Sound Before Symbol Strategies and Beginning Band Performance Skills

Jennifer Ausman, University of Alberta, Canada

Abstract: Beginning instrumental instruction often ignores the common elementary pedagogical practice of teaching by sound before symbol, instead focusing on learning through notation. This paper provides a literature review of peer-reviewed, correlational, and experimental control-group studies, that examine the effects of sound before symbol teaching strategies on the development of beginning instrumentalists' performance skills. Limited research on this question has been conducted; search results generated fourteen peer-reviewed studies and seven dissertations with beginning instrumentalists as participants. Research has found a significant relationship between using the sound before symbol strategies of tonal pattern training by ear, improvisation, echo, rote, and playing by ear, and the development of rhythmic, ear-playing, and sight-reading skills of beginning instrumentalists. Findings suggest that rhythm skills are efficiently developed when instruction includes melodic and rhythmic patterns that are taught by ear, and rhythmic accuracy increases with instruction without notation. Additionally, sight-reading skills have been found to increase as a result of learning tonal patterns by ear. Ear playing skills are also developed when tonal patterns are taught prior to introducing notation. The results of these studies suggest an opportunity for further research and provide guidance for changing curricular resources and pedagogical practices of beginning instrumental teachers.

Keywords: sound before symbol; beginning band; ear-playing skills; sight-reading skills; aural skills; rhythm skills

Introduction

Common pedagogical approaches to childhood music education emphasize sound before symbol strategies through aural, kinesthetic and visual methods (Choksy, 1974; Regner et al., 1982). Sound before symbol teaching methods allow the student to experience the music first, then attach a symbol to the sound. Central to the sound before symbol teaching method is the ability to "think sound" (Choksy, 1974, p. 11), a musical skill similar to audiation, a term developed by Edwin Gordon refers to an auditory image (The Gordon Institute for Musical Learning, 2022) as a key developmental part of learning and performing music. A common sound before symbol strategy is the method of teaching by rote. A standard method in elementary music education, students are played a melody and asked to listen for a specific musical concept, teacher models and students imitate, and symbol representation is then used to reinforce the aural learning (Montgomery, 2002). Additional sound before symbol strategies used in instrumental music instruction include playing-by-ear, improvisation, solmization singing, rhythm and tonal pattern training, and teacher modeling.

While sound before symbol strategies are common pedagogical approaches in elementary education, they are often neglected when teaching beginning instrumentalists. Beginning band method books and traditional instrumental band pedagogy emphasize learning to play through reading staff notation, focusing on the technical skill of associating fingerings with notation rather than the process of learning to play music and associating fingerings with sound (Schleuter, 1997). Instrumentalists become button pushers "to whom notation only indicates what fingers to put down rather than what sounds are desired" (Schleuter, 1997, p. 48). Recognizing that in addition to learning to read notation, beginning instrumentalists are also developing the performance skills of sight-reading, ear-playing, melodic and rhythmic accuracy, I have begun to question if I should develop instrumental competency, aural, and audiation skills before introducing formal notation. Therefore, this literature review will explore the question: are beginning instrumentalists' performance skills enhanced when taught using sound before symbol strategies?

Methods

The search for literature on this topic began with the databases ProQuest Education Database (1988-current), ERIC (1966-current), Education Research Complete, and EBSCO Open Dissertations. Within the 'all text' search field of each database, the following sound before symbol terms were cross searched with each of the performance skill search terms: sound before symbol, audiation in band, singing in band, beginning band, beginning instrumental instruction, play-by-ear, rote learning, solmization singing, sight-reading skills, ear-playing skills, aural skills. The initial search generated a limited number of research studies, and an additional fourteen relevant articles. Backward citation searching of these articles generated additional studies for review. These search methods resulted in finding thirteen peer-reviewed, experimental studies that examined the relationships between sound before symbol teaching strategies and the development of the performance skills of rhythmic and melodic accuracy, ear-playing and, sight-reading in beginning instrumentalists. Seven dissertations were found that examined the relationship between sound before

symbol strategies and performance skills, though relevant to the field of study they were not submitted for peer-review, only one was considered as it had a favourable review from Stanley L. Schleuter, a leading scholar in the field of beginning band instruction.

