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The Development of a Hierarchy of Basic Rhythmic Bowing Skills for String Sight-Reading

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Background

Many consider the ability to sight-read to be an indispensable skill that must be included in the preparation of musicians (Lehmann & McArthur, 2002). Skilled sight-readers typically perceive patterns of rhythms and pitches instead of individual notes (Gromko, 2004) and usually perceive more of this information, and at a faster rate, than less successful sight-readers (Smith, 1989). Poor sight-readers tend to focus on single notes and rests, not patterns (Goolsby, 1994). While overall success in sight-reading may imply mastery of many individual component skills, it may also involve an interaction between them (Henry, 2011). In string sight-reading, the performance of pitch and rhythm patterns may be further complicated by the bowing patterns (separate, slurred, linked/hooked) required for their performance (Alexander & Henry, 2015).

Previous researchers have recommended teaching or assessing sight-reading through the use of tonal or rhythmic patterns (Delzell, Rohwer, & Ballard, 1999; Fine, Berry, & Rosner, 2006; Gordon, 1997; Gromko, 2004; Grutzmacher, 1987; Henry, 2001; MacKnight, 1975). Edwin Gordon's research into audiation promoted teaching melodic sight-reading supported by functional harmony (Gordon, 1997). Imbedding patterns into a melodic context has been shown to be useful as an authentic assessment of successful sight-reading (Alexander & Henry, 2012, 2014, 2015; Boyle & Lucas, 1990; Henry, 2001, 2003, 2009, 2011; Killian, 1991).

Alexander and Henry (2012) developed a sight-reading pitch skill hierarchy for string players through a replication of Henry's (2001) study of vocalists. High school string students obtained a mean success rate of 27.28 out of 31 (88%) on a modified version of the VSRI (Vocal Sight-Reading Inventory), in which melodic material appeared in the keys of D, Eb, and E. Success rates ranging from .99 to .72 were established for 31 pitch skills, grouped into eight tonal categories. Significant differences were found between the 11 skills that appeared both in the key of D and E major. A .95 correlation between note-by-note and skill-based scoring systems estimated skill-based scoring to be a valid measurement of string player's sight-reading of tonal pitch skills within a melodic context.

In a replication of Henry's (2009) study, Alexander and Henry (2014) sought to identify a rhythm skill hierarchy for string sight-reading by incorporating Henry's previously-identified 26 rhythm skills and embedding them into four 8-measure melodies. The melodies appeared in three different keys (D, E, and Eb Major) with occasional designated bowings. Several skills were presented in versions starting both down bow and up bow. High school string players obtained a mean score of 19. 10 out of 26 (or 73%), with success rates ranging from .94 to .20 for individual skills. Significant differences were found between skills appearing in D and Eb but no significant differences were found between skills started both down bow and up bow.

With hierarchies of pitch skills and rhythm skills established for string sight-reading, Alexander and Henry (2015) sought to determine the interaction of those two factors on string sight-reading performance. Nine pitch skills and nine rhythm skills, determined as representative of easy, medium, or hard (Alexander & Henry, 2012, 2014) were embedded into three 8-measure melodies. High school string students achieved a mean success rate of 14.01 out of 18 (78%) for the nine pitch tasks combined with the nine rhythm tasks. The mean score for pitch alone was 7.86 out of a possible score of nine. The mean score for rhythm was 6.14 out of a possible score of 9. These results mirrored the overall results for the 792 questions (9 each for 88 participants), indicating that participants had substantially greater achievement for pitch tasks than rhythm tasks, regardless of the difficulty levels of either. In their recommendations for future research, Alexander and Henry (2014, 2015) directed researchers to further examine the effects of bowing skills on sight-reading accuracy.

While much has been written in the pedagogical literature regarding the teaching of bowing styles (separate, slurred, linked / hooked, legato, staccato, loure', spiccato, etc.), with recommendations for specific bowings and principles to be taught at various levels of instruction

(Green, 1990, 1999; Hamann & Gillespie, 2009; Witt, Angeles, Kempter, & Kjelland, 1991), these recommendations appear to be based on either personal preference, tradition, or common practice, not empirical research. According to Cooper and Hamann (2010), pedagogues are in disagreement as to the sequential order in which to present bowing styles. They cited the examples of Paul Rolland (1974), who considered detaché as the fundamental bow stroke, versus Ivan Galamian (1985), who endorsed martelé. The introduction or sequence of teaching specific rhythm patterns has also been a point of debate. While many modern string method books begin with quarter note patterns, noted pedagogue Shinichi Suzuki begins his study of *Twinkle Variations* with a pattern consisting of four eighth-notes plus two quarter-notes (Starr, 2000).

While previous research on string sight-reading has identified difficulty levels for pitch and rhythm skills both individually and in combination (Alexander & Henry, 2012, 2014, 2015), a search of the research literature did not produce any additional studies that addressed the relative difficulty levels of basic bowing skills (separate, slurred, linked, and hooked) performed in various rudimentary rhythm patterns. For the purpose of this article, the combination of these two elements will be referred to as *rhythmic bowing skills*. Research questions included:

- 1. How do basic rhythmic bowing skills affect sight-reading accuracy?
- 2. What is the success rate of each rhythmic bowing skill performed during sight-reading?
- 3. Does instrument type, grade level, gender, or private lesson participation affect rhythmic bowing skill accuracy?

Method

Eighteen rhythmic bowing skills were selected from extant first- and second-year string method books that used separate, slurred, linked, and hooked bowings to perform rhythm patterns containing eighth notes, quarter notes, and dotted-quarter notes. The bowing skills were divided into categories by rhythm pattern and bowing style (see Figure 1).



^aSuccess rates for each skill, pattern or style are shown as percentages.

Figure 1. Success rates for 36 rhythmic bowing skills (bowing style by rhythm pattern)^a

The skills were then distributed across four step-wise, eight-measure melodies in which each skill occurred in versions starting both down bow and up bow. Effort was made to make each melody of similar difficulty by dispersing the different categories of skills as evenly as possible



among the melodies (See Figure 2).

Figure 2. Sight-reading score sheet for rhythmic bowing skills.

High school string players (N = 68) from a high school summer camp held at a university in Texas, participated in the study. Each participant was randomly assigned to one of two testing rooms where they performed all four melodies, thereby attempting all 18 rhythmic bowing patterns, in both down bow and up bow versions, during the sight-reading assessment. The order of the melodies was rotated with each new participant within each room to offset any effect of the sequence of presentation. Prior to entering the testing room, participants completed a survey requesting demographic information that included: grade level, instrument, gender, years playing their instrument, years of private study on their instrument, and years of piano study.

