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Right: During a hybrid music class, students wearing SUBPAC® speakers sit in front of laptops and practice dabbing as they brainstorm ideas. They are collaborating to create accessible dance choreography.

And the Beat Goes On:

USING MUSIC TO TRANSFORM CLASSES FOR DEAF STUDENTS WITH MULTIPLE DISABILITIES THROUGH UNIVERSAL DESIGN

By Julia A. Silvestri and Jodi L. Falk

Music is a way of representing the patterns of frequencies and vibrational relationships—and at St. Francis de Sales School for the Deaf, we have used it to promote language learning and transform students' educational experiences. Traditionally defined through the medium of sound, music has been seen as an approach that excludes deaf and hard of hearing people. By expanding the perception of music, we have provided a transformative instructional experience for deaf and hard of hearing students with disabilities, allowing them to learn and grow in the music classroom.

Music Redefined An Unrecognized History in Deaf Classes

We were not the first to explore the role of music in the lives of deaf individuals. Darrow (1993) found that deaf people participate in common musical rituals, though to a lesser extent than hearing people. Other studies have shown that deaf people participate in music to a different extent through a music-making culture that is specific to their cultural and linguistic experiences (Jones, 2015). In fact, music education has a long history in deaf education, emerging in literature as early as 1848 with an article that advocated teaching music to deaf pupils through mechanical means made accessible through sight and touch (Darrow & Heller, 1985) and continuing toward a deaf-led construct of music education that incorporates multimodal representations and Deaf cultural music-making (Holmes, 2017; Silvestri et al., 2018).

Photos courtesy of Julia A. Silvestri, Jodi L. Falk, and Chloe Tompkins



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Music activities have been widely used to support communication, language, and literacy development (Harris, 2009). Music education for deaf students has been encouraged as a therapeutic tool for developing auditory language skills (Cheng et al., 2018; Lo et al., 2000), and the use of American Sign Language (ASL) nursery rhymes has been linked to greater literacy skills (Andrews & Baker, 2019).

The relationship between music and language is centered around two themes: playfulness and sensitivity to patterns. The playfulness of musical experiences appears to facilitate more effective adult-child interactions that impart critical language input through songs, rhythms, rhymes, and movements (Harris, 2009; Andrews & Baker, 2019). In addition to the language benefits, music education can have social-emotional benefits, particularly for students with disabilities, such as greater self-esteem, assertiveness, and social skills (Darrow, 2016). Whether through



auditory or visual-spatial means, music continues to be promoted as a tool for language development and social-emotional learning among both hearing and deaf children.

The authors welcome questions and comments about this article at jas2277@tc.columbia.edu and jfalk@sfdesales.org, respectively.



Left: Students wearing SUBPACs clap in unison to the beats they experience in their music class.

development, a resource website (www.feel-the-music.com), and an annual #FeelTheMusicTC concert and conference—a multimodal event with auditory music, music interpreting, ASL poetry, live captioning, music visualization technology, and tactile/kinesthetic tools (e.g., ribbons, balloons, wearable SUBPAC speakers). In addition to the Deaf Music Project, music education within deaf education continues to expand, whether through focus on the auditory (Chen et al., 2018; Lo et al., 2020), through focus on sign language and phonological development (Andrews & Baker, 2019), or through focus on the products and impact of deaf musicians and performers (Holmes, 2017; Acton, Howarth, & Miekko, 2020).

Collaboration Underway

Chloe's Kids Joins St. Francis de Sales

Chloe's Kids is a small business providing music, art, and language programs to deaf and hearing children of diverse ages, backgrounds, and abilities. Chloe Tompkins, a hard of hearing music teacher who is both owner and manager of Chloe's Kids, joined the Deaf Music Project at Teachers College in 2018 while working in the New York City area. Through the collaborations at Teachers College, Tompkins learned and began implementing transformative elements of deaf music making, such as ASL rhythms and rhymes.

During the COVID-19 pandemic, Chloe's Kids collaborated with other deaf artists, schools for the deaf, and the Teachers College Deaf Music Project to create multimedia productions and virtual learning programs. One advantage of remote programming has been that educators, parents, caregivers, and artists are able to connect and interact among a variety of locations with fewer barriers to scheduling and transportation. An additional advantage of remote learning has been the opportunity to bear witness and guide students with disabilities through authentic learning experiences at home.

