Improvisation as communication: Students with communication disabilities and autism using call and response on instruments

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Abstract

Students with communication disabilities present challenges to general music teachers with inclusive music classrooms. Typically, students perform, compose and improvise with others in the class, but students with physical disabilities that include communication difficulties or students with autism are left out or at best marginally participate. This paper explores the stories of three students who have disabilities that impact their ability to communicate. All three are elementary students in grades four through six. The students used instruments (both traditional and electronic) as a means for communicating musical ideas through improvisation. The three students were engaged in call and response improvisation in the jazz style.

***Keywords*:** disability, nonverbal students, inclusive music classroom, improvisation, music education, differentiated curriculum.

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> *The deficits in social reciprocity that are critical to the diagnosis of an ASD reflect an intrinsic inability to read and comprehend the feelings, experiences, and motives of others. These basic social understanding skills allow interpretation of the verbal and nonverbal messages of others. (Hyman & Towbin, 2007)*

Heather, a non-verbal student with cerebral palsy, used electronic instruments to respond to calls from peers in her class. She was able to accurately respond to musical questions performed by a peer and surprised all of by spontaneously speaking "I love this!" while holding up her Orff mallet.

Linda, also a non-verbal student with cerebral palsy, developed enough control to play the Soundbeam with a high degree of musical understanding. For example, she played the word "banana" using the same pitch inflection that would be used when someone speaks the word.

Students with physical disabilities that impact speech are able to effectively use call and response improvisation to express feelings and musical ideas once they find an appropriate instrument and learn how to play it. Students with autism seem to struggle more with responding to mood and the musical ideas of others.

Introduction

As a music educator from the jazz world, I have looked for ways to engage children in jazz through improvisation. The ability to express oneself through music is a meaningful

experience for our students and I have been particularly interested in bringing jazz improvisation to students who struggle with verbal communication. This paper explores the stories of three students who have disabilities that impact their ability to verbally communicate. I focus on their initial attempts to use improvisation as a way to musically communicate with their peers. All three are elementary students in grades four through six. Both traditional and electronic instruments were made available for the students to use. However, Linda was unable to play a traditional instrument. Teaching these three students, helped me to develop strategies for reaching and understanding students who have limited or no communication abilities.

Wiggins (2001) used the term, "doorway in," to describe ways to connect with students by tapping into their present interests and abilities (p. 4). Call and response became my "doorway in" and my teaching strategy for reaching all three of the students in this paper.

Method

Lincoln and Guba (1985) report that "for naturalistic inquirers, the reporting mode of choice is the case study" (p. 357). Studying children with disabilities is best achieved through qualitative methods because the researcher is unlikely to find two children alike enough to draw similarities. I chose the three students because they had a variety of abilities to communicate; verbal but awkward and resistant to speak and interact with peers, non-verbal with the exception of a few difficult to understand phrases and non-verbal because the student is on a respirator.

Stake (1995) identifies the most interesting cases in education are people and programs. "We are interested in them for both their uniqueness and commonality" (p. 1). The children in this study all desired to improvise on instruments and in that way they are common, but the ways they improvise are different.

I collected data during my residency through field notes, a journal, and audio recordings of selected performances and sessions. I also had many discussions with teachers and staff to gain greater insight into the children and to support or disprove my observations. Trustworthiness of the data was established through my extended immersion in the field and through triangulation of the multiple data sources. Data were entered into a qualitative research program to aid in discovering patterns indicative of changes in children's musical experiences. Since children had unique abilities and disabilities, I chose not to compare them to others. I was more interested in examining how children could learn to express themselves through music.

I hoped to enhance the life and development of these children in some of the ways described in the literature. O'Brien (1987) identified five outcomes for lifestyle enhancement that encourage students with severe disabilities to develop competence through skill acquisition in ways that enhance the person's community presence, respect, and choice (pp. 175-189). Friend and Bursuck (2006) stated that "students need to be aware of their strengths and weaknesses, the potential impact of these strengths and weaknesses on their performance, the support they need to succeed, and the skills required to communicate their needs positively and assertively (p. 357). I believed that providing musical experiences in playing and improvisation could help to support these goals.