Testing procedures were modeled after those used in previous studies (Alexander & Henry, 2012, 2014, 2015), which were originally adopted from the Texas All-State vocal audition process. After instructions were read, each participant was given 30 seconds to study and practice each melody silently in the manner of their choice. At the conclusion of each study period, the participant then performed each melody.

Scoring occurred in real time by the test administrators, using scoring procedures outlined in the VSRI (Henry, 2001). One point was awarded for correct performance of each of the target skills. Approximately 35% of the trials were scored by both scorers, resulting in .95 reliability between scorers, using the agreements / agreements + disagreements formula (Madsen & Madsen, 1998).

Results

A total of 68 high school string players participated in the study from the following grade levels: 9th (n = 5), 10th (n = 24), 11th (n = 20), and 12th (n = 19). Participation by instrument type was: violin (n = 31), viola (n = 20), cello (n = 8), bass (n = 9). Females (n = 39) and males (n = 29) comprised the total number of participants by gender. Participants were also identified as having piano experience (n = 39) or not (n = 29) and by years of private lesson experience on their instrument. Each participant performed four melodies, achieving a mean score of 33.07 out of 36 (92%) on 18 rhythmic bowing skills starting in both up bow and down bow versions (a = down, b = up). The mean scores for the five categories of rhythm patterns, the three categories of bowing styles, and each of the individual rhythmic bowing skills, can be found in Figure 1.

Success levels were established for each of the individual rhythmic bowing skills that provided a rank order of skill difficulty (See Table 1). An arbitrary division of the rank order into three categories of success (80-89%, 90-94%, and 95-100%) did not reveal any consistent qualities (by rhythm or bowing) between the individual skills in each category.

1a	100%	<mark>8</mark> a	94.10%	% 3a	
4a	100%	11b	94.10%	5b	87.00%
4b	100%	3b	94.00%	1b	88.00%
5a	99.00%	7b	93.00%	14b	86.80%
6b	99.00%	<mark>8</mark> b	92.60%	14a	85.30%
2a	97.10%	12b	91.20%	16b	85.30%
10a	97.10%	13a	91.20%	13b	85.00%
18a	97.00%	7a	91.00%	12a	83.80%
6a	96.00%	15b	90.00%	9a	80.00%
11a	96.00%	16a	90.00%	9b	80.00%
2b	95.60%	17a	90.00%	15a	80.00%
10b	95.60%	17b	90.00%		
18b	95.00%				

Table 1. Success Rates for 36 Rhythmic Bowings Skills in Rank Order.

Analysis of Variance (ANOVA) was used to test for any effects of selected demographic variables on sight-reading success. Alpha was set at .05 for all tests. No significant effects were found on the variables of instrument type, grade level, gender, or piano experience on overall sight-reading success. To determine any differences in sight-reading accuracy for those with and without private lessons on their instrument, participants were identified as belonging to one of three categories as established by Alexander & Henry (2015): private lessons for 0-3 years (n = 25), 4-6 years (n = 29), or seven years or more (n = 14). There was a significant effect of private lessons on the sightreading task for the three conditions [F(2, 65) = 4.12, p = 0.021]. Post hoc comparisons were made using the Tukey HSD test. The mean score for 0-3 years of private lessons (M = 31.00, SD = 7.04) was significantly different than 4-6 years of private lessons (M = 34.55, SD = 2.02) but not so for seven or more years (M = 33.71, SD = 2.58).

Discussion

Reading music at sight involves the simultaneous execution of numerous skills. While the successful performance of a rhythmic bowing skill may indicate complete mastery of the holistic skill, partial success may still reflect mastery of some sub-tasks (rhythmic pattern or bowing style). Based on the preliminary findings regarding bow direction by Alexander and Henry (2014), and their recommendations for further research (2014, 2015), the current study sought to create a hierarchy of rhythmic bowing skills and study possible effects of those skills on sight-reading accuracy. The results of this study indicated that high school string players, motivated to attend a summer orchestra camp, achieved a high overall success rate (92%) while performing selected basic rhythmic bowing skills. This may indicate that the skills assessed have already been mastered by many string players at the high school level. Future research should utilize less-experienced participants to discover at what age these concepts are learned.

A hierarchy of difficulty for basic rhythmic bowing skills resulted from this study (See Table 1). Such a hierarchy may inform those developing new pedagogical material or in the creation of new sight-reading assessments. Replication of this study with additional or less-experienced participants may provide for greater delineation between the various rhythmic bowing skills.

The individual rhythmic bowing skills were grouped into the categories of rhythm patterns, bowing styles, and starting bow direction (See Figure 1). By examining the effects of rhythm patterns on total score, separate quarter-note patterns appear to be easier to perform than dotted-quarter-note + eighth-note patterns. Replication of this study with additional or lessexperienced participants may further clarify effects by rhythm patterns and allow for a greater dispersion of scores across the other variables.

When examining the accuracy of those participants with and without piano experience or private instruction, the results of this study are in contrast to those of previous investigations (Alexander & Henry 2012, 2014, 2015; Demorest, 1998; Demorest & May, 1995; Henry & Demorest, 1994; Killian & Henry, 2005; Tucker, 1969). The current study found that those participants with piano experience did not score significantly higher than those without piano experience. This finding (as well as the overall high rate of success) may be the result of assessing skills already mastered by many high school string players in the sample. In regard to the effect of private lessons on overall score, it is understandable that those participants with o-3 years of private lessons scored significantly worse than those with 4-6 years of lessons but unexplainable why they did not also score significantly worse than their counterparts with seven or more years of lessons. The small cell size (n = 14) of those with seven or more years' experience may explain this anomaly. The effects of private lesson instruction and piano experience may be further explained or clarified through replication of this study with a larger or less-experienced sample.

The establishment of a hierarchy of rhythmic bowing skills allows researchers and instructors a tool to better identify and specify the overall difficulty of any given sight-reading example. Knowing that the skills assessed in the current study were performed at a high level by high school string players should confirm that these are basic skills that should be introduced at younger levels. This information should prove helpful in the future for authors, researchers and teachers developing sequential sight-reading materials and to those attempting to stipulate difficulty levels for research studies, auditions, and daily sequential instruction, as well as those desiring to increase their students' overall sight-reading skill. Future research should explore the effects of expressive markings on string sight-reading performance.

Keywords

sight-reading, string players, rhythmic skills, string bowing

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The Effect of Writing Solfège Syllables into Choral Repertoire on the Sight-Reading Ability of High School Choir Students

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Background

Sight-reading is widely considered one of the most important parts of a choral music education and plays an important role in developing independent music learners (Collins, 1993) and a good indicator of music achievement (Hayward & Gromko, 2009). It has also been said that better sight-readers tend to be better performers (Lehman & McArthur, 2002). Additionally, sight-reading is one of the core skills mentioned in the National Association for Music Education's Core Music Standards (NAFME, 2015). In many states, sight-reading is a required portion of choral contest participation and all-state choir auditions. A variety of opinions exist, however, as to the best method of teaching sight-reading in the choral classroom.

