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## Teaching Instrumental Music to Deaf and Hard of Hearing Students

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## Abstract

Many Deaf/Hard of Hearing (D/HH) individuals have successfully participated in instrumental music programs for over 100 years. In spite of proven success, however, many directors are reluctant to involve students with hearing loss in school bands and orchestras. Reasons may include a lack of knowledge regarding the needs and capabilities of these learners, or the fear that D/HH musicians will negatively impact the performance quality of the ensemble. By becoming familiar with the characteristics and abilities of D/HH students, as well as methods for instructing these individuals, music educators will be better prepared to serve this population. This article provides information related to teaching D/HH students in the instrumental music classroom. Terminology describing hearing loss, necessary modifications to the physical environment, alternative teaching strategies, and appropriate instrument selection are all discussed.

Students with impaired hearing have found success participating in school bands and orchestras for over 100 years. Many reports from the early 1900s and before tell of military bands organized for the training of deaf musicians (Edwards, 1974). Fred Fancher, a deaf bandmaster from Tennessee, led such an organization from 1923-1942 at the Illinois School for the Deaf located in Jacksonville. Taught to perform with a high degree of precision and expression, this ensemble presented concerts in many towns and cities throughout the United States. Boumehim Kryl, a professional bandmaster and cornet soloist, remarked at the exceptional quality of the music, not only from the standpoint of the musicians not being able to hear, but also the fact that they were of such a young age (Sheldon, 1997).

Deaf and hard of hearing students in today's schools continue to be involved in instrumental music. Folts (as cited by Atterbury, 1990; and Zinar, 1987) described the successful integration of five profoundly deaf children into a beginning band program in Edgemont, New York.

Instructional methods were modified to teach playing technique and pitch recognition through visual cues and tactile stimulation. Robbins and Robbins (1980) also effectively taught instrumental music to hearing impaired students at the New York State School for the Deaf.

They suggested that requirements for learning an instrument are similar for both hearing, and hearing impaired children: good teaching, consistent practice, and positive support.

In spite of evidence that students with impaired hearing can become successful musicians, some instrumental instructors might still be reluctant to actively recruit these individuals. Reasons may include a lack of familiarity with the musical capabilities of deaf learners (Darrow & Gfeller, 1991), or the fear that these musicians will negatively impact performance quality (Sheldon, 1997). This article will address these concerns as well as discuss ways of successfully including deaf and hard of hearing students in the instrumental music program.

## Characteristics of Deaf/Hard of Hearing Students

Hearing disabled students may be defined as *deaf* or *hard of hearing*. An individual classified as deaf is one whose hearing loss is so great that speech cannot be understood through the ears alone, even with a hearing aid. Conversely, a person described as hard of hearing has a significant hearing loss requiring some special adaptations, but can understand speech through auditory processes (Heward, 2000).

Hearing loss may be categorized as *slight*, *mild*, *moderate*, *severe*, or *profound* depending on the average hearing level, in decibels, throughout the frequencies most important for speech (500 to 2,000 Hz). Students with a mild loss (41 to 55 dB) likely understand face-to-face conversation with little difficulty, but may be unable to comprehend discussion if many are speaking at once. Persons with a moderate loss (56 to 70 dB) will likely only hear conversation without a hearing aid if it is loud and clear. In addition, they will probably hear lower frequencies better than higher ones, and might have impaired but intelligible speech (Heward, 2000).

Students with a severe loss (71 to 90 dB) can probably hear voices only if they are loud and close the ear. Although these individuals might have some linguistic skills, sign language and visual attention to the speaker will be needed to enhance communication. Persons with severe loss (91 dB or more) are more aware of vibrations than tonal patterns and may not have intelligible speech. Although some sounds may be audible through a hearing device, sign language will be used as the principal means of communication (Darrow & Schunk, 1996; Heward, 2000).

Loss of auditory function is the result of either *conductive* or *sensorinural* damage. A conductive hearing loss refers to damage of the outer or middle ear and may be the result of disease, ear infections or accidents (Atterbury, 1990; DeConde, 1984). This form of loss usually affects all frequencies but is not acute. Hearing aids are often used as a corrective measure for this condition (Darrow & Schunk, 1996).

Sensorineural hearing loss refers to an impaired sensitivity to sound resulting from abnormalities or damage to the delicate sensory cells of the inner ear or the nerves that supply it. Hearing loss of this nature can be attributed to genetic inheritance, prenatal, birth, or postnatal factors. Loss may range from mild to profound and affect certain frequencies more than others. For many, sensorineural impairment will result in a distortion of sound so severe that the use of hearing aids is impossible (DeConde, 1984).

A *mixed* hearing loss refers to one resulting from both conductive and sensorineural damage. Hearing loss may also be described as *unilateral*, in one ear, or *bilateral*, in both ears (Darrow & Schunk, 1996; Heward, 2000). Even those with a profound loss, however, have some form of residual hearing and can perceive certain sounds at high decibels (Heward, 2000). Some have been fitted with cochlear implants, electronic devices that provide artificial stimulation to the auditory nerve. These individuals will experience sound distortion since aural information created by the implant does not represent accurate pitch or natural timber (Stordahl, 2002).

