International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

Volume 9
January 2021 - December 2021

AMERICAN CHORAL DIRECTORS ASSOCIATION

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Article

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(2021) Vol. 9 1-21

Effects of Vibrato and Pitch-Varied Vocal Models on Acoustic Measures of High School and Undergraduate Singers' Vocal Performance

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Abstract

The primary purpose of this study was to investigate the effects of vibrato and pitch-varied vocal models on high school and undergraduate singers' intonation and use of vibrato. The secondary objective of this research was to examine participants' perception of vocal models to explore a possible relationship between perception and production. Participants (N = 76) were undergraduates (n = 40) participating in a choral ensemble at a large university and high school students (n = 36) currently enrolled in a nearby choral program. Male (n = 38) and female (n = 38) participants responded to 12 same-gender vocal models, stimuli that varied in melody, vibrato, and intonation conditions. Model singers recorded vocal models without accompaniment on the neutral syllable "tah" in both vibrato and minimal vibrato conditions. Select pitches were mistuned ±25 cents to create the pitch-varied models. High school and undergraduate singers showed differences in vibrato rate, vibrato extent, and intonation in response to vibrato-varied models. Both groups also showed differences in response to pitch-varied models, with flat models producing the greatest deviation in pitch. Participants indicated on a post-stimuli questionnaire that they perceived differences in vibrato more readily than in intonation.

Keywords: *singing accuracy, pitch accuracy, intonation, vibrato, vocal models, choral pedagogy, perception, performance*

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Effects of Vibrato and Pitch-Varied Vocal Models on Acoustic Measures of High School and Undergraduate Singers' Vocal Performance

Successful singing involves a number of perceptual skills, including that of pitch matching (Loui et al., 2015). Joyner (1969) described pitch matching as a complex task in which singers must discriminate, perceive, and recall pitches, all the while being able to vocally reproduce and adjust as needed. Over the years, researchers have labeled singers with pitch deficiencies as *monotone, poor pitch, uncertain,* and *inaccurate* singers. Investigators found that such singers matched pitch less accurately (Price, 2000), transposed pitches and intervals (Pfordresher & Brown, 2007), and sang with restricted vocal ranges (Phillips et al., 2002). Suggested causes of these issues include a "mismapping" between pitch target and production (Pfordresher & Brown, 2007) and a deficiency in motor skills processes (Phillips et al., 2002). Remedial training has been somewhat effective, particularly in extending pitch range and in increasing the accuracy of single note and interval production (Joyner, 1969; Roberts & Davies, 1975). Individual and small group sessions have also improved singing accuracy (Rutkowski & Miller, 2003), particularly when used as a part of focused instruction (Demorest et al., 2018).

Researchers have observed singing accuracy to be higher in older versus younger children (Cooper, 1995; Geringer, 1983; Goetze, 1989; Horbach & Taggart, 2005; Yarbrough et al., 1991) and in females over males (Goetze, 1989; Green, 1994). Regarding stimuli timbre and octave, elementary singers matched pitch more accurately to female and male falsetto models (Small & McCachern, 1983; Yarbrough et al., 1991), but most accurately to child models of a similar timbre (Green, 1990). In research investigating K-8 uncertain singers' responses to male, falsetto, and sine wave models, Price et al. (1994) observed females matched more often to upper octave stimuli and male singers to lower octave stimuli. In a follow-up study with K-8 male participants, Yarbrough et al. (1995) observed eighth-grade males matched more often to lower octave stimuli, whereas K-7 males were more accurate with upper octave stimuli. In both studies (Price et al., 1994; Yarbrough et al., 1995), singers sang less accurately in response to sine wave models. Similar to responses with K-8 singers (Price et al., 1994), Williams (1994) observed high school singers responded more accurately to models of the same gender and in the same octave.

Researchers have also examined how task variables may affect singing accuracy. Pitches presented within a tonal context produced differences in singers' pitch accuracy (Demorest & Clements, 2007; Geringer, 1983), although researchers found the presence of accompaniment had no significant effect (Guilbault, 2004; Hedden & Baker, 2010). Children were generally more accurate in their performance of short patterns over songs (Demorest et al., 2018), although Guerrini (2006) observed that familiarity with either task had no effect on increasing pitch accuracy. Results varied when children sang in solo versus doubled singing conditions, although researchers speculated that many factors contributed to findings (Nichols & Lorah, 2020). Given the number of influencing variables, Nichols (2016a) asserted

that singing accuracy may be unique to the specific task and that the use of multiple singing assessments that include tasks from the teaching process would produce the most accurate view of singers' skills (2016b).

In choirs with older and more developed singers, the issue of vibrato may also influence singers' accuracy. Vibrato is a phenomenon typically associated with Western classical singing, with descriptive parameters of rate, extent, regularity, and waveform (Sundberg, 1995). Researchers identified the presence or absence of vibrato as a consistent difference between professional and untrained singers (Brown et al., 2000) and also observed that trained singers sang less accurately when performing with vibrato in an operatic style (Larrouy-Maestri et al., 2014a; Larrouy-Maestri & Morsomme, 2014). Investigators found that formal training and vocalization affected vibrato, as did the musical elements of pitch, duration, and intensity (Bretos & Sundberg, 2003; Michel & Myers, 1991; Mitchell & Kenny, 2010; Mürbe et al., 2007; Prame, 1994). Variations in vibrato also occurred when singers used imagery or emotional expression (Dromey et al., 2015; Moorcroft et al., 2015; Scherer et al., 2015). Singers have demonstrated the ability to adjust vibrato rate and extent to match target stimuli (Dromey et al., 2003; King & Horii, 1993; Titze et al., 2002), as well as reduce vibrato rate and extent within choral settings (Jers & Terström, 2005; Mann, 2014; Rossing et al., 1987).

Seashore (1932) conducted several studies on vibrato, reporting that several illusions exist mostly in regard to pitch. Investigators have observed the perceived pitch of vibrato tones to be the mean fundamental frequency (Brown & Vaughn, 1996; Sundberg, 1972) and that vibrato tones could be out of tune by 10 cents or greater, but still not perceived as such by expert listeners (Larrouy-Maestri et al., 2014b; Van Besouw et al., 2008; Vurma & Ross, 2006). Researchers also found that listeners judged the voice differently than instruments, particularly when vibrato was present, and that judgments in vocal intonation were more forgiving (Geringer, MacLeod, Madsen, & Nápoles, 2015; Geringer, MacLeod, & Sasanfar, 2015).