Sound Before Symbol Relationship to Performance Skills

Rhythm Skills

Strategies to develop rhythm skills in beginning band instrumentalists often include rhythm pattern exercises where students read and count rhythms using numbers to name the beats and subdivisions of the beats. Rhythm is taught in isolation from the melody, however, in multiple experimental control-group studies, rhythm skills have been found to be efficiently developed when teaching methods use the sound before symbol strategy of playing by ear to teach melodic patterns (Azarra, 1993; Baker & Green, 2013; Kendall, 1988; McDonald, 1991). When teaching beginning instrumentalists melodic patterns by rote, before introducing notation, students' rhythmic scores on Gordon's Tonal Imagery Test (1986) were considerably greater than students taught by notation first (Azzara, 1993; Kendall, 1988; McDonald, 1991). Using Edward Gordon's empirical model of learning sequence as an experimental treatment with 27, grade three, recorder students, McDonald (1991) found that the experimental method was a more effective approach in teaching beginning recorder than a traditional note-reading, supporting Gordon's (1985) proposed principles of sound before symbol instruction.

Similarly, Azzara (1993) found that when 10-15 minutes of ear-playing exercises tonal pattern, rhythm pattern, and improvisation were included in instruction, students' scores were higher on etude performance than the control group that was taught exclusively through notation exercises. Additionally, Baker and Green (2013) observed an increase in rhythmic accuracy in the experimental group that was taught playing-by-ear with no notation used, compared to the control group taught exclusively through traditional notation methods. The results were significant, suggesting that through the ear-playing strategy of playing along to music students were not able to adjust their tempo and had to pay closer attention and develop rhythmic accuracy. These findings suggest that beginning instrumentalists should first hear the melodic and rhythmic patterns to develop aural familiarity and then learn verbal association for patterns, before being introduced to notational symbols.

Sight-Reading Skills

The ability to sight-read music is a skill many beginning band teachers try to develop in their students. It is not dependent on instrumental technique and the ability to associate notation with fingering, rather it is developed through aural skills and the ability to internally hear the music as seen on the page (Gordon, 1997). A strong relationship has been found between students' ability to play by ear and their ability to sight-read (Azzara, 1993; Bernhard, 2004; Luce, 1965; McPherson, 1995). Comparing the ear-playing skills to sight-reading skills in 101 high school clarinet and trumpet students at upper-beginning/lower-intermediate development levels, McPherson (1995) found a significant positive correlation between student's abilities to sight-read music, improvise and to play by ear. These results support earlier findings in a similar correlational study of the relationship between high school instrumental students' performance of sight-reading music and playing by ear (Luce, 1965) and Gordon's (1997) Musical Learning Theory of audiation. Playing by ear supports students' ability to learn to hear music internally, contributing to the development of sight-reading skills.

Playing by ear has also been found to increase sight-reading skills when using the sound before symbol strategy of learning tonal patterns by ear (Azzara, 1993; Grutzmacher, 1987; MacKnight, 1975; Musco, 2009). When investigating the effects of learning melodies by ear on sight-reading skills with twenty-eight intermediate-level instrumentalists, Musco (2009) found that after 12 twenty-minute lessons over a four-week treatment period, students who were taught tonal patterns by rote significantly improved their skills in playing by ear and sight-reading, while the control group only improved sight-reading skills. These findings suggest that learning tonal pattern melodies by ear can be as successful a method as traditional instruction. Similarly, Azzara (1993) found that after using 10-15 minutes of tonal pattern training with improvisation activities for 27 weeks, students who were instructed with this aural method scored significantly higher on post-test sight-reading etudes than the control group.

Additionally, when notation is introduced after learning tonal patterns or melodic phrases by ear there is a significant increase in sight-reading skills (Grutzmacher, 1987; Kendall, 1988; MacKnight, 1975). In experimental

control-group studies using the teaching sequence of introducing tonal patterns with solfa vocalization, transferring patterns to instruments, and then introducing notation, there was a significant difference in post-test melodic sight-reading achievement scores in the experimental group, scoring significantly higher than the control group taught from singing notation letter names (Grutzmacher, 1987; MacKnight, 1975). In a similar control-group study of 76, grade five, beginning band instrumentalists, Kendall (1988) found that introducing melodic and rhythmic association vocally before notation had a significant impact on the development of beginning instrumentalists' melodic and rhythmic sight-reading skills. The results of these studies suggest melodic training of tonal patterns using aural-visual approaches is an effective strategy for teaching beginning instrumentalists, perhaps more so than traditional methods where notes are taught directly from notation.