Teaching Approach and Adaptations

Music educators and music therapists have used the Orff approach with individuals and groups of children with disabilities with great success since Gertrud Orff developed Orff Music Therapy in the 1950s (Orff, 1980; Orff, 1989; Voigt, 2002). Gertrud Orff in *The Orff Music Therapy* (1980) and *Key Concepts in the Orff Music Therapy* (1989) explains:

Instruments, non-musical objects and body

instruments can produce sound. Vocalization, as well as complex verbalization, comprise the content of speech, which can be rhythmic or meditative. Movement in music therapy can range from a facial expression or a spontaneous motion of a part of the body to movement as a dance or inner movement (feelings—for example, to be moved by something) (Orff 1980, 1989). The idea of creative, spontaneous music making is central in Orff Music Therapy. Its purpose is to provide a creative stimulus for the child. (Orff, 1980)

Voigt (2002) describes the key concepts of Orff Music Therapy:

The musical material used in Orff Music Therapy is influenced by four factors: music understood in the sense of musike [a total presentation in word, sound and movement], improvisation, the instruments used and the multi-sensory aspects of music. (p. 170)

John

The Centers for Disease Control (Section 1) estimates that 1 in 110 children in the United States have been diagnosed with Autism Spectrum Disorder. Friend and Bursuck (2006) list characteristics of autism spectrum disorder as a lack of social responsiveness that includes avoiding physical contact. Children with autism have difficulty making eye contact with others and initiating conversation. Conversations tend to be one-sided and brief. Children also appear to be unaware of others' feelings, which leads to difficulty in establishing friendships with peers. Sometimes they have unusual speech including echolalia, speaking in a high voice or using a monotone. Children also will often display repetitive body movements such as rocking, and are most comfortable with routines and predictability in order to feel calm and focused enough to participate in a typical general music class.

John is an eleven-year old boy with mild Autism Spectrum Disorder or ASD. He attends the ML School on a State University campus. I occasionally taught a fourth grade class that John was in during the 2006-07 school year. There is another student with autism, Cary, in this class. Cary is also mildly autistic but has more social difficulties than John. Cary tends to bother other students when the teacher isn't looking and needs to be isolated from other students except for John, whom he seems to ignore.

John initially had trouble in music because of sensitivity to sound. Orff metallophones were particularly difficult for him to adjust to and he was often in the corner with his hands over his ears trying to escape the sound of the metallophones. The music teacher asked his parents to purchase earplugs and this seemed to help. On days when the sound became too much, John left the classroom and sat outside the room. Gradually he began to tolerate the sound better and by the end of the semester he had stopped wearing earplugs and was participating with the rest of the class.

Cary had difficulty remaining focused and was easily distracted by instruments, the easel, music stands, and other common objects in the music classroom. John would often become focused on what Cary was doing until the music teacher intervened. Cary was frustrating to the music teacher, Mrs. Zawatski, but John quickly developed a friendship with her. He would greet her each class by saying "Mrs. Zawatski, I'm here!" When he wasn't the first student in the room he would apologise to the music teacher for being late. "I'm sorry I'm late." He hugged her hello and goodbye until later in the fifth grade when someone taught him that hugging was not appropriate. In the fifth grade, Cary began to have frequent temper tantrums and his family pulled him out of school to be placed in a local school that specialised in the education of students with autism. This was a very difficult time for John. Even though it did not seem as if they had a friendship, John missed Cary very much.

One day Mrs. Zawatski discovered John had a passionate interest in road signs and travel by

vehicle. His mother, Patty, told the music teacher, "he comes home and studies maps for hours, I have to take them away or he wouldn't sleep or eat." Mrs. Zawatski found road sign stickers that she put in his *Recorder Karate* book and she took pictures of interstate signs and gave them to John for his photo album. He collects photos of interstate signs but likes photos of intersections in cities or pictures of streets too. It is common for students with autism to become very fixated on obscure things almost to an obsession.

By fifth grade, John was participating better and learned to play the recorder and other instruments. His singing was acceptable although he often forgot to sing or play and would rock on his feet or sit with his head down instead. I wondered if he enjoyed music. His mother said music was John's favorite class and he appreciated the photos of signs Mrs. Zawatski took for him. Did he like music class because it was where he made music or did he like the music teacher who showed an interest in street signs?