Researchers have evaluated singing accuracy using both subjective and objective analysis methods (Larrouy-Maestri et al., 2013). While investigators have documented perceptual analysis to be reliable (e.g., Guerinni, 2006), acoustic analysis has provided a more consistent measurement of singers' skills (Larrouy-Maestri et al., 2013). In studies utilizing acoustic analysis methodology, researchers used software (e.g., *Praat, AudioSculpt*) to segment the auditory signal and extract the fundamental frequency of specified pitches (e.g., Larrouy-Maestri & Morsomme, 2014). Researchers have chosen to segment pitches in various ways, including the steady-state portion of a note (e.g., Nichols & Wang, 2016), a vowel within a syllable (e.g., Dalla Bella et al., 2007), or the entire pitch, including the onset of the tone (e.g., Pfordresher & Brown, 2007). Once segmented, researchers have evaluated pitches for accuracy and/or precision (e.g., Pfordresher et al., 2010) and compared sung pitches to target stimuli using variable or fixed (e.g., 100, 50, 25 cents) deviation cut-off ranges as criterion (Dalla Bella, 2015). Other analysis parameters have included melodic contour and tonality

(e.g., Larrouy-Maestri & Morsomme, 2014), as well as energy distribution, vibrato rate, and vibrato extent (e.g., Larrouy-Maestri et al., 2014b). Although acoustic analysis has shown to be reliable in assessing untrained and occasional singers (Dalla Bella, 2015), researchers contend these methods may not be fully reliable in assessing singing with complex vibrato sounds (Larrouy-Maestri et al., 2013; 2014a; 2014b).

While researchers have investigated vibrato singing in various contexts, only a few specifically examined singers' responses to vibrato stimuli. Yarbrough et al. (1992) explored the effects of adult female and child models on the pitch accuracy of K-3 singers. Uncertain singers responded more accurately to the non-vibrato female model, whereas certain singers showed a high level of accuracy in response to all models. In a second study involving vibrato stimuli, researchers studied the effects of synthetic vibrato and timbre-varied models on the pitch accuracy of female collegiate and professional opera singers, ages 20 – 55 (Duvvuru & Erickson, 2016). Duvvuru and Erickson reported no differences in pitch accuracy in response to vibrato models, although singers attempted to match the timbre of vibrato stimuli.

Vocal model studies to date have involved elementary and/or middle school age singers, with only one known study using high school participants (Williams, 1994). Further, while researchers examined the effects of vibrato models with elementary children (Yarbrough et al., 1992) and older more trained female singers (Duvvuru & Erickson, 2016), I found no research with high school and undergraduate participants of both genders. As these singers likely represent a majority of those participating in secondary and university choral programs, research examining this population's response to various vocal models may provide knowledge for choral educators to deliver more effective instruction. Hence, this study attempted to explore the effects of vibrato and pitch-varied vocal models on acoustic measures of male and female high school and undergraduate singers' vocal performance. The following questions guided this research:

1) Is singers' intonation affected by vibrato or pitch-varied vocal models?
2) Is singers' vibrato rate affected by vibrato or pitch-varied vocal models?
3) Is singers' vibrato extent affected by vibrato or pitch-varied vocal models?
4) Do singers perceive differences between vocal models?

Method

Participants

I initially recruited 96 volunteer participants from four choral ensembles at a large university (n = 50; 25 males, 25 females) and from two choral classes at a nearby high school choral program (n = 46; 20 males, 26 females). Prior to the study, I obtained appropriate IRB permissions from the university and public-school system, as well as consent from participants and high school parents. After participation in the study, I eliminated 10 undergraduates (five male, five female) and 10 high school singers (two male, eight female) for a lack of response to all vocal models and/or inaccuracies in pitch matching (i.e., measured sung pitch

> 90 cents from target stimuli pitch). The final sample used for data analysis was 76 singers.

Undergraduates (n = 40) self-identified as 20 males and 20 females, ranging from 18 - 25 years in age (M = 19.6, SD = 1.78). Undergraduates reported 0 – 8 years in private voice study (M = 3.75, SD = 2.72) from high school to the present time and 4 - 12 years choral experience (M = 7.4, SD = 2.12) since middle school. Six undergraduates were non-majors and 34 were music majors, 30 of whom listed voice as their primary instrument. High school participants (n = 36) self-identified as 18 males and 18 females and ranged from 14 - 17 years in age (M = 15.91, SD = 0.93). All participants sang in first period Mixed Chorus, with the exception of three males who sang in Men's Chorus later in the day. High schoolers reported 0 - 4 years private voice study (M = 0.5, SD = 1.18) and 1 - 7 years choral experience (M = 4.41, SD = 1.69) since middle school.

Model Melodies and Model Singers

As researchers (Demorest et al., 2018) suggested the use of multiple tasks in singing assessments, I selected a pitch pattern and song excerpt for the model melodies. The pitch pattern was a common melody found in choral music (*sol-la-sol-fa-mi-re-do*) and the song excerpt was the first phrase of the children's song, "Are You Sleeping?" Both melodies move primarily in stepwise motion, with intervals in the song excerpt rated as easy or moderate in task difficulty in research with elementary singers (Wolf, 2005). I also chose a practice pattern (*do-re-mi-fa-sol*), as researchers recommended the use of at least one practice item on singing assessments (Nichols & Wang, 2016). I chose the keys for the model melodies (D and E♭ major) and practice pattern (E major) in consultation with expert voice teachers and the high school choral director, decisions which took into account participants' age and vocal development. Figure 1 on the next page displays the model melodies and practice pattern.

As researchers observed some high school singers and male changed voices responded more accurately to models of the same gender and in the same octave (Price et al., 1994; Williams, 1994; Yarbrough et al., 1995), I choose an adult male and female singer to record the model stimuli. I initially selected three male and three female adult singers, in an attempt to find a male and female singer with similar vibrato characteristics. All singers recorded model melodies three times in both vibrato and minimal vibrato conditions. I analyzed all recordings for mean vibrato rate (VR) and vibrato extent (VE) using *Praat v. 6.0.19* (Boersma & Weenink, 2016) and selected the one male and one female singer with the most similar vibrato characteristics in both conditions to record the final stimuli. The male model singer was a 48-year-old baritone with experience as a professional singer and audio engineer (vibrato models: VR M = 5.95 Hz, SD = 0.075, VE M = 84.03 cents, SD = 1.75; min vibrato models: VR M = 2.96 Hz, SD = 0.37, VE M = 10.28 cents, SD = 0.43). The female model singer was a 58-year-old soprano with a professional singing background, as well as 32 years of experience as a choral director (vibrato models: VR M = 5.17 Hz, SD = 0.045, VE M = 102.89 cents, SD = 1.47; min vibrato models: VR M = 2.83 Hz, SD = 0.095, VE M = 12.67 cents, SD = 2.39).

Recording and Editing of Vocal Models

I recorded model singers at a 44.1 kHz sample rate and 16-bit depth, using a MacBook Pro (Mac OS X Version 10.7.3; Apple, Cupertino, California), *Audacity 2.1.2,* and a Snowball model condenser microphone with a USB digital output (Blue Microphones; Westlake Village, California). Model singers performed stimuli with legato articulation at approximately 60 bpm on the neutral syllable "tah" to allow for an open sound with observable vibrato. Model singers sang without accompaniment or harmonic context, so that participants' focus would be solely on the intonation of the model singer.