Deaf/Hard of Hearing (D/HH) people communicate in a variety of ways including *American Sign Language*, fingerspelling, lip reading, gesture, or oral language. Some will choose *Total Communication*, which refers to the use of these and other techniques in combination (Atterbury, 1990). For some, a hearing disability may act as a barrier to social interaction. Unless steps are taken to intervene, this might lead to poorly controlled emotions, inflexibility, egocentricity, withdrawal, or depression (Zinar, 1987).

Academically, D/HH students may achieve below grade level, especially if their disabilities were discovered late (Atterbury, 1990). Unfortunately, D/HH students might be perceived as slow learners, or even mentally retarded, because of their inability to pronounce and understand language. Some may even appear physically awkward, walking with a clumsy gait or bent shoulders (Zinar, 1987).

In terms of specific musical abilities, deaf students are capable of maintaining steady beat sometimes better than hearing students. They are, however, less successful in reproducing rhythmic patterns with adequate modifications, and can make significant improvement (Darrow, 1989). In regard to pitch discrimination, D/HH students are most successful discriminating lower frequencies. Ford (as cited by Atterbury, 1990) suggested B below middle C through F a twelfth above as the optimum range. As with rhythmic reproduction, this skill can be improved with training.

The primary focus of the D/HH curriculum, and one of the most recognized benefits of music instruction, is the acquisition of language (Atterbury, 1990). Properties of music such as rhythm, accents, tempo, and repetition organize and direct behavior toward educational goals by supporting the structure of language. In addition, music can provide motivation for positive behavior, serve as academic support for reading and writing, and become a means for developing positive self-image. Children can also improve body coordination through rhythmic movement, and develop social skills by interacting with hearing students during music participation (Darrow, 1989; Darrow & Schunk, 1996; Zinar, 1987).

Many D/HH people also value musical experience for its own sake (Darrow 1993). Music objectives for hearing impaired students, therefore, should go beyond social benefits to include learning about rhythm, harmony, melody, form, and expression. In addition, music of various cultures, and masterworks from as many genres as possible should remain an important part of the curriculum. For D/HH students, these aims are best met through the visual, tactile, and movement aspects of instrumental study rather than singing or music listening (Darrow & Gfeller, 1991; Darrow & Schunk, 1996). Thus, instrumental instructors have an obligation to provide the best possible experience for these students, and seek to include them as full members of school bands and orchestras (Sheldon, 1997).

### Including Deaf/Hard of Hearing Students in Instrumental Music

The first step to including D/HH students in the instrumental music classroom is to create a physical environment that will allow these individuals to be successful. Some D/HH students may act out when unable to hear the teacher's instructions or understand the material (Zinar, 1987). The best prevention for these behaviors is to insure surroundings and teaching practices take into account the special needs of this group.

Extraneous sounds both outside and inside the classroom must be eliminated in order for D/HH individuals to take advantage of residual hearing. In addition to unnecessary talking and movement, these may include sounds emitted from neon lights, heaters, air conditioners, etc.

Carpeting, drapes and upholstery can all be installed to absorb excess noise and promote a quiet environment. Furthermore, to insure that lip reading, sign language and other non-verbal gestures will be easily interpreted, lighting must be adequate, and the podium placed so as not to be directly in front of a window or other source of illumination. The bright background and shadows created on the teacher's face will make visual communication almost impossible (Darrow & Schunk, 1996).

Special consideration should be given when placing a D/HH student within the band or orchestra. It is best if the individual can be seated in the center of the first or second row in close proximity to the teacher. Optimal speech reading distance is around 6 feet. If a D/HH instrumentalist must be seated at the end of the row, they should be positioned so that their hearing aid faces the group (Darrow & Schunk, 1996). Furthermore, when a D/HH musician plays an instrument traditionally placed in the back of the ensemble, a hearing student can be assigned to act as an aid (Zinar, 1987).

D/HH instrumentalists are best taught in small, like-instrument groupings (Robbins & Robbins, 1980). In these settings, students should be arranged in a circle or semi-circle so that the D/HH student can see everyone's face (Darrow & Schunk, 1996). Also, because very loud sounds may be painful to some using hearing aids, these devices may need to be turned down when the student participates in group lessons or rehearsals. A qualified audiologist should be consulted as to the optimum use of the hearing aid within the rehearsal setting (Zinar, 1987).

Instructional practices may also need to be modified when working with D/HH musicians. The teacher, when talking, should always face the D/HH student, stand in one place, and speak slowly using a low-pitched voice. Use of an overhead instead of the blackboard will allow the instructor to give written instructions without turning away from the class. When addressing a D/HH child directly, the teacher should get the student's attention first, and maintain good eye contact throughout the exchange (Darrow & Schunk, 1996).