An array of systems are being used in the United States to develop sight-reading skills (McClung, 2001). The most commonly used melodic pitch systems include interval names, letter names, fixed-do, scale-degree numbers, and moveable-do. Most research regarding the best teaching method has been found to be inconclusive; however, Demorest and May (1995) found that singers using moveable-do solfège achieved significantly higher scores in sight-reading than those using fixed-do syllables.

Many educators have long believed that a focus on targeted pitch instruction will improve sight-reading skills. Henry (2004) found a significant increase in sight-reading ability after a 12week period of targeted pitch instruction. Studies have also been conducted on the use of harmonic accompaniment with vocal sight-reading. Boyle and Lucas (1990) found sight-reading scores were significantly higher when the sight-reading performance included a harmonic accompaniment.

Does the rhythmic difficulty of literature affect the quality of one's sight-reading ability? Educators have experimented with removing rhythm from sight-reading exercises to improve pitch accuracy. Henry (2011) found that pitch accuracy of a passage that was sight-read was not affected by the presence of rhythm tasks, even when the tasks were of varying levels of difficulty.

According to Henry (2001), teachers lack time and resources for regular sight-reading assessment. Daniels (1986) found sight-reading ability was not directly related to curriculum and had more to do with attitude of the choir director toward the skill. If the director found sight-reading important, then the students sight-read at higher levels. This correlates with Demorest's (1998) study that found individual testing to be a useful technique in aiding sight-reading skills.

Studies in neuroscience have led us to an understanding that music experiences are processed in several areas of the brain (Hayward & Gromko, 2009). Research has also been conducted on visual, spatial, and kinesthetic learning tools when teaching sight-reading. Hutton (1953) said the use of visual materials simplifies the learning process and diminishes the effort required to understand abstractions. When using Kodály-inspired instruction, solfège syllables are often printed spatially on unlined paper or within note heads on staff paper.

The use of moveable syllables, reinforced kinesthetically with hand signs, is another commonly researched method. Killian and Henry (2005) found that students performed with higher accuracy while sight-reading individually when using hand signs. Cassidy (1993) and McClung (2008) found the opposite result; the effects of using Curwen hand signs showed no significant difference. The use of shape-note notation was another tool found to be useful in music reading (Kyme, 1960). In contrast, Martin (1991) found placing the note heads or letter representations of syllables at varying heights on cards did not improve student sight-reading performance.

Hutton (1953) completed a comparative study of the use of audio-visual materials in sightreading instruction. She found the students who learned with the aid of flash cards, musical games, and slides scored significantly higher than the students who received no visual aids during instruction.

Rogers (1991) tested the use of color-coded notation on 5th and 6th grade beginning

instrumental players' sight-reading ability. The results showed no clear advantage for the experimental group who had been taught to read with the color-coded notation over the control group that was instructed with normal un-colored notation. However, the students in the experimental group seemed to be dependent on the color-coded notation, scoring the lowest scores when reading regular black and white notation. Rogers (1996) found instruction involving the addition of color to standard rhythmic notation positively affected the performance of students on the tasks of vocalizing and clapping rhythms at sight.

Research conducted in music education has shown that sight-reading is improved through teaching approaches that integrate auditory, visual, and kinesthetic processing (Hayward & Gromko, 2009). A tool many choral directors use is writing solfège syllables into the music score. Many choral music educators believe the action of writing is used to reinforce the ability to pair each note to its solfège syllable. It is also common to have the students write the solfège syllables next to the note to try to reinforce the spatial positioning of the notes on the staff. This practice attempts to combine auditory, visual, and kinesthetic skills.

The purpose of this study was to determine the effectiveness of writing solfège syllables into music. Research questions were as follows: (1) Is the combination of auditory, visual, and kinesthetic skills (writing solfège) improving sight-reading ability or are singers becoming dependent on reading the written syllable? (2) Is audiation, an aural technique, a better choice for high school choir students? (3) Do the number of years in choir or the gender of the participant affect results?

Method

Two sight-reading melodies were created based on exercises from "Week 13" in McGill and Stevens' *90 Days to Sight Reading Success* (2003). Each melody was in the key of F-major and was four measures in length. Effort was made to make each melody of similar difficulty by using the same number of rhythmic changes and the same interval leaps (see Figure 1). A pilot study was completed to determine the appropriate difficulty level for the melodies.



Figure 1. Pre-test and post-test melodies.

Students (N = 98) in a choral program from a 4A high school in central Texas participated in the study. Each participant was given a written survey inquiring about instrumental background, gender, participation in private voice lessons, and number of years in choir. They were then randomly assigned to two different study groups. An independent t-test using pre-test results revealed no significant difference between the groups, t(96) = .75, p < .05.

Participants were given a pre-test to determine their sight-reading level before the experiment began. The students were randomly assigned to sight-read Melody A or Melody B. Half of the participants in each group did the pre-test with Melody A and the other half with Melody B. The students were allowed 30 seconds to chant through the melody. At the end of the chant period, the tonic triad was played and the participant was instructed to sing the melody. Each pre-test was recorded and scored from the recording. Participants received a point for every correctly sung pitch with a maximum score of 16. An independent listener analyzed 25% of the recordings randomly selected from each group on pre-test and post-test trials. Reliability, calculated using Pearson's r, was 99%.

After pre-tests were completed, both groups were taught a five-minute sight-reading lesson three days a week for six weeks. Each lesson contained a melody from the *90 Days to Sight Reading Success* book starting in "Week 8" and progressed each week until the sixth and final week of the study correlated with "Week 13" in the book.

Group A (n = 49) was given a new melody for each lesson and given one minute to write

solfège syllables on their paper. Half of the group wrote syllables next to the note head and the other half wrote syllables under the staff. The participants then chanted through the melody twice before tonicizing the key and singing the melody twice.

Group B (n = 49) was given a new melody for each lesson (the same melody as group A) and was asked to chant through it twice on solfège syllables. The tonic triad was then played and they were given one minute to audiate the melody individually. During audiation, participants were instructed to hear the melody in their head while mouthing solfège syllables and using Curwen hand-signs. At the end of the minute, the tonic triad was given a second time and the melody was sung twice.

At the end of the six weeks of instruction every participant was given a post-test. The melodies used for the pre-test were re-used and participants were tested on the opposite melody from their original test. If a participant did the pre-test with Melody A then the post test was completed with Melody B. The students were allowed 30 seconds to chant through the melody. At the end of the chant period, the tonic triad was played and the participant was instructed to sing the melody. Each test was recorded and scored from the recording. Each participant received a point for each correctly sung pitch with a maximum score of 16.