Model singers made multiple recordings of each model melody in vibrato and minimal vibrato conditions. After analysis of all recordings (*Praat v. 6.0.19*), I selected the vocal model in each vibrato condition with the most accurate intonation in relation to equal temperament (ET) for further editing. Using *Adobe Audition* v. 4.0, I created the "in-tune" models by adjusting all pitches to be within three cents of ET. From these audio files, I created the pitch-varied models by mistuning specific 3rd or 5th scale degrees sharp or flat by 25 cents relative to ET (see Figure 1 for mistuned pitches). To manipulate pitches within *Adobe Audition,* I used the iZotope Radius algorithm set to high precision with the Stretch and Pitch Special Effects module. After manipulations, I re-analyzed pitches (*Praat v. 6.0.19*) to confirm that corrections and mistunings were accurate. The result of all editing was 12 vocal models for each model singer, stimuli that presented in two melody conditions (pitch pattern, song excerpt), two vibrato conditions (vibrato, minimal vibrato), and three pitch-varied conditions (in-tune, sharp, flat).

For the practice example, both of the model singers made multiple recordings in the vibrato condition only. I analyzed all practice example recordings for intonation (*Praat v. 6.0.19*) and selected the most in tune recording relative to ET for each model singer. There were no corrections or manipulations made to practice item recordings.

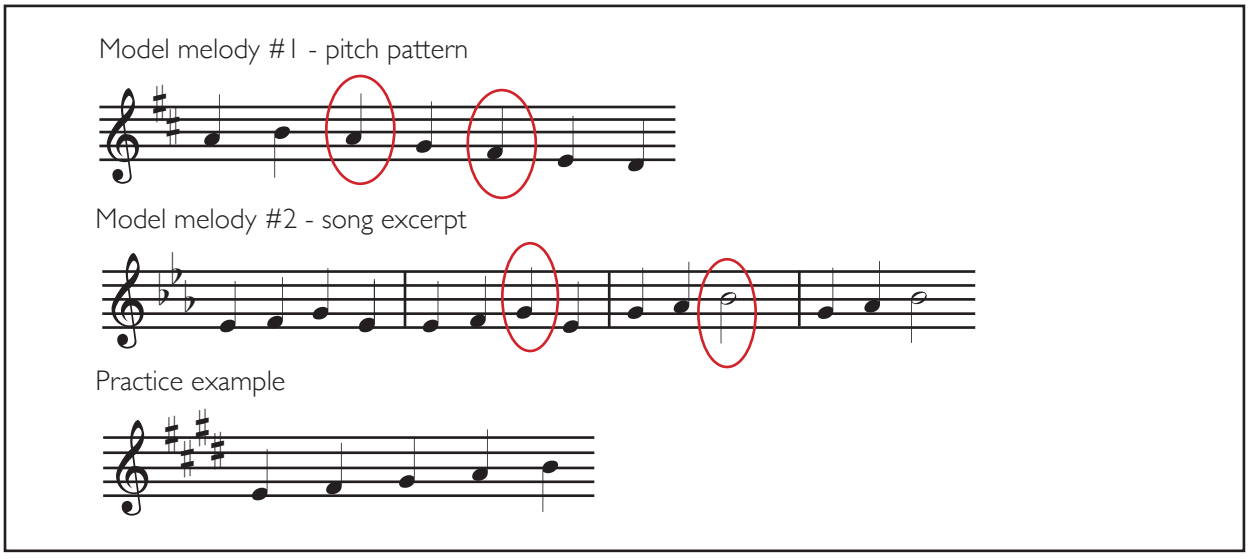

Figure 1

Model melodies with mistuned pitches (± 25 cents) circled and practice example.

Final Preparation of Vocal Model Stimuli

To control for order effect, I designed four presentation orders of the 12 vocal models, each counterbalanced by vibrato, intonation, and melody conditions. I then created four audio files for each model singer to correspond with the four presentation orders (*Audacity 2.1.2*). All audio files began with pre-recorded instructions prompting participants to "imitate vocal models, as if your choral director has asked you to do so." The appropriate gender practice example followed these instructions, along with silent response time. After the practice example, additional pre-recorded instructions cued participants that the models were about to begin. I then inserted the 12 edited vocal models in the appropriate presentation order, along with silent response time after each vocal model. In an attempt to clear participants' tonal memory after each vocal model, I inserted excerpts that were between 3 – 4 seconds of Morton Subotnick's "The Wild Bull." Once preparation was complete, I saved audio files in WAV format, uploaded them to iTunes, and transferred files to iPad (Mac 3rd Generation, Version iOS 9.3.5; Apple, Cupertino, California).

Testing Room Set Up and Equipment

I tested undergraduates in a university music research room and high school participants in an ensemble room within their high school. While the two testing rooms were not acoustically equivalent, I made every attempt to replicate the set up between facilities. Both rooms were approximately 300 sq. feet in size and had carpet on the floor and walls. I laid down a line of masking tape on the floor approximately two feet in front of a table to denote where participants should stand when recording. I placed a 1-foot high box in the center of the table with a Snowball USB condenser microphone (Blue Microphones; Westlake Village, California) on top, and two Bose multi-media speakers (Companion 2, Series II; Bose Corp., Framingham, MA) positioned approximately six inches on either side angled towards the participant. Both the microphone and speakers were approximately three feet from participants. Behind the microphone box and in front of my chair, I placed a MacBook Pro laptop (Mac OS X Version 10.7.3; Apple, Cupertino, California) and an iPad (Mac 3rd Generation, Version iOS 9.3.5; Apple, Cupertino, California).

Procedure

Undergraduates sang in the late morning or afternoon and I asked these singers to warm-up before arriving. High schoolers sang between 7:45-8:30 am and the high school choral director provided them with a 15-minute group warm-up prior to testing. Upon arrival, I assigned each singer an audio file in a way intended to balance presentation orders between genders and groups. Before testing, I provided singers with written instructions and the model melodies notated in treble or bass clef. Singers stood on the line of masking tape and listened to the appropriate audio file via iPad and Bose multi-media speakers, through an Equalizer App (EQLZR PRO, Version 2.7, acoustic preset) for enhanced listening conditions. I recorded singers' responses using the MacBook Pro laptop, *Audacity 2.1.2* and the

Snowball USB condenser microphone. I set the microphone to record in a cardioid pattern and made monaural recordings at a sample rate of 44.1 kHZ and 16-bit resolution. During testing, I provided no help except to cue participants to respond after vocal models. Afterward, participants completed a written questionnaire that gathered information on their musical experience. As the secondary purpose of this research was to explore participants' perception, I designed the final two open-ended items on the questionnaire to assess if participants perceived differences between vocal models and to allow them the opportunity to describe perceived differences using terminology of their choice.