In fifth grade, John joined an after-school Orff ensemble, the OrffCats, that I co-directed. It was the first time he joined any after-school activity or club. I was determined to find ways for him to participate and to see if he could focus on performing a part well for an entire song. We were preparing a jazz concert for the local music educator's conference and the students were very excited. John would try to play whatever instrument we assigned him but often stopped playing and rocked on his feet or he wandered off to a less busy part of the room and would sit with his head down. Occasionally he would ask me if he could go buy snacks at the vending machines, which I decided was his way of escaping the over-stimulation of the music room.

I tried to help him learn Orff parts. I made worksheets that explained the form by using road signs, I tapped on his shoulders to help him find a steady beat and I stood on the other side of the instrument and played the parts with him. He tried his best, but struggled to play the more difficult parts and would become frustrated and stop playing. We simplified his parts, which helped with some pieces, but if he lost focus then he would have trouble joining back in without help. I assigned an undergraduate music education student to assist him and keep him on task. This helped, but I still wondered if John was enjoying music. I never saw any signs of joy in his music making.

I began to teach him other parts; cymbals, hi-hat, boomwhackers, bass bars, and I asked him which instruments he liked the best. After several tries on different instruments he told me one day, "Dr. McCord, I like these" (pointing to hi-hat cymbals as he rocked on his feet). He made eye contact initially but as soon as he started to talk he looked down. This is the way he typically communicates. He looks at me and says "Dr. McCord, I need to tell you something." Once I make eye contact with him he looks down and tells me what he wants. I was pleased because he was now asking to play an instrument, and this was the first sign I saw that he was interested in making music.

He struggled with the hi-hat cymbals. He had trouble standing up (his preferred way so he could rock and tap his foot on the pedal) but sitting down only worked with a certain stool. One day the stool was missing and I could tell he was quite upset about this and spent half of the rehearsal looking for it. "Dr. McCord, I looked in both practice rooms but the stool isn't there, I am now going to look in Mrs. Zawatski's office."

When he played he would have trouble finding beats 2 and 4 but once he locked in he could play with good accuracy as long as he could keep focused. One song had short 4 count rests in each verse and he had trouble stopping and getting started again. My undergraduate student helped him focus on playing beats 2 and 4 with a drumstick on the hi-hat cymbals.

In one rehearsal, my student wasn't there to help him, so I sat close to him but wanted to see

how he would do by himself. He looked to see if I was watching him several times and managed to stay focused the entire song but needed some help finding beats 2 and 4. The next rehearsal he greeted me, "Hi, Dr. McCord, I'm here! What song are we playing first? Can I try it today with no help?" I said "Sure John, I think you are doing great and you know where those rests are so, yes I won't help unless you want me to. In fact, how about I just plan to help the bass xylophones today and you can play on your own?" He made eye contact, smiled, looked down and said, "OK." He did fine on his own and now rarely needs or asks for help.

John was beginning to function independently and I thought it was time to encourage him to improvise. I selected him along with a few other students to play short eight measure solos on one of our jazz songs. His solos showed some awareness of swing feel but he typically played using ascending notes up the xylophone and then down. After each solo he would look down and smile. One day he greeted me "Dr. McCord, I'm here! How many people will be at the concert? A hundred?" I answered, "John I'm not sure but I think the room we are playing in will have seats for 250." He said "Whoa, that is more people than I expected!" I asked, "Are you worried to play in front of people?" He said no and walked away.

I am learning to read him better and not feel like I have to engage him in talking to know him. Students with disabilities are often hovered over and assisted too much. I like the idea of helping students develop skills to advocate for themselves with support. The more I allow myself to resist trying to help the student fit into the traditional classroom way of doing things, the easier it is to observe and discover the students' preferred way of making music. I think John was showing interest in music even though he had trouble engaging in a conversation long enough to tell me what he thought. He was playing with the group and was able to show awareness of others by making his part fit with the group. He played solos and smiled when he finished. I believe he was thinking about playing solos in front of a large audience even though I wasn't sure if he was afraid to perform or excited to perform.

So I could have more time to teach John, I taught his fifth grade general music class for a month. I wanted to work on call and response improvisation with John's class. This would allow John more opportunities to work on playing and singing solos and engaging with peers through call and response trading of solos.

We began with short solos and in his first solo he stood in the line waiting his turn rocking back and forth. When it was his turn he hummed his solo and hurried to the back of the line when he finished. I think like most people, he is less comfortable singing jazz than playing jazz.