Results

Matched-pairs t-tests were used to compare pre-test and post-test scores among the study groups. Comparison of the pre-test and post-test scores for all study participants revealed a significant difference, t(97) = 8.37, p < .001. Comparison of the pre-test and post-test scores for Group A (written) revealed a significant difference, t(48) = 5.15, p < .001. Comparison of the pre-test and post-test scores for Group B (audiation) revealed a significant difference, t(48) = 6.7, p < .001. (See Table 1 for means and standard deviations by group.) Both groups showed improvement.

	Group A (Written)	Group B (Audiation)	
Pre-test Mean Score	6.69	5.96	
(Standard Deviation)	(5.13)	(5.25)	
Post-Test Mean Score	10.14	10.41	
(Standard Deviation)	(5.19)	(5.04)	

Table 1. Means and standard deviations of pre-test and post-test scores.

An independent t-test was run to compare the difference scores between Groups A and B. This test revealed no significant difference, t(96) = 1.06, p = .292, between the groups (see Figure 2).



Figure 2. Comparison of mean pre-test and post-test scores.

One-way analyses of variance (ANOVAs) were used to compare post-test scores between genders. There was no significant difference between scores of males and females [F(1, 96) = .53, p = .468].

One-way ANOVAs were used to compare post-test scores to the number of years the participants had been in choir. The test revealed a significant difference in the scores [F(2, 95) =

7.28, p < .05]. A post hoc Tukey-Kramer Test found the significance lay between those with less than three and those with more than six years of choir experience, p < .05 (see Figure 3).



Figure 3. Mean post-test scores grouped by number of years of participation in choir.

Discussion

The first two questions in this study were, "Will the combination of auditory, visual, and kinesthetic skills improve sight-reading ability or will it cause singers to become dependent on reading the written syllable?" and, "Is audiation a better choice for high school choir students?" After comparison, both study groups made significant improvement from pre-test to post-test. Upon studying the difference in score results, neither group had a more dramatic change in score from pre-test to post-test. This shows the act of practicing sight-reading in class, using either method, will help students improve the skill. However, this does not correlate with Killian and Henry's research (2005) that showed daily rehearsal as not significant to individual sight-reading test results.

Gender made no significant difference in scores. On the contrary, the scores comparing the

number of years in choir were significantly different. Participants with more than six years in choir scored significantly higher on the post-test than those with less than three years experience. These results are interesting because Killian and Henry (2005) found that less experienced singers were not necessarily in the low-performing group.

In study Group A, half the participants were instructed to write the solfège syllable under the staff and the other half next to the note. Since my sample sizes were small, I did not make this a research question. However, it is worth noting that the group that wrote next to the note head performed better on the post-test than the participants that wrote under the staff. Even though both groups were able to look at the written syllable, research seemed to indicate the act of writing next to the note and reading next to the note was more valuable than just looking under the staff. Future research efforts should be conducted to continue to explore this relationship.

The results of this study are potentially highly applicable in the choral classroom. If students are writing solfège on the score or just audiating pitches in their head, the use of either of these sight-reading methods could improve sight-reading ability.

Keywords

sight-reading, singing, audiation, solfège, choir

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The Role of Program Notes in Nonmusicians' Enjoyment of Choral Music

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Background

Performing musicians have a vested interest in understanding factors that can influence concertgoers' enjoyment of live music, particularly when those in attendance have no extensive music training, no developed preference for the genre of music being performed, and are listening to music that is unfamiliar. The more information musicians have about factors that may increase listening enjoyment for nonmusicians, the better able they may be to deliberately enhance the concert experience.

Psychologists and musicians have long studied variables that affect listeners' responses to unfamiliar music and have described both musical and extra-musical factors that contribute to enjoyment. Regarding repertoire, we know that compositional elements of music typically affect listeners' enjoyment (for a review, see Teo, 2003). Listeners tend to like melodies that follow scalar patterns, are predictable, and employ repetition that generates a measure of familiarity in the moment. Open and consonant harmonies (e.g., 4ths, 5ths, and octaves) are enjoyed more than dissonant ones (e.g., 2nds, 6ths, and 7ths), and listeners tend to like upbeat music that maintains tempo and incorporates steady rhythms. Taken together, Teo's data suggest that listeners tend to like relatively simple music more than complex combinations of compositional elements. Teo's review also states that the typical listener prefers instrumental over vocal music (with the exception of popular songs). Although this review did not address the influence of song lyrics or the text of classical choral pieces on listeners' responses, the idea that lyrics and text may play a role in the enjoyment of these genres of music is worthy of investigation.

In fact, Fine and Ginsborg (2014) surveyed musicians and amateurs who were avid choral

music listeners as to their perceptions of sung text intelligibility, albeit in a method that did not include active music listening. Their analysis emphasized the importance that people place on their ability to understand sung text, which is an unsurprising finding that certainly has implications for audiences' enjoyment of vocal and choral performances. And, of course, in a live concert setting, audiences hear programmed music a single time, which may not always allow listeners to fully process the sung text in the moment.

Extra-musical variables that influence the extent to which listeners enjoy unfamiliar music are more individual in nature. Some of these individual variables develop over substantial periods of time and through experience, such as regular music listening habits, preferences for specific genres of music, and personal background (Hunter, Schellenberg, & Stalinski, 2011; Thompson, 2007), whereas other variables develop situationally (e.g., a moment in time, a particular setting). Thompson specifically identified 22 variables that concertgoers perceived as affecting their enjoyment of a live classical music performance, separating the data into pre- and during-performance categories. Immediately prior to the concert, audience members reported that their enjoyment of the live event would likely be influenced by their current mood, the extent to which they were looking forward to the performance, whether or not they had previously enjoyed the genre of music on the program, and preconceived notions they held about the artist or ensemble performing. When participants were surveyed again at the conclusion of the concert, they reported that the length of the concert, distractions experienced during the performance, and compositional aspects of the pieces on the program had influenced their enjoyment during the performance.

Many attendees of live classical music concerts are experiencing programmed music for the first time and some are unfamiliar with the performance genre itself, particularly if their backgrounds do not include formal music training. Because listeners are less likely to enjoy music they are hearing for the first time (Hargreaves, 1984), it could be beneficial for performing musicians to maximize all other factors within their control that may enhance their audience's experience. By programming effectively and providing supplementary information about the pieces being performed in program notes, they may facilitate more positive responses from the audience.