Data Analysis

Using *Praat 6.0.19* (Boersma & Weenink, 2016), I acoustically analyzed WAV format recordings of participant responses for intonation, vibrato rate, and vibrato extent, with only the two mistuned pitches in the pitch-varied models (see Figure 1) analyzed in each model response. I segmented a steady-state portion of the pitch, with full vibrato cycles selected whenever possible. In an attempt to avoid irregularities in oscillations, I did not include the onset and release of individual pitches.

For purposes of reliability, I randomly selected and re-analyzed 20% of participant responses for all dependent measures (intonation $r = .91$, vibrato rate $r = .86$, vibrato extent $r = .89$). During initial intonation analysis, I analyzed segments for mean fundamental frequency (F0), data which I later converted to cents deviated from the F0 for statistical analysis; I therefore deemed "agreement" during reliability analysis as any F0 measurement within the same whole number value as the initial F0 measurement (e.g., initial $M = 442.03$ Hz, re-analysis $M = 442.08$ Hz). Similarly, I defined agreement for vibrato extent as any peak-to-trough measurement within the same whole number value as the initial measurement (e.g., initial $M = 55.02$ cents, re-analysis $M = 55.06$ cents). As the range of vibrato rate data ($M = 1.16 – 6.95$ Hz) was smaller than other data sets, I defined agreement as any frequency of oscillations measurement within a tenth-place value of the initial measurement (e.g., initial $M = 5.21$ Hz, re-analysis $M = 5.27$ Hz).

I conducted a repeated measures ANOVA for all analyses, with gender (male, female) and participant experience (high school, undergraduate) serving as between-subjects variables and model melody (pattern, song excerpt), model vibrato condition (vibrato, minimal vibrato), model intonation condition (in tune, sharp, flat), and analyzed scale degree (3rd, 5th) serving as within-subjects variables. I initially included vocal model presentation order as a between-subjects variable in all analyses, but later eliminated this variable when I found no order effects ($p > .05$). Mauchly's test indicated no violation in the assumption of sphericity for all analyses ($p > .05$). Given the multiple within-subjects data points, I chose a more conservative alpha level of .01 for all analyses. For analysis of the final perception item on the questionnaire, I identified and coded terminology reflecting vocal technique and/or musical elements and then counted these keywords for frequency of response.

Results

Research Question One: Intonation

Raw data consisted of individual pitch analysis in the form of cents deviation from the fundamental frequency in relation to equal temperament (ET) tuning. I coded directional pitch deviation data as a positive or negative value to reflect direction of intonation (i.e., sharp or flat in relation to ET). There was a main effect for the vibrato condition of models, $F(1, 72) = 12.80$, $p = .001$, $\eta_p^2 = .15$, with responses to vibrato models (M = -7.61 cents, SD = 18.35) found to be less flat than responses to minimal vibrato models (M = -11.80 cents, SD = 14.71). There was a main effect for the intonation condition of models, $F(2, 144) = 17.35$, $p < .001$, $\eta_p^2 = .19$, with flat models producing the greatest pitch deviation (M = -12.30 cents, SD = 16.19) and sharp models producing the least pitch deviation (M = -6.88 cents, SD = 16.14). Post hoc pairwise comparison between models showed significant differences ($p = .006$) between responses to sharp and in tune models (mean difference = 3.05 cents, SD = 8.23), as well as significant differences ($p < .001$) between sharp and flat models (mean difference = 5.41 cents, SD = 8.21). I also observed a main effect for participant gender, $F(1, 72) = 15.03$, $p < .001$, $\eta_p^2 = .17$, with male participants (M = -16.75 cents, SD = 22.42) responding with more flatness than female participants (M = -2.66 cents, SD = 22.38). A two-way interaction occurred between participant gender and intonation condition of models, $F(2, 144) = 5.72$, $p = .004$, $\eta_p^2 = .07$. Females sang more out of tune in response to flat models (M = -3.51 cents, SD = 23.02) than in response to in tune (M = -3.38 cents, SD = 24.29) and sharp models (M = -1.10 cents, SD = 22.87). Male singers also responded more out of tune to flat models (M = -21.08 cents, SD = 22.90) than to in tune (M = -16.49 cents, SD = 24.17) and sharp models (M = -12.66 cents, SD = 22.76), but with overall greater flatness than females. Figure 2 on the next page displays the interaction.

Research Question Two: Vibrato Rate

Raw data consisted of vibrato rate analysis of individual pitches, as measured by frequency of cycles per second (Hz). There was a main effect for the vibrato condition of models, $F(1, 72) = 33.75$, $p < .001$, $\eta_p^2 = .31$, as vibrato rates were faster in response to vibrato models (M = 5.22 Hz, SD = 0.43) than to minimal vibrato models (M = 4.99 Hz, SD = 0.40). A two-way interaction occurred between gender and participant experience, $F(1, 72) = 7.12$, $p = .009$, $\eta_p^2 = .09$. Mean vibrato rates of male undergraduates (M = 5.24 Hz, SD = 0.71) were faster than female undergraduates (M = 5.04 Hz, SD = 0.74), whereas high school females (M = 5.20 Hz, SD = 0.82) had faster vibrato rates than high school males (M = 4.94 Hz, SD = 0.78). Figure 3 on the next page shows the interaction. A two-way interaction also occurred between participant experience and vibrato condition of models, $F(1, 72) = 12.67$, $p = .001$, $\eta_p^2 = .15$. High schoolers responded to both vibrato conditions with similar vibrato rates (vibrato M = 5.11 Hz, SD = 0.62; min vibrato M = 5.03 Hz,