Teachers should not be afraid to use gestures, predetermined signals, or visual aids when communicating with D/HH students, as they are usually accustomed to a variety of communication strategies (e.g. Atterbury, 1990). In addition, lesson plans and objectives should be written on an overhead (Darrow & Schunk, 1996), and individual parts prepared in advance to indicate unfamiliar notes, fingerings, symbols, and counting. Parts may also need to be simplified to compensate for a lack of technical development (Robbins & Robbins, 1980; Zdzinski, 2001).

Some D/HH students will smile and nod to indicate understanding, even when they do not grasp the material (Atterbury, 1990). Therefore, ongoing assessment will be needed to insure progress. In addition to performance, music composition can be utilized to demonstrate pupils' understanding of rhythm and notation. Students' comprehension of phrase contour, dynamic intensity, or pitch awareness can also be determined through hand gestures, body movements (Zinar, 1987), or guided improvisation (Jahns, 2001; Robbins & Robbins, 1980).

## Instrument Selection

Instrument selection will be a key factor in determining the success of D/HH musicians. Zinar (1987) recommended the harp and guitar, the harp because the strings are close to the ear and the guitar because it is held close to the body, allowing vibrations to be felt. Directors may also wish to experiment with the electric bass since it produces a significant amount of vibration and can easily be incorporated into both concert and jazz bands. Other stringed instruments such as the violin and cello should not be considered as the intonation difficulties may be too difficult for D/HH students to master.

Woodwind instruments also present possibilities. Hearing disabled individuals have successfully learned the clarinet and saxophone, both utilizing one note per fingering, good resonance, and a large frequency range (Edwards, 1974; Zinar, 1987). Larger versions of these instruments such as the bass clarinet or tenor sax should also be considered as the lower frequencies they produce may be easier for some to hear (e.g. Robbins & Robbins, 1980).

Brass instruments may not be suitable for students with severe or profound loss because of the pitch discrimination required to discern partials. Still, most brass instruments can be learned by those with slight, mild, or moderate deficiencies (Robbins & Robbins, 1980; Moss Rehabilitation Hospital, 1982). According to Atterbury (1990), D/HH trumpet players can successfully discriminate pitches throughout the overtone series by holding onto the bell and feeling for differences in vibrations. This technique can also be applied to the euphonium and tuba, which might be easier for some, as vibration can be felt by wrapping both arms around the instruments. The slide trombone and French horn should be avoided, however, since these require a great deal of pitch discrimination (Edwards, 1974).

Provided they learn to feel musical pulse through sympathetic vibrations, percussion instruments can also be played by D/HH musicians. The teacher, when introducing this concept, should play steady beats on a low-pitched drum as the student touches the instrument. The child can then attempt to count the beats out loud, or indicate the pulse using the other hand. Once a feeling of pulse is established, the exercise should be repeated as the student attempts to feel vibrations indirectly through the table, stand, or floor where the drum is placed. Finally, the student can attempt to sense vibrations by simply standing near the drum. Severely impaired individuals who are unable to accomplish these goals may find that wrapping both legs around a bongo or conga drum results in better perception of vibrations (Jahns, 2001; Zinar, 1987). For those unable to sense sympathetic vibrations, an instrument should be selected that produces sustaining rather than percussive sounds, since these might be easier to perceive through residual hearing (Darrow, 1989).

Some instruments may be easier for D/HH children to master. Under the right conditions, however, nearly all are audible over most of their ranges to the majority of D/HH students. Considering an “average” profound loss, the motivated child is capable of learning an instrument to at least an intermediate level. Therefore, allowing students to choose the instrument they desire in spite of disability could be an important factor in their success (Robbins & Robbins, 1980).

## Conclusion

D/HH students who choose to participate in the band or orchestra will require a great deal of support from their director, peers, and parents if they are to be successful. Finding role models within the community and from the music world as a whole may serve as inspiration and motivation for the D/HH individual. Evelyn Glennie, perhaps the most active percussion soloist today, is one musician that could serve in this capacity. Although profoundly deaf, Glennie continues to be recognized for her musicianship rather than her disability (Malcangi, n.d.). Recordings and other information are available on her web site (<http://www.evelyn.co.uk>).

Band and orchestra instructors will also require assistance when teaching D/HH students. Parents, special education teachers, and audiologists can all offer insight when modifying curriculum and developing teaching practices to assist these special learners (Zdzinski, 2001). Unfortunately, administrative support for assuring effective mainstreaming accommodations in the music classroom is often low. It therefore becomes the music teacher's responsibility to educate school officials regarding the needs of D/HH students involved in instrumental study (Darrow & Gfeller, 1991).

Including D/HH students in instrumental organizations can be a highly rewarding and valuable experience, not only for children with impaired hearing, but also for the teacher and others in the ensemble. Through modification of the environment and teaching practices, many of these students can achieve at the same level as their hearing counterparts. Their presence will not only increase the potential of the ensemble as a whole, but may also lead to greater understanding between the D/HH community and the hearing population.

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Mr. Hash has taught instrumental music in northern Illinois for the past 14 years. He is also choir director at the Christian Reformed Church of Western Springs, and a published arranger of instrumental music with Grand Mesa Music and Daehn Publications.

Mr. Hash serves as an adjudicator and clinician throughout the Chicago area, and is a

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