Although program notes are commonly included in concert programs created for formal music performances, relatively few studies have examined whether providing listeners with these detailed notes affects their enjoyment of unfamiliar music, and the results of this work are somewhat unclear and inconsistent (Gillis, 1995; Margulis 2010; Margulis, Kisida, & Greene, 2015; Vuoskoski & Eerola, 2015). Inconsistencies among these studies may be related to differences in the content of program notes provided, in participant populations, or in the genre of music presented.

Research shows that different types of program notes are effective in increasing adult listeners' ratings of enjoyment. Gillis (1995) observed that providing an adult audience with spoken information (historical context, biographical information about the composer, compositional features) prior to the performance of contemporary art music for saxophone increased both enjoyment ratings and attentive listening behaviors as compared to the ratings and behavior of people who did not hear the information. Likewise, program notes created intentionally to facilitate a specific emotional response (i.e., a composed narrative) from adult listeners can also increase both listening enjoyment ratings and focused listening behaviors in a classical music setting (Vuoskoski & Eerola, 2015).

In contrast to the other studies of adult listeners described above, there is some evidence to suggest that program notes do not always increase listening enjoyment. Margulis (2010) observed that listeners rated their enjoyment of Beethoven string quartet excerpts higher when they were provided with no written description than when they were asked to read program notes that provided either dramatic or structural information. Margulis's protocol required participants to read the written notes twice and answer a question related to their comprehension of the information; the reading repetition and comprehension check may have played a role in the reduction of enjoyment ratings as compared to listening only. Zalanowski (1986) also observed lower ratings of enjoyment for unfamiliar instrumental classical music by a

group of adults provided with a related written story as compared with a group instructed to use their own imagery while listening. It is important to note that in both of these studies, the information provided in program notes did not provide historical or compositional context for the music.

The extent to which program notes can affect the listening experience of people in different age groups remains largely unexplored. In one study that examined children's responses to an educationally-focused folk music concert, Margulis et al. (2015) found that the group of children who read program notes reported paying more attention and demonstrated better comprehension of the presented information than did the other group. Although there were no differences between groups in terms of their ratings of enjoyment, the authors noted that a small subset of the children who read program notes rated their enjoyment of the concert significantly higher than did the other members of the same group. Citing common demographic data, the authors speculated that this subset of students were likely experiencing a live formal performance for the first time; in this unfamiliar setting, reading program notes increased their ratings of enjoyment.

This body of research makes clear that the effect of program notes on listeners' enjoyment of unfamiliar music depends on context, which raises new questions that have yet to be examined. Two such questions guided the current study. First, the extent to which reading the accompanying composed text for each piece prior to listening may affect nonmusicians' enjoyment of unfamiliar classical choral music remains unknown. Based on our understanding of the importance of sung text intelligibility, it is reasonable to question whether providing this information in program notes may play a role in audience response. Second, the studies described above suggest that variables of compositional complexity and listener familiarity (see Margulis, 2010; Margulis et al., 2015; Teo, 2003; Thompson, 2007) may influence the extent to which enjoyment may be influenced by program notes. The purpose of this study was to determine whether program notes that include the text of unfamiliar choral pieces would affect nonmusicians' listening enjoyment, and to determine whether such effects would vary depending on the compositional complexity of the music heard.

Method

Eighteen participants (N=269, male=62, 2 abstained) were undergraduate students between the ages of 18-35 (M=20.22, 61 abstained) enrolled in nine sections of music classes for nonmusic majors at Texas State University (e.g., general music methods for elementary education majors). Participants voluntarily completed a survey distributed during a regular class meeting that required them to read program notes, listen to a prepared recording of three choral works, and rate how much they enjoyed listening to the music.

The pieces selected were mixed-voice choral works that vary in terms of compositional complexity (see Appendix A). Excerpts were taken from published recordings made by one collegiate-level and two professional-level ensembles. Piece 1¹ was "Requiem" by Craig Hella Johnson. This piece has open, chordal harmonies, slow rhythmic gestures, and a slow tempo. The melody line is predominately stepwise and is performed in a legato style with a warm timbre. Piece 2² was "Nelly Bly" by Stephen Foster, which is mostly homophonic with noticeable sections of repetition and simple harmony. The tempo is upbeat with quick rhythmic gestures, and the folk-style melody features a combination of large leaps and stepwise motion. Piece 3³ was "At the Round Earth's Imagined Corners" by Willimetta Spencer. This piece has thick texture that varies substantially (homophonic, polyphonic, and monophonic), the harmonic language changes frequently, and the melodies are often disjunct. Rhythms vary between quick fanfare-like gestures and slow legato lines, and the overall timbre is quite dark. Each recording was edited slightly to control for length while maintaining musical integrity (i.e., excerpts would begin and end in musically appropriate places) so that participants heard approximately two minutes of each composition.

Three program note conditions were designed so that the extent of information provided for each of the three works varied (see Appendix A). All participants were presented with basic

¹ From A Company of Voices: Conspirare in Concert, recorded by Conspirare

² From Home on the Range, recorded by The University of Utah Singers

³ From Fern Hill: American Choral Music, Corigliano-Belmont-Barber, recorded by Kansas City Chorale

program information, including title, composer, and author of the text. The Control condition included no additional information, the Text condition included the composed text, and the Text+Notes condition included both the text and brief notes that provided context for the three pieces (e.g., why the piece was written, notable musical features). Nine recordings were prepared in a partially counterbalanced design to control for order effects related to the presentation of the pieces and conditions; in other words, the order in which pieces were played for each of the nine classes varied, and all participants heard each piece only one time. Likewise, every participant experienced all three program note conditions only one time, such that three pieces paired with three program note conditions yielded nine unique piece x program note condition orders. Nine survey packets were assembled based on the requirements of this design. Before beginning, participants heard the following instructions:

Thank you for your participation in today's research study. You will listen to three choir performances and will rate your enjoyment of each piece you hear. Please answer honestly when responding to all questions. You have been provided with a packet that contains information about the three pieces you will listen to. You will also hear some introductory material before each performance begins.

In order to ensure the likelihood that participants attended to the information provided to them in their survey packet, a recording of a male voice reading the program notes preceded each piece (Gillis, 1995); participants were invited to read along with the recording. At the conclusion of each work, participants were given ample time to rate their enjoyment of the pieces on a scale from 1 to 20 (Prompt: "I enjoyed listening to this piece" with anchors "Strongly disagree" at 1 and "Strongly agree" at 20). After rating all three pieces, participants were asked to provide their age, gender, and information about their prior music experiences.

Results

Demographic data related to prior music experiences revealed that 190 participants (70.63%) had participated in a music ensemble (instrumental or choral) at some point in their life, and 134

of them (49.81%) had taken private music lessons as well. 172 participants (63.94%) had attended at least one choral concert within the previous 12 years (years since attending a choral concert, M =3.00).