A challenge of remote programming was that students struggled at first to engage and learn effectively through two-dimensional screens. For students with multiple disabilities, this challenge was compounded due to reliance on auditory, visual, or audiovisual input. Tompkins joined the authors of this article in the goal of motivating and engaging students with multiple disabilities in shared musical experiences with their parents and caregivers, teachers, and classmates. She implemented the principles of UDL and the Deaf Music Project to motivate deaf and hearing students on screen through movement, visual effects, and sign language.

St. Francis de Sales School for the Deaf, a New York state-supported school serving deaf, deafblind, and deafdisabled students in Brooklyn, N.Y., joined with Chloe's Kids to bring music—through its expanded definition—to deaf and hard of

Universal Design for Learning Meets Music for Deaf Students

The Deaf Music Project began at Teachers College in 2015, and we soon concluded that Universal Design for Learning (UDL) was the key to transforming access to music for deaf and hard of hearing students (Silvestri, Francisco, & Briggs, 2020). The principles of UDL have been suggested as an approach to music instruction in special education, and more specifically in deaf education (Darrow, 2010; Silvestri et al., 2018). UDL has guidelines to provide students with multiple means of:

- Representation
- Expression
- Engagement

Thus, using UDL, information is represented in multiple modalities. Students are able to share their understanding in numerous ways and are given multiple opportunities to engage in learning. The goal is to remove barriers in curriculum and develop barrier-free curricula (Meyer, Rose, & Gordon, 2014).

The Deaf Music Project aimed to redefine music by promoting the experience of feeling the music instead of simply hearing it. The various events and initiatives of the project have included panels, workshops, curriculum

hearing students with multiple disabilities. We had been successful in bringing art classes to our students before, working in partnership with nonprofit Kaiser's Room and the New York Deaf Theatre to provide classes in movement and dancing (Veyvoda & Falk, 2020). When Julia Silvestri, a teacher at Yale University and Columbia University's Teachers College and first author of this article, approached Jodi Falk, executive director of St. Francis de Sales and second author of this article, Falk enthusiastically agreed to bring another arts program to the students.

The Deaf Music Project was already underway. It was a collaboration of #FeelTheMusicTC at Teachers College, Columbia University, Chloe's Kids, and the principles of UDL. Tompkins provided music lessons to students at St. Francis de Sales, working directly with students and adults to develop skills in multimodal rhythms and rhymes. The students were deaf, deafblind, and deafdisabled, with disabilities including autism and intellectual and physical disabilities.

During the pilot year, one class was taught virtually through Zoom to students in the building with the support of teachers and teacher assistants. Teachers provided instruction, while teacher assistants sat with students to prompt and model as needed. The second class was taught virtually to students at home with the support of parents and caregivers. The music teacher, classroom teacher, and teacher assistants were present on screen, with students, parents, and caregivers in the homes. Parents and caregivers provided support with occasional or consistent prompting that was verbal, tactile, and signed. Together with the team of professionals from Teachers College and St. Francis de Sales, Tompkins developed a set of inclusive teaching goals and strategies to guide lessons. She and the team met regularly throughout the year to refine plans, share tips, and develop guidelines for future practice.

Music in the Deaf Classroom "I Feel It!"

Class content included instruction in musical concepts—using the expanded definition with an emphasis on beat and tempo, music making as a group, and ASL poetry composition. Each class began with a movement activity, such as stretching, modeling movements from animals or nature, or taking turns

Expanding the Deaf Music Project for Deafblind and Deafdisabled Students:

TRANSFORMING FEEL THE MUSIC

As previous initiatives in the Deaf Music Project and general literature have focused primarily on the impact of Deaf culture in music-making experiences, very little consideration was given to the impact of additional cultures and multiple disabilities on music making. A collaboration between St. Francis de Sales School for the Deaf and Chloe Tompkins, a hard of hearing music teacher, focused on expanding deaf music education to enable the inclusion of deafblind and deafdisabled students. Below is a glimpse of our instructional plan.