Not all control-group studies investigating the association of sound before symbol strategies on sight-reading skills found significant results to suggest that aural strategies alone can increase these abilities. When investigating if singing and solmization develop greater achievement in music reading skills with 92, grade five, beginning band instrumentalists, Dunlap (1989) did not find a significant difference between the control group and the experimental group means on the sight-reading post-test achievement tests. The lack of significant difference in the groups may be attributed to both groups using the same method book, which included the words and tonal syllables, and so there was no control for isolating singing in the instruction as some students may have sung the patterns on their own. Similarly, when investigating the impact of the sound before symbol strategy of aural modeling and imitation versus note reading with 24, grade four, beginning instrumentalists, Haston (2010) found that although the experimental group scored higher on the sight-reading post-test, there was no statistically significant difference between the groups. While Bernhard (2004) found a significant impact to using tonal training to improve beginning instrumentalists' melodic ear-playing achievement, there was not a significant difference between the control group and experimental group when measuring post-test scores for sight-reading achievement. The results of these studies do not support the findings of Grutzmacher (1987), and MacKnight (1975), however, this may be attributed to the different teaching strategies used in the control group, the type of post-tests used, and the reduced length of time of these control-group experiments.

Ear-playing Skills

Introducing melodies and tonal patterns by ear through the rote method, prior to introducing notation, also helps beginning instrumentalists develop their ear-playing skills (Baker & Green, 2013; Bernhard, 2004, 2006). In an experimental control-group study of twenty-eight, grade 1-5, beginning instrumentalists instructed using ear-playing strategies from the Ear Playing Project (EPP) group, versus instructed with notation, Baker and Green (2013) found a significant increase in instrumental students' ear-playing abilities when taught using the EPP pedagogical strategies. Similarly, when using tonal training with standard method book melodies, students' significantly increase their ear-playing achievement (Bernhard, 2004, 2006). These studies further support the use of sound before symbol strategies in a comprehensive music instruction, as visual notation alone does not improve aural abilities.

Study Limitations

In these reviewed experimental group studies of the relationship between sound before symbol strategies and performance skills in beginning instrumentalists, the findings and generalizations can only be applied to the groups studied. While there was a significant relationship found between sight-reading abilities, ear-playing skills, and sight-reading skills in studies longer in duration than twenty-seven weeks (Azzara 1993; MacKnight, 1975), when the treatment time was shorter than sixteen weeks the findings suggested a positive relationship but not all were statistically significant (Baker & Green, 2013; Bernhard, 2004; Dunlap, 1989; Grutzmacher, 1987; Haston, 2010; Kendall, 1988; McDonald, 1991).

Additionally, most sample sizes were relatively small, with up to two control and experimental groups each, and limited to participants selected from one class (McDonald, 1991; Musco, 2009) or one school (Bernhard, 2004; Grutzmacher, 1987; Luce, 1965). Considering the number of significant relationships found between sound before symbol strategies and increased achievement in performance skills, further replication with larger sample sizes and longer duration between pre-test and post-test is recommended.

Another limitation to the results of the control group studies was the variety of instruments included in the research, as each has its own technical requirements. Baker and Green (2013) were the only study reviewed that included piano

in addition to wind instruments and questioned if the variety of instruments influenced the findings. However, in the post-test analysis of sight-reading abilities MacKnight (1975) found no significant difference in results between woodwind and brass, suggesting that the technical aspects of the instrument were not a significant factor in the results. Further research with individual instruments, or analysis between the results across instrument types is recommended.

Implications

Incorporating ear-playing strategies in a comprehensive approach to beginning band instruction is found to have a significant impact on developing the performance skills in beginning instrumentalists and does not impede their ability to read notation. Based on these findings, beginner band method books should focus less on immediately reading notation and instead include instructions for teachers on how to include tonal pattern and melodic pattern exercises for students to learn first by ear and then with the notation.

Grutzmacher (1987) suggests that teachers need to understand that tonal concept development is essential in the training of young instrumentalists. Considering the research that suggests tonal pattern training has a significant impact on developing rhythmic, ear-playing and sight-reading skills (Azzara, 1993; Baker & Green, 2013; Bernhard 2004, 2006; Grutzmacher 1987; MacKnight, 1975; Musco, 2009), teachers should be encouraged to emphasize tonal development exercises in their beginning band curriculum.

Additionally, there should be a pedagogical change in university beginning band teacher programs. Students in these programs are taught to use the traditional method of teaching beginning instrumentalists, with a focus on reading notation from day one. Instead, the sound before symbol strategies of rote learning that are taught in early childhood music pedagogy should be included in beginning band teacher programs.

Further research should be undertaken with a greater sample of beginning instrumentalists, and there is an opportunity to study the long-term results of these teaching methods. Research could also include replication of these studies by isolating one of the variables to type of instrument, conducting the study over a longer period, or with adult beginning instrumentalists as these studies were limited to elementary and secondary students.