In order to determine whether program notes affected nonmusicians' enjoyment of unfamiliar choral music, we collapsed the data to yield an overall mean enjoyment rating for each program note condition (see Table 1). This decision was made because the partially counterbalanced design controlled for potential order effects for both piece and program note condition and to reduce the likelihood for Type I error by conducting one analysis rather than three. We compared the mean enjoyment ratings associated with the three program note conditions using a One-way Repeated Measures ANOVA. Results indicate that there were no significant differences between overall mean enjoyment ratings for the three presentation conditions, F(2, 536) = 1.82, p = .163.

	Control		Text		Text+Notes	
	М	(SD)	Μ	(SD)	M	(SD)
Piece 1	15.08	(3.55)	14.21	(3.78)	15.41	(2.96)
Piece 2	13.72	(3.54)	13.83	(3.65)	13.86	(3.39)
Piece 3	11.57	(4.30)	12.50	(4.44)	12.95	(4.01)

Table 1. Mean enjoyment ratings.

Note. All three groups were provided with title, composer, and text author. Piece 1: "Requiem" by Johnson/Gilkyson, Piece 2: "Nelly Bly" by Foster, Piece 3: "At the Round Earth's Imagined Corners" by Spencer/Donne.

Although mean enjoyment ratings for all three pieces were generally positive (mean range: 11.57-15.41 on a 20-point scale), there was a noticeable difference in mean enjoyment ratings between pieces regardless of presentation condition. In other words, mean ratings were highest for Piece 1, "Requiem" by Craig Hella Johnson, and lowest for Piece 3, "At the Round Earth's Imagined Corners" by Willimetta Spencer. Although differences between mean enjoyment ratings for the

program note conditions were not significant, the highest mean enjoyment ratings were associated with the Text+Notes condition; this tendency was most notable for Pieces 1 and 3, both of which are more compositionally complex than Piece 2.

Discussion

These data suggest that providing program notes containing composed text may have no discernable effect on the extent to which nonmusicians enjoy listening to unfamiliar choral music. It is important to note that mean enjoyment ratings for the three pieces heard were generally positive which could indicate that the aesthetic value and psychological benefit of listening to recorded choral music may be more salient to nonmusicians than the presence of detailed program notes, a result consistent with points articulated by Margulis (2010). On the other hand, our data do not suggest that program notes detracted from listeners' enjoyment, as have other studies involving adults (Margulis, 2010; Zalanowski, 1986).

Though the differences in enjoyment ratings were not statistically significant, there is an interesting trend related to the pairings of the three program note conditions and the three pieces that differed in terms of compositional complexity. The first piece, "Requiem" includes many compositional characteristics identified by Teo (2003) as those most likely to be enjoyable to an average listener (e.g., stepwise melody, open harmonic structure, predictable tempo and rhythms). This could mean that for songs that are accessible to nonmusicians in terms of complexity, reading additional information may not enhance listeners' enjoyment compared with listening alone. The second piece, "Nelly Bly" can be described as simple and repetitive, and the program note conditions did nothing to enhance listeners' enjoyment. In fact, mean ratings between the program note conditions were the most similar for "Nelly Bly." The third piece, "At the Round Earth's Imagined Corners," is a more compositionally complex piece relative to the other two pieces, containing rhythms, tempos, timbres, textures, harmonies, and dynamics that varied widely. There were more marked differences in mean enjoyment ratings for this piece between program note conditions; in other words, the more extensive program notes became,

the higher participants tended to rate their enjoyment of the piece, albeit at a nonsignificant level.

One limitation of this study is that our data are based on listeners' responses to recorded choral performances rather than live performances. Were these nonmusicians able to attend a live concert instead, results may have been different, as Thompson's 2007 study suggests. In our study, listeners were not given the opportunity to experience a formal concert venue or to make an emotional connection with singers on a stage. Future studies in the area of choral music and listening enjoyment could include implementing these program note conditions in a live performance setting, then surveying concert attendees immediately following the event.

Another line of continued investigation on this topic should include a more focused exploration of the possibility that program notes may influence nonmusicians' enjoyment differently depending on the complexity of the music. Although our data suggest that the aesthetic experience of music listening may be the *most* salient factor contributing to enjoyment, they also hint at the existence of a relationship between these variables that invites future investigation.

Program notes are commonly included in programs for formal classical music concerts, presumably to enhance the concert experience for those in attendance. For choral ensembles in particular, providing composed text in program notes may increase text intelligibility in the moment for some listeners, and for pieces that are complex in nature, providing context for the music may increase listeners' enjoyment. Developing a strategic understanding of the kind of information program notes should provide in order optimize the audience's experience seems advantageous for those organizing such materials for performing ensembles.

Keywords

music listening, program notes, choral music, text

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Appendix A: Program Notes

Piece 1: "Requiem"; Music by Craig Hella Johnson; Text by Eliza Gilkyson

<u>Piece 1 text</u>:

Mary, fill the glass to overflowing, Illuminate the path where we are going, Have mercy on us all. In funeral fires burning Each flame to your mystery, returning. In the dark night of the soul Your shattered dreamers, make them whole, Oh Mother Mary, find us where we've fallen out of grace, Lead us to a higher place. In the dark night of the soul Our broken hearts you can make whole, Oh Mother Mary, come and carry us in your embrace, Let us see your gentle face, Mary.

Piece 1 notes:

Dr. Craig Hella Johnson, director of Conspirare in Austin, Texas, arranged Requiem, a piece originally written and sung by Eliza Gilkyson to commemorate the large tsunami in Asia in 2004. His simple chorale-style arrangement utilizes open chords with a flowing piano accompaniment to emphasize the plea for help, guidance, and healing within this text.

Piece 2: "Nelly Bly"; Music and text by Stephen Foster

Piece 2 text:

Heigh! Ho! Nelly, Ho! Listen love to me I'll sing for you, play for you A dulcet melody

Nelly Bly! Nelly Bly! Bring the broom along, We'll sweep the kitchen clean, my dear, And have a little song. Poke the wood, my lady love And make the fire burn, And while I take the banjo down, Just give the mush a turn.

Heigh, Nelly! Ho, Nelly! Listen love to me I'll sing for you, play for you A dulcet melody

Nelly Bly had a voice Like a turtle dove I hear it in the meadow And I hear it in the grove Nelly Bly had a heart as warm as a cup of tea And bigger than the sweet potato down in Tennessee Heigh, Nelly! Ho, Nelly! Listen love to me I'll sing for you, play for you A dulcet melody

Piece 2 notes:

Stephen Foster, an American composer who wrote some of the most popular folk songs, such as Camptown Races and Oh! Susanna, composed Nelly Bly for a group of singers in Pennsylvania in 1850. The song recounts the story of two people in love. Nelly Bly inspired one of the earliest female journalists to use the name as her own in the newspaper.