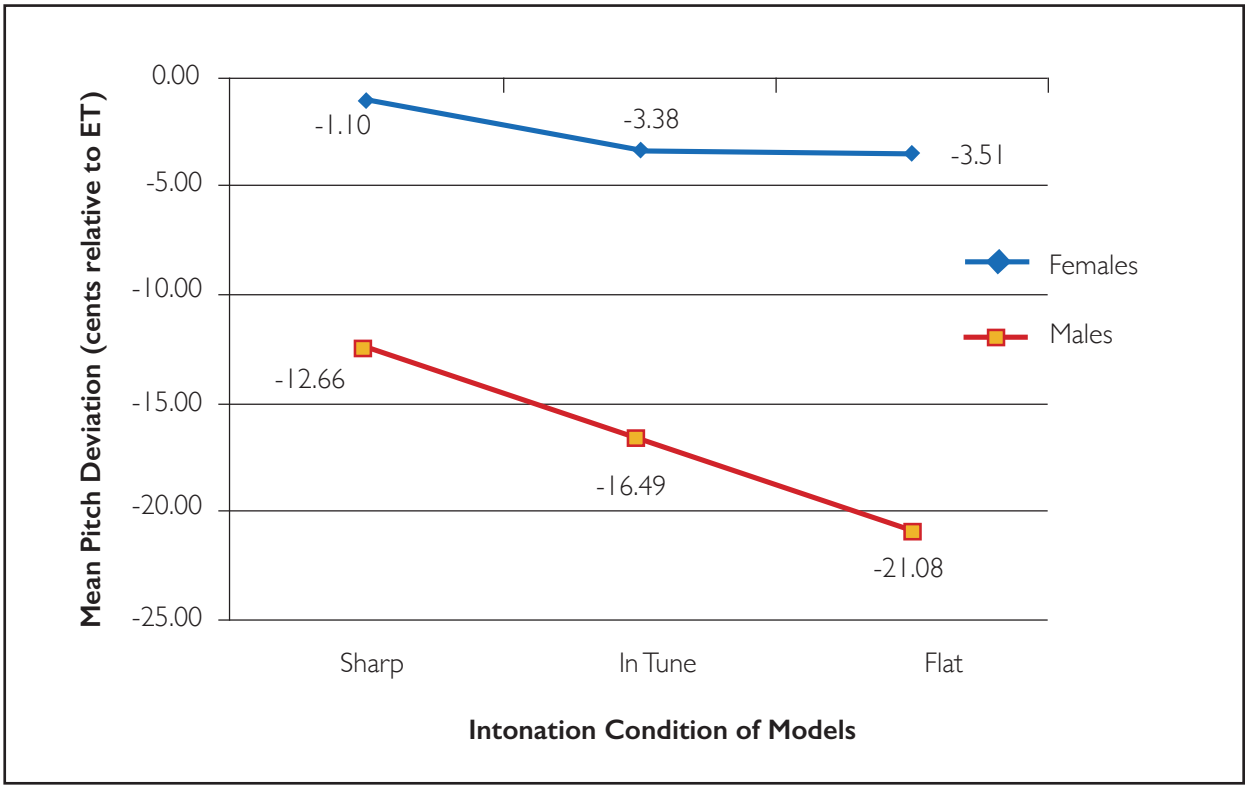

Figure 2

Interaction of participant gender and intonation condition on mean pitch deviation.

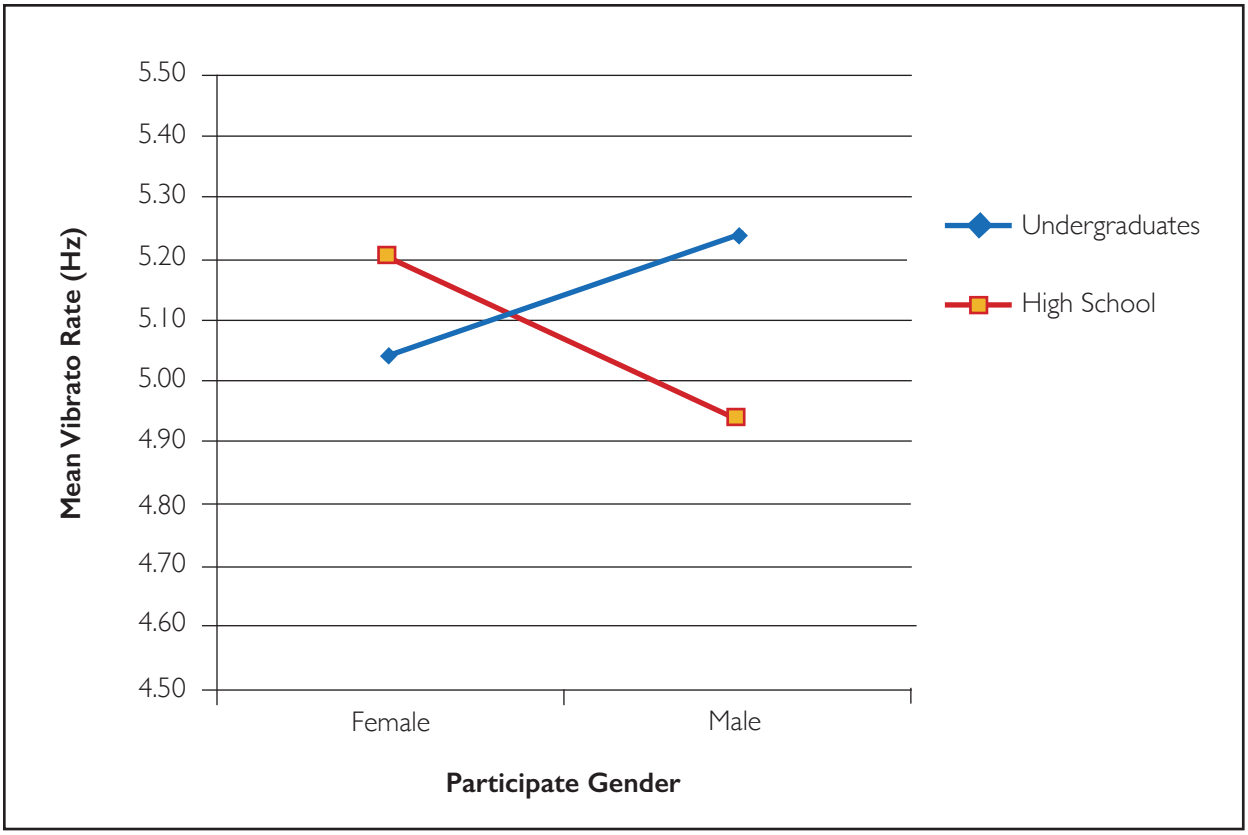

Figure 3

Interaction of participant gender and experience on mean vibrato rate.

SD = 0.58), while undergraduates responded with faster vibrato rates to vibrato models (*M* = 5.32 Hz, *SD* = 0.60) than to minimal vibrato models (*M* = 4.96 Hz, *SD* = 0.54). Figure 4 displays the interaction.