Instructional Objectives:

- Discuss how students experience music.
- Define relationships to sound, touch, and sight.
- Explore the concepts of vibration and tempo.
- Identify and engage in musical patterns.
- Articulate feelings and intensity of musical experiences.
- Experiment with creating diverse rhythms.

Instructional Strategies:

- Use hands to communicate.
- Model touching the speaker.
- Pause/alternate language delivery.
- Model instruction and engage teachers and teaching assistants to further model/engage students.
- Have students pick examples of animals to use for warmups.
- Have students pick movements for warmups and choreography.

leading body movements that demonstrated music theory concepts (e.g., vibration and patterns). In alignment with the theories presented by Harris (2009) and Andrews and Baker (2019), Tompkins centered music instruction around two themes linking it to language—playfulness and sensitivity to patterns—and facilitating adult-child interactions.

In order for deaf and deafblind students to access the vibrational patterns of the songs, rhymes, and rhythms, Tompkins, teachers, parents, and caregivers provided tactile



Left: During a hybrid music class, the SMART Board® shows a Zoom room with the students and the instructor, all wearing SUBPAC speakers. **Below:** A student logs into a virtual music class while a teacher helps him into a SUBPAC wearable speaker.

teachers, parents, caregivers, and other members of the school community watched the performance with pride and excitement.

The second year, the program expanded to include students in all classes. Classes were conducted in a hybrid format with the students in the classroom connected to Chloe virtually on Zoom on the SMART Board. This format allowed the classes to utilize more UDL tools, including a greater amount of new accessibility accommodations (e.g., high-contrast images, black backgrounds, and Roman letter bubbling for students with visual impairment). The group became more connected in this format. Challenges from distance learning weren't as much of an issue, and students demonstrated a greater familiarity with

community music making, evidenced by the length, originality, and design complexity of their second production.

Song of Remote Learning Beat, Tempo—and Pattern Discovery

Although an ongoing challenge, learning remotely has provided unique opportunities for our students. Students have benefitted from collaboration across distances, refined use of technology, and increased school/home/community partnerships. Learning

and kinesthetic experiences, such as placing hands on device speakers, modeling patterned movements and signed songs, prompting students with touch cues and rhythm, tapping on shared objects, and using wearable speakers. The wearable speakers, SUBPAC backpacks, were provided to students in the classroom on campus. During the first experience wearing these backpacks, the common phrase among students was, “I feel it!” as many began to dance, tap, and even stand up and move around to the beat. Additional student engagement in music classes included typing in the chat box during class discussions, signing responses and questions, dancing, tapping, copying signs and movements, creating patterned movements, harmonizing movements and rhymes, and contributing ideas to a group composition.

Tompkins led students through group compositions using various strategies, such as 1-5 handshape stories, simple movement choreography, and signed songs following the modeled rhythm of the Gallaudet Bison chant (e.g., beat, beat ... beat, beat, beat). Using a white board, Tompkins wrote numbers for the steps, added words and images, and then led students, teachers, parents, and caregivers through each step. Teachers, parents, and caregivers assisted by modeling and/or tactile cueing students to sign or dance along. Using this technique, the group then rehearsed and performed the sequence, effectively designing and producing an original musical composition. The final composition was shown at the 2021 and 2022 #FeelTheMusicTC concerts. Students,



remotely has brought students, teachers, artists, college instructors, researchers, graduate students, parents, and caregivers into a community based on transformative music experience. Together, participants have learned more about effective communication, explored strategies for representing and expressing musical patterns, and created musical compositions.

Educators for deaf and hard of hearing students must not be limited by narrow definitions of music making. The expanding music program at St. Francis de Sales has successfully instilled

deaf, deafblind, and deafdisabled students with a growing appreciation for musical arts through multimodal instruction and music-making opportunities. As the project continues to evolve, the hope of team members is that future applications will continue to reveal fundamental steps in the connections between music, language, literacy skills, and social-emotional learning, and equip parents, caregivers, and educators with the knowledge and skills to support students through a process of playful learning and joyful experience.

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