<u>Piece 3</u>: "At the Round Earth's Imagined Corners"; Music by Willimetta Spencer; Text by John Donne

Piece 3 text:

At the round earth's imagined corners blow Your trumpets, angels, and arise, arise From death, you numberless infinities Of souls, and to your scattered bodies go; All whom the flood did, and fire shall o'erthrow, All whom war, dearth, age, agues, tyrannies, Despair, law, chance hath slain, and you, whose eyes Shall behold God, and never taste death's woe. But let them sleep, Lord, and me mourn a space; For, if above all these my sins abound, 'Tis late to ask abundance of Thy grace, When we are there. Here on this lowly ground, Teach me how to repent, for that's as good As if Thou hadst seal'd my pardon with Thy blood.

Piece 3 notes:

Willimetta Spencer sets the text of John Donne's description of the end of the world and judgment of mankind with intense shifts in rhythm, melody, and performing force to paint the dramatic text. The trumpet-like fanfare in the opening is quickly followed by the scattering of voices across the choir. Spencer concludes the piece with a quickly building climax sealing the fate of the world.

Baritone or Falsetto? Male Educators' Vocal Modeling in the Elementary Classroom

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Background

Elementary music educators teach their students songs to engage them in active learning, to share new musical concepts, and for the sheer enjoyment of singing. Because it allows students to learn about music by actively participating in the musical experience, singing is an effective tool in the elementary setting. Singing is also an excellent skill because, unlike instruments, it is accessible to all students as they can use their voice to sing anywhere. This skill also enhances other music experiences, as supported by the motto instrumentalists often use, "if you can sing it, you can play it." Henry (2001) argues that lack of vocal development in the elementary level can lead to disinterest in music altogether as it "denies them access to more complex and motivational song literature" (p. 4).

It is important for students to learn how to use their voices efficiently, without strain, and to sing with pitch accuracy. One of the best ways that music educators can teach good singing technique in their classrooms is through good vocal modeling.

Vocal modeling occurs when a teacher models a song in his or her own voice for students to hear. In response, students are invited to sing back what they hear with pitch accuracy and good vocal technique, not shouting or unpitched chanting. Vocal modeling can work well because it allows the educator to set the pace of learning a song. If a class needs more time to learn a new song, then vocal modeling allows for a slower pace with frequent repetition.

While vocal modeling is essential to allow children to learn valuable musical skills, male music educators are faced with a problem when determining which vocal register to use. The two male vocal registers that are discussed in this research are chest voice and falsetto voice. In his study of male vocal types, Martin (2010) describes the chest voice as a label that is derived "from the sensations of the singer while phonating in that portion of the voice... [a] vibration in the upper chest cavity" (p. 12). He describes the label "falsetto" as being derived from the resulting "weak, breathy sound" produced by passing air through open vocal cords to create a pitch. Male music educators may use the falsetto voice to reach notes an octave or more above what is normally sung in the chest voice. This allows a male to sing in the same pitch range as the female or child's vocal register.

The falsetto voice, however, often places strain on a male's vocal chords because it is a physiologically inefficient process, as a large amount of air is forced to move quickly through the vocal folds to produce a light sound. Males modeling in their falsetto voice have not found universal favor with investigators. Phillips (1992) maligned the use of falsetto saying, "The falsetto voice is a 'false' voice, in that it is a product of strained vocal technique in which the larynx rises and cuts out the laryngeal resonator, resulting in a weak and unsupported sound" (p. 50). Gregor (2014) agreed that modeling in falsetto increases vocal fatigue and strain, is not sustainable over a long period of time, and does not give a healthy vocal model for students (p. 13). He interviewed five male elementary music educators, in various stages of their careers, to determine if they used falsetto in their classroom. Three of them responded with an emphatic 'no', and two shared that they only use falsetto with kindergarten through second grade and as little as possible.

While vocal modeling in falsetto is not endorsed by these singing experts, other investigators have conducted studies to determine if singing in the chest voice or lower baritone octave confused children and resulted in less accurate singing. Michaud (2014) tested the effects of teaching children in falsetto versus the baritone voice when modeling. He tested two groups of kindergarteners for 20 days, using only his baritone voice with one group and only the falsetto with the other. He found the vocal register used by the instructor made no significant difference in a younger child's ability to develop pitch-matching abilities. He admitted, however, that this finding did not "give a complete picture of the effects of baritone and falsetto vocal modeling on

kindergarten children's pitch-matching abilities" due to the short time frame in his study (p. 123).

Small and McCachern (1983) found similar results in their pitch-matching study of 55 first graders. All students were given a pre-test, with either a male baritone vocal model or a female soprano vocal model, in which they received a vocal warm-up through call-and-response and then echoed do-re-mi patterns to determine their ability to match pitch. The students who were able to match pitch were eliminated from the study, while those who were not able to match pitch were assigned to work with either a female vocal coach, a male vocal coach, or no coach for five days prior to a post-test. While no significant difference was found between the lower baritone male and the soprano female vocal modeling in children's ability to match pitch, the short five-day time frame should also be noted.

Other investigators found that the higher falsetto vocal model did, in fact, contribute to greater vocal accuracy than the lower male vocal model. Price, Yarbrough, Jones, and Moore (1994) explored pitch accuracy of 216 inaccurate singers in the kindergarten through eighth grade in response to a bass and a falsetto model, as well as sine wave models in the same octaves. Girls responded more accurately to the falsetto voice and boys responded more accurately to the bass voice. Yarbrough, Morrison, Karrick, and Dunn (1995) had similar results and found that all grade levels (kindergarten through seven), with the exception of eighth grade, responded more accurately to a higher octave or falsetto models than to lower bass models when tested.

Montgomery (1988) studied two third-grade classes for 12 weeks, one being taught with a normal male singing voice and the other with falsetto. When tested at the end of the study, third graders echoed specific test patterns more accurately when the teacher modeled in his falsetto voice than when he modeled in his normal singing voice.

Hendley and Persellin (1996) went a step further in their research and used a falsetto model in their eight-week study with 152 first, third and fifth grade students in two classes at each grade level. All six classes worked with the same male teacher, a skilled counter-tenor, for 8 weeks. One of the classes at each grade level experienced vocal modeling in the falsetto range and the other class in each grade experienced with the modeling in the tenor range. Students in all classes with the falsetto modeling were able to improve their pitch accuracy. However, the vocal accuracy of the younger first and third grade students in classes taught with tenor modeling was significantly lower than their peers in classes taught with falsetto modeling. No significant difference was found in vocal accuracy between the older fifth grade classes with tenor or falsetto modeling.