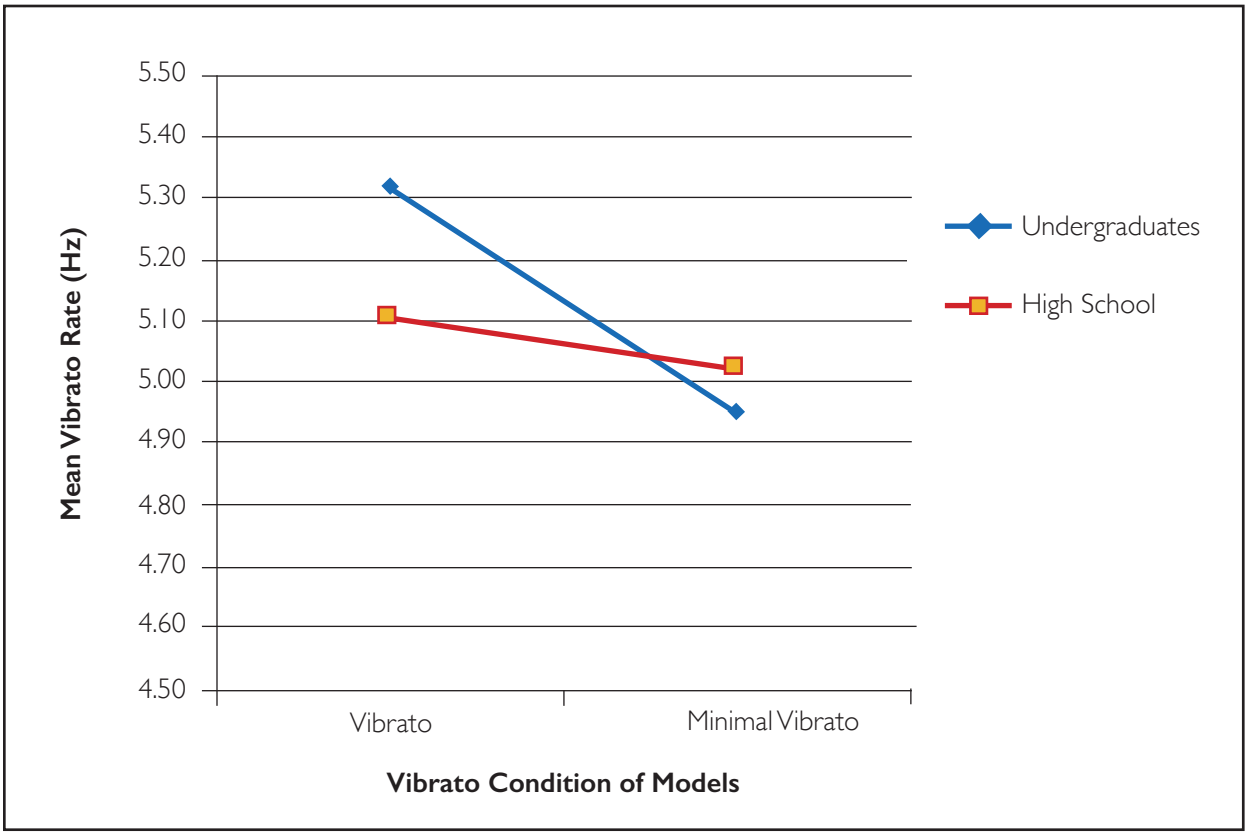

Figure 4
Interaction of participant experience and vibrato condition on mean vibrato rate.

Research Question Three: Vibrato Extent

Raw data consisted of vibrato extent analysis of individual pitches, as measured by the average distance in cents between peaks and troughs of vibrato cycles. I observed a main effect for the vibrato condition of models, $F(1, 72) = 54.23$, $p < .001$, $\eta_p^2 = .43$, as participants sang with wider vibrato extent in response to vibrato models (*M* = 81.46 cents, *SD* = 29.46) than to minimal vibrato models (*M* = 59.31 cents, *SD* = 25.36). I also observed a main effect for participant experience, $F(1, 72) = 7.94$, $p = .006$, $\eta_p^2 = .09$, as undergraduates (*M* = 78.22 cents, *SD* = 33.30) sang with wider extent than high school participants (*M* = 62.55 cents, *SD* = 35.13). As with vibrato rate, a two-way interaction occurred between participant experience and the vibrato condition of models, $F(1, 72) = 23.90$, $p < .001$, $\eta_p^2 = .24$. High schoolers responded with similar extent to vibrato (*M* = 66.27 cents, *SD* = 42.81) and minimal vibrato models (*M* = 58.83 cents, *SD* = 36.89), whereas undergraduates showed greater differences between responses (vibrato *M* = 96.64 cents, *SD* = 40.61; min vibrato models *M* = 59.79 cents, *SD* = 35.00). Figure 5 on the next page shows the interaction.

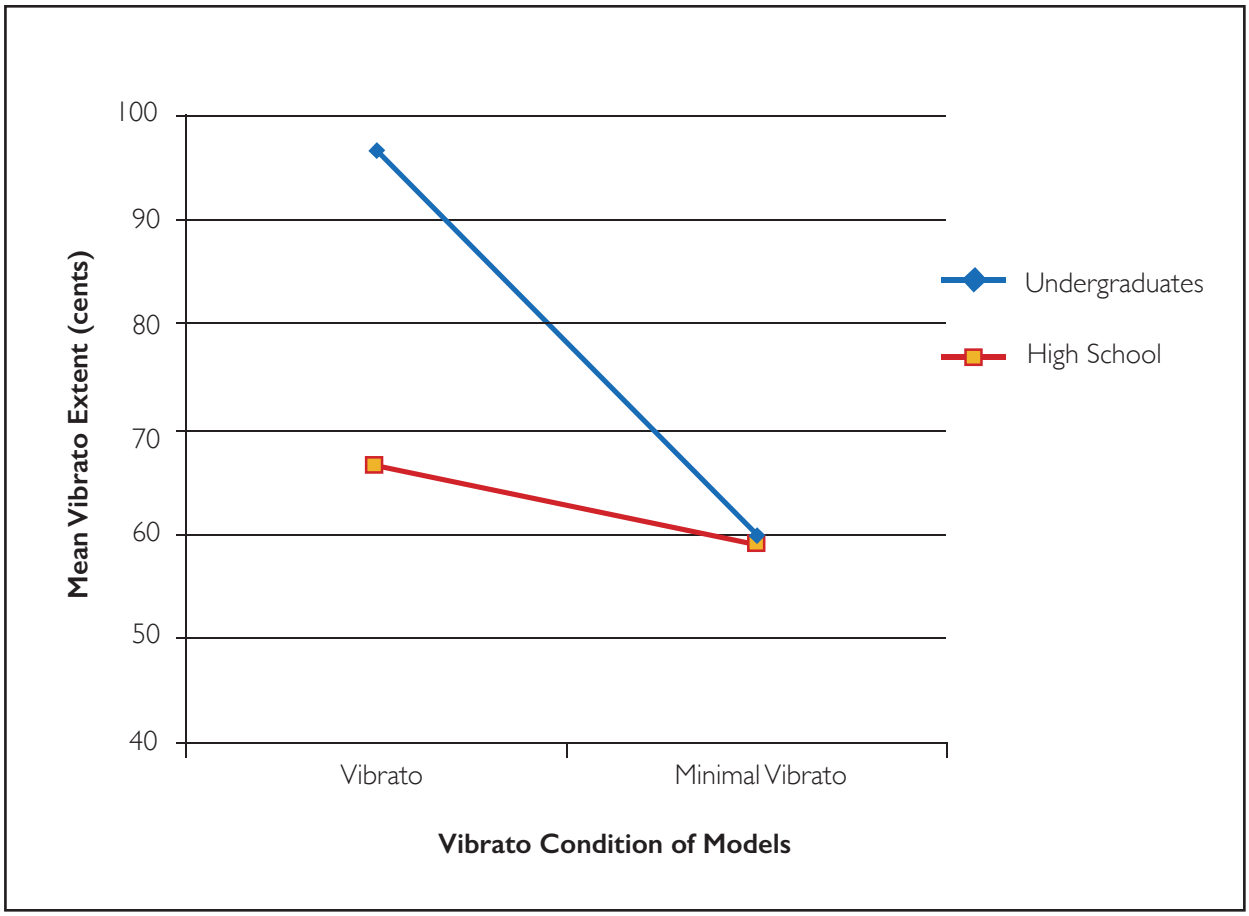

Figure 5
Interaction of participant experience and vibrato condition on mean vibrato extent