Conclusion

Considering the significant relationships found between sound before symbol strategies and the development of beginning instrumentalists sight-reading abilities and aural, rhythmic, and melodic performance skills, beginning band teachers should be encouraged to include the teaching strategies of playing by ear and tonal pattern training before introducing notation. When including these strategies, students are more likely to develop the skill of audiation, internally hearing the music. By learning to associate a pitch with fingering, instead of a note on the page, beginning band instrumentalists will no longer become “button pushers” and will instead increase their musical performance abilities.

REFERENCES

Azzara, C. D. (1993). Audiation-based improvisation techniques and elementary instrumental students' music achievement. *Journal of Research in Music Education, 41*(4), 328–342. https://doi.org/10.2307/3345508

Baker, D., & Green, L. (2013). Ear-playing and aural development in the instrumental lesson: Results from a "case-control" experiment. *Research Studies in Music Education, 35*(2), 141-159. https://doi.org/10.1177/1321103X13508254

Bernhard, H. (2004). The effects of tonal training on the melodic ear playing and sight reading achievement of beginning wind instrumentalists. *Contributions to Music Education, 31*(1), 91–107. https://www.jstor.org/stable/24133280

Bernhard, H. (2006). The long-term effect of tonal training on the melodic ear playing achievement of beginning wind instrumentalists. *Journal of Band Research, 42*(1), 70–79.

Choksy, L. (1974). *The Kodaly method: Comprehensive music education from infant to adult*. Prentice-Hall.

Dunlap, M.P. (1989). *The effects of singing and solmization training on the musical achievement of beginning fifth-grade instrumental students* (Publication No. 9013890). [Doctoral dissertation, University of Michigan]. ProQuest Dissertations Publishing.

Gordon, E. (1985). Research studies in audiation: I. *Bulletin of the Council for Research in Music Education, 84*, 34–50. http://www.jstor.org/stable/40375310

Gordon, E (1986). *Primary measures of music audiation - complete kit: K-Grade 3.* GIA Publications.

Gordon, E. (1997). *Learning sequences in music: Skill, content, and patterns: A music learning theory*. GIA Publications.

Grutzmacher, P. A. (1987). The effect of tonal pattern training on the aural perception, reading recognition, and melodic sight-reading achievement of first-year instrumental music students. *Journal of Research in Music Education, 35*(3), 171–181. https://doi.org/10.2307/3344959

Haston, W. (2010). Beginning wind instrument instruction: A comparison of aural and visual approaches. *Contributions to Music Education, 37*(2), 9–28. https://www.jstor.org/stable/24127224

Kendall, M. J. (1988). Two instructional approaches to the development of aural and instrumental performance skills. *Journal of Research in Music Education, 36*(4), 205–219. https://doi.org/10.2307/3344874

Luce, J. R. (1965). Sight-reading and ear-playing abilities as related to instrumental music students. *Journal of Research in Music Education, 13*(2), 101–109. https://doi.org/10.2307/3344447

MacKnight, C. B. (1975). Music reading ability of beginning wind instrumentalists after melodic instruction. *Journal of Research in Music Education, 23*(1), 23–34. https://doi.org/10.2307/3345200

McDonald, J. (1991). The application of Gordon's empirical model of learning sequence to teaching the recorder. *Quarterly Journal of Music Teaching and Learning, 2*(1-2), 110-117.

McPherson, G. E. (1995). Five aspects of musical performance and their correlates. *Bulletin of the Council for Research in Music Education, 127*, 115–121. http://www.jstor.org/stable/40318774

Montgomery, A. P. (2002). *Teaching towards musical understanding: A handbook for the elementary grades*. Prentice Hall.

Musco, A. M. (2009). Effects of learning melodies by ear on performance skills and student attitudes. *Contributions to Music Education, 36*(2), 79–95. https://www.jstor.org/stable/24127180

Regner, H., Keetman, G., & Orff, C. (1982). *Music for children: Orff-Schulwerk American edition volume I, pre-school, based on Carl Orff, Gunild Keetman: Musik fur Kinder* (Rev. ed.). Schott.

Schleuter, S. L. (1984). *A sound approach to teaching instrumentalists: An application of content and learning sequences*. Kent State University Press.

The Gordon Institute for Musical Learning (2022, February 24). *Audiation.* https://giml.org/mlt/audiation/

ABOUT THE AUTHOR

Jennifer Ausman is an elementary music and beginning band teacher. She has completed her levels training in Orff-Schulwerk and has recently completed her M.Ed. in Curriculum and Pedagogy at the University Alberta.