Several studies have examined teaching vocal accuracy with a variety of soprano and baritone models. Green (1990) studied 282 elementary students from first through sixth grades. Over a three-week period, she tested students' pitch accuracy of a minor third when listening to a female soprano model, a male tenor model, and a nine-year-old child model. She found that the highest number of accurate responses came from listening to a child vocal model singing in the soprano range, followed by a female model, and then a male model singing in the lower baritone range.

Yarbrough, Green, Benson and Bowers (1991) then extended this study and found that when using vocal modeling for teaching children to match pitch, female voices were easier for children to hear and replicate. Their research was conducted with students from first through eighth grades. The students were asked to match a minor third interval sung by a male baritone vocal model as well as a female vocal model. Students in all grade levels had significantly higher success in matching pitch with the higher female voice than the lower baritone model. Students found the female voice, which has a similar timbre and range to a child's voice, to be easier to match than the lower baritone voice with a different timbre. While falsetto models were not used in these last studies (Green, 1990; Yarbrough et al., 1991), it should be noted that students found the higher soprano model easier to replicate than the lower baritone model.

In their compilation of recent research and best practices on teaching children to sing in tune, editors Runfola and Rutkowski (2010) advocated that male educators should model both speaking and singing using a "light" normal chest voice. They also argue that if students understood their own voices then they would "not have a problem singing in the appropriate register with a male model an octave lower" (p. 15).

Thus, it can be seen that findings from the literature are mixed. While some investigators found that young children sang less accurately when taught with a male teacher using his lower baritone voice, others have found that young children do not find the lower baritone voice to be confusing and thus, sing accurately. Still others concluded that younger students found the baritone voice confusing, but older students did not.

The purpose of our study was to determine how male elementary music educators in a large metropolitan area modeled singing when teaching young children (kindergarten through second grade) and when teaching older children (third through fifth grades). We also sought to investigate alternative teaching strategies used by male elementary music educators to aid in the development of vocal accuracy.

Method

To determine answers to these questions about male vocal modeling in the elementary classroom, a pilot survey was conducted with male elementary music educators. Based on feedback from this pilot study, the survey instrument was revised and then electronically mailed to 47 male music educators in a large metropolitan city. A follow up reminder was electronically mailed ten days later. Of the 47 surveys emailed, 33 surveys were completed (70%). Responders varied in skill areas, education, and school size and demographics. This survey was comprised of questions requiring a response on a five-level Likert-type scale as well as open-ended questions about vocal modeling preferences and teaching strategies.

Results and Discussion

Of the 33 responders, 82% agreed or strongly agreed that every student should sing with accurate pitch, and only two responders (6%) disagreed or strongly disagreed. From these results it is clear that a majority of these male music educators hold accurate singing to be an important skill.

When the teachers were asked if they modeled using falsetto for their kindergarten through second grade students 61% responded with either agree or strongly agree while 30% responded with disagree or strongly disagree. Some respondents stated that they were not able to use their falsetto voice. Others commented using the baritone/tenor voice was the "best vocal model for good tone production". Still others wrote that they used falsetto in early lessons and then transitioned to baritone voice as they year went on. Finally, some men responded that they used falsetto all of the time.

One educator who strongly agreed shared, "I always use my falsetto. The only times (very rare) that I don't use falsetto are when I am performing something that I don't expect them to perform." Another stated, "If I sing in my normal range, they sing in a low chest voice." On the other hand, an educator who disagreed with using falsetto with kindergarten through second grade stated:

I sing in my own register the majority of the time and teach kids to sing up the octave. I sing in falsetto only as needed. Singing in falsetto all the time strains my voice and teaches strained singing. It is also emasculating to sing constantly in falsetto. Singing with my own voice helps me model better tone. The falsetto is useful at times but it isn't what I use most of the time.

When asked about using the falsetto voice to model for third through fifth grades there was less agreement with 45% agreeing or strongly agreeing and 42% disagreeing or strongly disagreeing. Those who disagreed commented that their students should be able to displace the octave by the time they are in the upper elementary grades. An educator in disagreement stated, "My older students usually don't need the extra falsetto. They already are able to sing in tune in their register because I worked/taught them when they were younger." Another stated that "I use the falsetto register only to teach kids about displacing the octave and to teach head voice. Not for teaching new pitches to a song." Those agreeing commented that they use falsetto to get students started at the beginning of the year or giving an initial pitch. One educator who agreed with this statement commented, "I continue to use falsetto for older students, but I also add recorder and piano to give examples for these students." With regard to singing on pitch, 82% agreed or strongly agreed that there were numerous ways to effectively teach students to model and teach this skill. An educator described his vocal modeling process, stating:

I teach them that I sing in a different register and I model using the falsetto where they need to sing. After that I only use the falsetto as needed. I always give students a rough percentage of how accurate their singing is in terms of pitch. After they sing, I'll say (50%, 80% etc.). This improves their focus on motivation to listen closely and sing the correct pitches. Also I [use] hand motions and Curwen hand signs to show pitch when teaching songs.

Aside from using falsetto, these educators suggested vocal play, solfège exercises, slide whistles and other instruments in the child's range, good vocal models from videos, and many other strategies.

In all, the data indicated that there was a diversity of modeling strategies when singing for and with their elementary students to help with pitch accuracy. Respondents in this study used a variety of teaching strategies and tools to teach elementary music classes. Such tools included alto recorder, piano, slide whistles, stringed instruments, and using other students and recordings as vocal models. By using a variety of these teaching tools, male educators helped support students' ability to sing without relying completely on vocal modeling.

Singing in falsetto for students may help many to learn pitch matching, but it may also create tension and strain in the educator's voice that is not a good model of vocal technique. The reverse holds true for the chest voice. It may be a good model of a healthy singing voice, but requires students to match pitch in a different octave from what they hear.

While Hendley and Persellin (1996) found that younger students sang more accurately with the falsetto vocal model after eight weeks, it should be noted that the teacher in that study was a skilled counter tenor who sang with little vocal fatigue in his falsetto voice. Many male teachers may not sing in falsetto as easily nor without strain or sacrificing tonal quality.

In conclusion, male elementary music educators are encouraged to be aware of the advantages and disadvantages of both vocal registers and to study recent research on this topic. In their teaching, they will need to sing comfortably as well monitor any vocal strain when modeling with falsetto. Younger children in particular may sing more accurately with a pitch model in their own range, so male educators are encouraged to be especially sensitive to that need. All teachers need to listen carefully to the pitch-matching of their students and apply a variety of teaching strategies to engage young singers as they develop greater vocal accuracy.

Keywords

singing, children, elementary music, vocal modeling, falsetto

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