Research Question Four: Perception of Differences in Vocal Models

Of the 76 total participants, 71 singers (undergraduates n = 39, high schoolers n = 32; males n = 36, females n = 35) indicated on the post-stimuli questionnaire they perceived differences between models. My analysis of written responses showed the most frequently used keyword(s) to be *vibrato/straight tone* (n = 36), followed by *timbre/tone quality* (n = 13), and *intonation/pitch* (n = 12). Undergraduates perceived changes in vibrato (n = 25) and intonation (n = 8) more often than high school participants (vibrato n = 11; intonation n = 4). Male participants noticed changes in timbre/tone quality (n = 10) and intonation/pitch (n = 8) more often than females (timbre/tone quality n = 3; intonation/pitch n = 4), whereas changes in vibrato were more often perceived by females (n = 22) than males (n = 14).

Discussion

This study investigated the effects of vibrato and pitch-varied vocal models on acoustic measures of high school and undergraduate singers' vocal performance, with singers' perception observed as a secondary purpose of research. Primary findings of this study suggest

that pitch-varied models may affect singers' pitch accuracy, whereas vibrato-varied models may produce differences in vibrato and intonation. All singers displayed a propensity towards flat singing, with male participants singing overall more flat than female participants. Participants responded with the greatest pitch deviation to flat models and the least deviation to sharp models. Responses to vibrato models were more in tune than responses to minimal vibrato models, with faster vibrato rate and wider extent. Perception responses on the post-stimuli questionnaire indicated that singers more readily perceived differences in vibrato than in intonation.

One rationale to account for differences in response to mistuned models (flat models M = -12.30 cents; sharp models M = -6.88 cents) may be relative to participants' perception. As musicians demonstrated a greater tolerance for sharp intonation (Geringer & Witt, 1985; Morrison, 2000), it is possible that singers were more cognizant of flat models which therefore produced greater pitch deviation in responses. Singers' general propensity towards flat singing may have also compounded their greater response to flat models. Other contributing factors towards flatness may have been the morning testing time for high schoolers and differences in vocal warm-up time between singers. As total testing time was 10 minutes, it is also possible that singers experienced vocal fatigue and/or lack of focus during the process. Future researchers examining singers' pitch accuracy response to mistuned models might consider testing all participants in the afternoon, using a standardized warm-up with a shorter testing process.

Responses to pitch-varied models also showed that males displayed a greater inclination towards flat singing (male M = -16.75 cents; female M = -2.66 cents). These results may have been due to the male changing voice, although the range of the vocal models and early hour in which high schoolers tested may have also influenced male singers' intonation. Further, informal observations of sound levels during the recording process noted that males sang with similar amplitude on most pitches, regardless of range. While limited, this information suggests that males' reduced amplitude on higher pitches may have contributed to flat singing. To further investigate this theory, future researchers might explore a potential relationship between singers' sound levels and intonation, particularly with male changing voices.

Responses to vibrato-varied models (min vibrato M = -11.80 cents; vibrato M = -7.61 cents) suggest that high school and undergraduate singers may sing more out of tune in response to minimal vibrato models. Results in the current study are inconsistent with prior research (Duvvuru & Erickson, 2016), in which vibrato-varied models produced no pitch accuracy differences with undergraduate and professional female singers. Such differences may be due in part to training, gender, and singing tasks. Duvvuru and Erickson (2016) asked singers to match single pitches in response to vibrato-varied models, a short task that well-trained female singers were likely able to execute with accurate intonation. Less trained male and female singers in the current study imitated a pattern and song excerpt in vibrato-varied conditions, longer tasks which may have been more difficult to maintain with minimal vibrato, particularly those with male changing voices. This theory is only specula-

tion however, as it is unknown how much instruction participants received on vibrato prior to either study.

The observed effects of vibrato-varied models may have also been unique to the design of this study, as analysis occurred on only two pitches in each model response. Further, it is possible that the acoustic analysis methodology used in this study was not fully reliable in measuring pitch accuracy with complex vibrato sounds (Larrouy-Maestri, et al., 2013; Larrouy-Maestri et al., 2014a; 2014b). Analysis of some responses may be valid however, as participants widely varied in their use of vibrato. Future researchers in model studies with vibrato singing might consider using a different tuning standard as a referent for analysis (Larrouy-Maestri et al., 2014b). As Howard (2007) observed that singers in *a capella* choirs tended towards just tuning, perhaps use of this temperament might provide a more objective analysis of unaccompanied vibrato singing.

Results of the current study suggest vibrato models may elicit faster vibrato rate (vibrato M = 5.22 Hz; min vibrato M = 4.99 Hz) and wider extent (vibrato M = 81.46 cents; min vibrato M = 59.31 cents). As singers in previous studies were able to modify vibrato rate in an attempt to match target stimuli (Dromey et al., 2003; Titze, et al., 2002), participants in the current study also demonstrated the ability perceive differences in vibrato and make adjustments. Further, Titze et al. (2002) maintained that vibrato extent was more controllable than vibrato rate, findings also consistent in the current study. Considering that instructions to participants were to imitate vocal models as if in response to their choral conductor, adjustments were likely intentional on the part of at least some singers. This explanation is further plausible since 51% of participants indicated they perceived vibrato differences between models. As adjustments were not consistent in response to vibrato-varied models, conductors might consider increasing verbal specificity when referring to vibrato, should they desire a more uniform response from singers (Mann, 2014). To further investigate this premise, future researchers might compare the effects of vocal modeling with and without verbal prompts on singers' use of vibrato. Such research may show if singers are changing consciously or subconsciously in response to stimuli and if modeling could potentially replace verbal instruction.

As differences in vibrato occurred between participant groups, these results suggest singers' experience may influence vibrato characteristics. High school participants responded to vibrato-varied models with similar vibrato rate (vibrato M = 5.11 Hz; min vibrato M = 5.03 Hz) and extent (vibrato M = 66.27 cents; min vibrato M = 58.83 cents), whereas undergraduates displayed greater differences in rate (vibrato M = 5.32 Hz; min vibrato M = 4.96 Hz) and extent (vibrato M = 96.64 cents; min vibrato M = 59.79 cents) between vibrato-varied conditions. These differences may be a result of formal instruction, as researchers have found that training increased vibrato rate and widened vibrato extent (Mitchell & Kenny, 2010; Mürbe et al., 2007). Future investigators might continue to explore the effects of vibrato-varied models on less trained singers.

