Electronic Music class at the University of Chicago Laboratory Schools was more discussion-based, with a small class size of 5 students. The class was shown the same graphics illustrating gender diversity statistics, followed by a discussion about personal experiences within music technology. Presenting to an Electronic Music class meant that many of these students were already familiar with

<sup>7</sup><https://www.soundtrap.com/edu/>

the roles in the field of music technology, although most were unaware of the vast disparities in diversity. Many students in this class were graduating high school and entering college music communities. They were presented with the same directives, and much of our discussion focused on how they could improve diversity within their own creative communities while being empowered to continue exploring their passion for music. This lecture felt particularly impactful because some students had already faced challenges as underrepresented individuals in music technology, and it provided a space for them to discuss these challenges.

#### 4 Reflection And Future Directions

This project helped us recognize the true weight of representation. For many students, seeing a young, female college student pursuing music technology was impactful, providing a diverse representation of the field they may not have otherwise encountered [4].

It was exciting to introduce students to such an expansive field, demonstrating the vast number of jobs and interests represented within music technology. This project was a real-life example of the importance of representation [5, 6]. We observed that students have innate compassion and empathy for everyone and understand the challenges of diversity and hardships faced by underrepresented identities. When directed appropriately, this can be used as a powerful catalyst for change. This project has demonstrated the power of the younger generation and the ways in which they can be supported to shape the future [7].

Future iterations of this curriculum will aim for smaller, longer workshops. Large class sizes prevented one-on-one interaction with students, and the exploration of synthesis was truncated for younger students. Having a diverse set of presenters, focusing on their personal experiences within the field, would provide students with a richer, more holistic view of diversity within the field.

#### 5 Supporting Documents

The syllabus and the slides used in the lectures can be seen here: <https://myumi.ch/xwPD9>.

#### References

- [1] Campbell, P. S., Connell, C., and Beegle, A., “Adolescents’ expressed meanings of music in and out of school,” *Journal of Research in Music Education*, 55(3), pp. 220–236, 2007.
- [2] Campbell, P. S., *Music, education, and diversity: Bridging cultures and communities*, Teachers College Press, 2017.
- [3] Lazar, E. et al., “Fix The Mix (Complete, academic, report) - Lost In The Mix: An Analysis of Credited Technical Professionals in the Music Industry Highlighting Women and Non-Binary Producers and Engineers Across DSP Playlists, Genres, Awards, Record Certifications & Distributors,” 2023.
- [4] Stout, J. G., Dasgupta, N., Hunsinger, M., and McManus, M. A., “STEMing the tide: using ingroup experts to inoculate women’s self-concept in science, technology, engineering, and mathematics (STEM).” *Journal of personality and social psychology*, 100(2), p. 255, 2011.
- [5] Hepworth-Sawyer, R., Hodgson, J., King, L., Marrrington, M., et al., *Gender in music production*, Routledge New York, 2020.
- [6] Gaston-Bird, L., *Women in Audio*, Focal Press, 2019.
- [7] Martin, A. E. and Fisher-Ari, T. R., ““If We Don’t Have Diversity, There’s No Future to See”: High-school students’ perceptions of race and gender representation in STEM,” *Science Education*, 105(6), pp. 1076–1099, 2021.