We tried call and response singing in partners and when no one chose him to be their partner, I sang with him. We were using three pitches of a triad and showing pitch by tapping on waist, shoulders or head. We used a recording with a singer giving the call and we responded by echoing with the movement the first time. Then we traded turns next and the partner not singing rated the singer on how well they did with singing and moving to the correct pitches. John didn't sing loud enough for me to hear, but he was fairly accurate with the movement and made eye contact with me through the entire song. He rated me well, even catching when I made mistakes. Echoing is a *doorway in* for teaching students with autism. Students with autism are comfortable echoing what they hear.

The following week we learned an Orff arrangement with jazz solos that everyone in the class performed. We rotated around so everyone played accompanying instruments and took turns singing short solos and playing improvised alto xylophone solos. John played the accompanying parts well and improvised a xylophone solo well. We ran out of time before it was his turn to sing

a solo. I noticed his only rocking was just before he played the bass xylophone, but otherwise he seemed confident as he took turns rotating to the different instruments playing glockenspiel, soprano xylophone, ride cymbal and hi-hat cymbals. He did not listen to how the person who sang the response to his solo sounded because he moved to the back of the line before he finished.

As the music educators' association conference concert approached, John began to share insights on various aspects of the performance, certain singers were not loud enough, sometimes metallophones covered up the solo parts and the instruments needed to be moved faster when we switched songs. In the dress rehearsal, he played his hi-hat parts perfectly with no assistance and remained on stage without needing to sit down and I observed that his rocking movements had almost disappeared. He smiled and bowed after his solos. In the call and response solos, he did not respond to his partner's call, but played a solo going up and down the bars of the instrument as usual.

Although I can't say for certain that John enjoys making music, his smiling and focused playing with the group seems to suggest it. Jazz is an interactive style of music and his awareness of playing sensitively with others is a good indicator of his ability to think about how he fits in with others musically, even if he still struggles with how to fit in with others socially. The students in the OrffCats are supportive and inclusive, more so than the students in his general music class. John is aware that he requires more help than others and works on learning to be musically independent. In a sense he is trying to fit in. He notices other students giving suggestions to the adults about how to improve and he begins to offer his suggestions. I am learning to let his musicianship unfold at his pace and to find ways to enable him to grow and experience success.

Heather and Linda

Heather and Linda are in the fourth grade at a school that specialises in the education of students with severe physical disabilities. I am there as part of a two-year teaching residency. I come twice a year and teach for a week. The school has a variety of students in wheelchairs, walkers and some who are ambulatory. Many arrive by ambulance and have significant medical problems such as being on a ventilator or intravenous medication and some students are unable to speak due to their physical disability.

I knew I would see children struggling to do things that typical children do, but it was initially quite emotionally difficult to see children with missing arms trying to play instruments with their feet or with head pointers. It was also hard for me to watch the physical decline of children over the two years. Some have gross physical disfigurements from car accidents, surgeries or their disability. There are children who cannot close their mouths, with aging syndrome and undeveloped or twisted bodies. I learn from these children too. They are interested in learning to play instruments and have the same dreams as any typical student. All children embraced jazz and were excited about playing instruments.

The first class I worked with happened to be a group who also had communication disabilities. One girl used a Dynavox, an assistive technology device that would speak words as she tapped the device with her one working hand. The others communicated through smiles, shrieks, grunts, head nods or laughter. As the teachers helped to position each of the eight students in front of an instrument, I went around to each child and held their hand and learned their name and looked them in the eyes and introduced myself. One child, Heather, could hardly contain her delight with me holding her hand. This child stole my heart that first day.

Heather has cerebral palsy and uses a motorized wheelchair that she operates with her hand on a joystick. Like most of the students with cerebral palsy, Heather wears a neck scarf to catch the drool from her open mouth. She readily

smiles when I ask her to play an instrument and will nod yes and no to let me know which instrument she wants to play and how she wants to play it. She has spasticity in both arms but with good positioning of instruments she can play Orff instruments with shortened mallets with T grips. She can also play the closed hi-hat cymbals with a drumstick and electronic drum pads with a shortened mallet.

The school owns a Soundbeam, an instrument that responds to movement in an ultrasonic beam that triggers a MIDI sound. The beam can be adjusted wide or narrow and can pick up small movement from an eyebrow or large movement such as a wheelchair moving across a room. Sounds can be changed and pitches can be set to play chords or single pitches of a chord or scale through the Soundbeam module. The module is connected to a MIDI instrument such as a synthesizer, but all programing for the Soundbeam is done through the module. Sounds are selected and assigned to the beam sensors or switches. Scales, chord tones or special effects can be customised for each sensor or switch.

When working with the Soundbeam it is important to determine where to place the sensor to capture the maximum amount of movement the student is able to produce. For example, some students can raise and lower their arms and the beam positioned above their head pointing down toward their hands is likely to produce the most range of movement and pitches.

The first day, I attempted to teach the students a song the way I teach typical students, using Orff process. Now reflecting back on these first lessons, I realise that I approached the lesson the wrong way. Students were more successful if I learn their abilities first and then select or compose music that fits those abilities. As a college music education methods professor, I emphasize that my students need to be flexible with their teaching and be ready to go in the direction that most benefits their students. Instead, I was assigning instruments based on the students' disability. I quickly learned to teach from the students' abilities and interests first and to avoid making decisions for them.

Heather uses the Soundbeam the first day along with several other students including Linda, who have disabilities that make it difficult to play other instruments. Heather enjoys the instrument, but on the second day she decides she wants to play the ride cymbal instead. She struggles to coordinate the drumstick to the cymbal, but is determined to persist and find her way of playing the instrument. In the following days, she chooses to play either the ride cymbal or the hi-hat cymbal and even though coordination is hard for her, she clearly knows her part and works very hard to play it. I am learning to read the body language and excited vocal sounds from each child. Heather indicates her interest in playing instruments by her big smile and clear determination to play her part.

Her teachers tell me she gets very excited when it is time to come work with me. She has a computer adapted for her to write in the classroom, but there isn't time in my schedule or the teachers' plans to have Heather write about what she thinks. She doesn't have a computer at home, so any writing has to be done at school and the teacher says there is no time to do this. Ideally, this would be the best way to talk to her about music and her desire to play instruments. The teachers and therapist tell me they prefer not to send the portable computers with the child because they are so expensive and they worry that could there be technology issues, the adults will not know how to operate the computers and special software.

Linda, however, does come to music with her Dynavox. She owns her own and it is mounted on her wheelchair. It takes time for her to type and get the words out, but she is able to communicate with me. Her teachers tell me she is very bright and is good at using her Dynavox. Linda chooses to play the Soundbeam each time we meet in music class. With the Dynavox

on her wheelchair in front of her, it is difficult to position a large instrument close enough to her to allow her to play. It is too complicated to remove the Dynavox, so we use the Soundbeam. The first year she waits patiently to play her improvised solo during her time but doesn't play the accompaniment because it is too difficult for her to coordinate her labored movements on the Soundbeam. She typed "I will wait and play a solo." Most of the time Linda sits and listens and watches the others. It hardly feels like an inclusive classroom to me, I am not used to having students sit and wait to play most of the classtime. When she improvises, she flails her arms around in the beam creating random pitches. She gets very excited when it is her turn and loves the idea that she is producing the sound herself. She types "I like the guitar sound the best."

In the second year, I decide to focus less on performing music and more on building skills in playing and improvising on the instruments. We work on call and response with a recorded jazz rhythm section and take turns playing improvised solos and using call and response. The students listen to their partner's call and respond by playing something that relates to the partner's solo. Heather plays her solo on the drum controller with the T grip mallet. I comment on how she and her partner complemented each other's solos and Heather holds up the mallet and looks at me and says in very slurred speech "I love this!" This is the first time I have heard her speak. I respond by saying "I love you!" It has been seven months since I have seen her and Linda and in that time Heather has had extensive speech therapy and it now speaking short sentences and words. It is a wonderful surprise to hear her speak and throughout the lesson she repeats "I love this" several more times. Now I am sure she does enjoy what we are doing.

I am relying too much on speech to communicate with students. I wonder why it seems more validating to me to hear Heather say "I love this" than her big smiles she gave me before. I am learning that I need to learn to be more comfortable with non-verbal communication as a teacher. As a jazz musician using improvisation to communicate feelings, it is very familiar, yet as a teacher it is awkward for me to teach without having verbal dialogue with my students.

We decide to improvise a rhythm from a food or two the children had for lunch. After each student plays their food's rhythm the class guesses what it is. When it is Linda's turn she plays her answer and we try to guess. We make many guesses, including Heather who is saying "cheese" and "hamburger." Linda scrolls through her Dynavox words to find the answer. We can't guess, and she presses the button to have the box speak "banana." I ask her to play the word again and she does. Not only is the rhythm accurate, but she even thought about how the pitch changes when someone speaks the word and played it that way. She is learning to use the Soundbeam and can now play thoughtful improvised solos to express herself. At the end of the day I see her lined up waiting for her school bus to go home. I ask her if she likes music. "Yes" the Dynavox speaks. She looks at me as it speaks. I ask her if she likes the Soundbeam, and she looks at me and presses a button and "I like it" comes out. I ask her if she thinks she would like to play longer improvised solos the next time I come. Once again the Dynavox speaks 'yes" then slowly she scrolls through words to make a sentence. "I am thinking of sounds to use. I am thinking of using a soft sound. I want to play next time, it will be good." She scrolls through the words with amazing speed and I can tell the machine doesn't have the words she really wants to use but she still manages to find words that convey the meaning of what she wants to say. I tell her as she looks waiting for me to respond, "Next time I'll have a list of sounds we can put into the Soundbeam. You can choose all sorts of instruments like piano, saxophone, guitar (her eye

brows go up) or even drums. I am thinking you like the idea of the guitar. She pushes the button, "Yes." "Well we can do that, you can even choose different kinds of guitars like electric or acoustic." She smiles. I tell her goodbye and that I will see her in March. She tilts her head and smiles.

Conclusions

Improvisation is one of the most sophisticated forms of musical expression. The ability to improvise is also a way to achieve self-determination. Campbell (1991) agrees that improvisation should be integrated into the general music curriculum, "improvisation at the beginning level allows children to play with sounds and with musical syntax (or putting those sounds together)."

> *Regardless of age or musical sophistication of the improvisers, this process is essential to developing an ease and flexibility in manipulating the language of music. Opportunities to improvise should occur throughout the children's development, stimulating them to converse in music in the same way they converse using words-freely and spontaneously, with meaning" (Campbell & Scott-Kassner, 2010, p. 253).*

Saxophonist Charlie Parker once said, "If you can't sing it, it can't come out of your horn." I have always loved that quote but after making music with John, Heather and Linda, I think what he meant is that if you can't sing it in your head it can't come out of your instrument.

John is beginning to communicate through improvisation. He does play with swing feel and knows when it is his turn to play and how long his solo should be, but he doesn't respond to others through improvisation. Students with autism have many obstacles to overcome, the primary one for John is the social aspect of participating in a music ensemble. Focusing on the music and what the group is performing can be difficult particularly with over stimulation from sound and other distractions. John has progressed and we have begun to have him play more complex parts and instruments. He is encouraged to sing and play improvised solos. He continues to work on developing solos that respond to his improvisation partners solos. He is a valued member of the OrffCats and contributes to the ensemble musically. He is learning to be musically social.

I believe both Linda and Heather are singing in their heads and one day, Heather might be actually able to sing, maybe even the next time I come to make music with her. Linda is learning to sing through the Soundbeam. Gertrud Orff (1980, 1989) wrote about the possibilities of using call and response improvisation as a way to engage autistic children with others. She developed Orff Music Therapy and a prescribed sequence for use with children with autism. Voigt (2002) implemented Orff Music Therapy with a three year old with severe autism. In the first session the student would not make eye contact or engage in a variety of musical activities such as playing a drum, singing or dancing. By the seventeenth session the child was engaged in call and response playing on the piano with the therapist making eye contact between musical episodes.

Music therapists have been using Gertrud Orff's teaching strategies for almost fifty years with students who have autism and other communication disabilities. Using call and response improvisation was a very effective way to reach these three students who can easily be left out of most general music activities. The Soundbeam was the only instrument Linda could play and it offered her access to the curriculum but most of all, an expressive voice.

Improvisation allows students to express themselves through music, expression that for all three students is very limited. With patience and support music teachers can find the doorway in for supporting students with communication disabilities to find a way to make the music come out of their horn.

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