This research also explored singers' perceptions of vocal models to investigate a potential relationship between perception and production. Participants' perception of changes in

vibrato (51%) and intonation (15%) somewhat showed in vocal responses, as vibrato-varied models produced differences in all dependent measures, whereas mistuned models only affected intonation. While researchers observed that musicians' optimal pitch discrimination threshold was 4 - 6 cents in the middle octaves (Spiegel & Watson, 1984), vibrato conditions may have masked participants' perception of mistuned models in this study (Geringer, MacLeod, Madsen, & Nápoles, 2015; Geringer, MacLeod, & Sasanfar, 2015). Another potential reason for singers' lack of perception of mistuned models may have been because pitch-varied conditions only affected two notes per vocal model, unlike the vibrato conditions imposed throughout.

While perception and production do not have a clear relationship in this study, it is notable that differences in singers' vibrato and intonation were still present in responses. As researchers found that focus of attention influenced perception and listening patterns (Madsen & Geringer, 2000/2001), singers may have responded differently if directed to listen for changes in intonation and/or vibrato. Future researchers might investigate the concurrent effects of vocal modeling and focus of attention on singers' vocal performance.

Teaching Implications and Limitations

Given singers' responses to mistuned models in the present study, choral educators might try to be more accurate in their modeling, particularly in an attempt to avoid flat singing. Conductors might also consider pairing a verbal prompt with a vocal model to direct singers' ears towards nuances in intonation, especially when vibrato is present. As researchers observed that self-analysis through video reflection changed teaching practices (Nápoles & Vázquez-Ramos, 2013), choral educators may benefit from video recording rehearsals to observe modeling tendencies and improve singing accuracy. One of the most salient observations in this study was that pitch-varied models affected singers' accuracy, mistunings of which many participants did not perceive. Choral educators may need to acknowledge the possibility that singers regularly imitate vocal inaccuracies, imprecisions of which the conductor and/or singer may not be cognizant of in the moment. Consequently, consistent self-assessment through video analysis may be the key to increasing choral educators' awareness and improving modeling practices.

As responses to vibrato models in this study showed an increase in vibrato rate and extent, particularly with more experienced singers, choral educators might consider modeling with less vibrato if an overall reduction in vibrato is desired. If preference is for less vibrato, however, conductors may need to teach singers how to make vocal adjustments that are accurate in pitch, but free of vocal tension. Consulting expert voice teachers in this process is highly recommended to better understand the physiology involved in these adjustments.

While the purpose of this research was to explore vocal modeling for use within a choral setting, participants responded individually to vocal models and on a neutral syllable rather than on choral text. Participants also tested at different times of the day, with varied times

spent in vocal warm-ups. Further, while the re-analysis of 20% of responses yielded high reliability, the use of outside raters may have provided differing analyses. The acoustic analysis methodology used in this study may not have been fully reliable for those singers responding with complex vibrato sounds. Given these limitations, it is impractical to generalize results to all high school and undergraduate choral settings.

Conclusion

Many complex factors appear to contribute to the results of this study, including perception, formal training, vocal development, and vocal production. Results suggest that out of tune models may affect singers' intonation and that singers may imitate nuances in pitch, regardless of perceptions. Trained singers seem to imitate differences in vibrato more so than less experienced singers, possibly because of increased perception and formal training. Choral educators should consider the use of video self-analysis to both increase awareness of modeling tendencies and to improve singing accuracy. While Dickey (1992) observed modeling to be an effective strategy for music educators at all levels, the current study did not fully explain the effects of vibrato or pitch-varied vocal models. Continued research may help better understand how choral educators can consistently use vocal modeling as an effective teaching strategy.

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Article

AMERICAN CHORAL DIRECTORS ASSOCIATION

IJRCS

International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

International Journal of Research in Choral Singing
(2021) Vol. 9 22-40

Choral Directors' Self Report of Accommodations Made for Boys' Changing Voices: A Twenty Year Replication

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Abstract

To explore possible changes in educators' self-reported strategies used to accommodate changing voices, we replicated survey data collected between 1998-2000 (Killian, 2003). The original survey, developed from strategies of 47 experienced directors, consisted of a checklist of accommodations (treble singers only, rewrite parts, sing an octave lower, assign non-singing responsibilities, separate choirs by TB or Treble) and voicings (2-part Treble, 3-part Mixed, SAB, SATB) as well as numbers of boys taught in grades 4-9. Additional questions included challenges of teaching changing voices and needs for more information.

To examine possible changes over twenty years, we made two modifications to the survey: we added "Sing Falsetto" to accommodation strategies (Wayman, 2018) and "Unison" and "TB" to voicing options. Participants (N = 186) included attendees at music education conferences (n = 98 in Texas and New Mexico MEA, and Southwestern ACDA), and online respondents (n = 88 music educators primarily from Dallas and Fort Worth Independent School Districts). Comparisons of 2020 and 1998-2000 revealed changes between "Sing an Octave Lower" (original: 39.9%; 2020: 19.9%), "Separate Choirs" (14.8%; 21.9%), and "Rewrite Parts" (35.5%; 22.4%). Comparisons of voicings revealed differences in 2-Part Treble (original: 36.5%; 2020: 13.7%), TTB (10.0%; 15.2%), and in 3-Part Mixed (28.9%; 6.2%). Current directors desired more information about the changing voice. They seemed to recognize that information was available, but, like their counterparts 20 years earlier, seemed challenged with the task of translating information into effective teaching strategies. Discussion included implications for future research and dissemination to choral practitioners.

Keywords: *boys' changing voice; vocal accommodations; repertoire voicing; teaching venues*

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The challenges of working with choirs that include boys with changing voices have been well established (Swanson, 1961) and remain of ongoing interest (Dillworth, 2012; Freer, 2018; Friddle, 2005; Killian & Kagumba, 2018; Welch et al., 2019). John Cooksey's seminal work (1977, 1999), which established predictable stages of the boys' voice change, has influenced subsequent research (Abrahams & Head, 2016; Fisher, 2014; Killian, 1999; Killian & Wayman, 2010a). Of particular interest to this study was the availability of practitioner information in the form of college method texts (Brinson & Demorest, 2013; Collins, 1999; Phillips, 2015; Small & Bowers, 1997), texts designed for secondary choirs (Crocker & Leavitt, 1995; Killian et al., 1998), instructional videos (Freer, 2005), choral sight-reading instruction (Crocker, 2020; Eaton et al., 2006; Farnell & Phillips, 2014), and warm-ups designed for changing voices (Anderson, 2017; Emerson, 2009; Freer, 2009). Professional organizations and their corresponding journals have endeavored to disseminate changing voice research-based techniques to practitioners. For example, *Update: Applications of Research in Music Education* sponsored by the National Association for Music Education (NAfME) published a series called "Research-to-Resource" that included researched-based hints for changing voice phonation (Freer, 2018) and specific strategies for success with changing voices (Fisher, 2020) which was subsequently published as a blog, "Music in a Minuet" on the NAfME website. The American Choral Directors Association (ACDA) in the *Choral Journal* has published much information about changing voices, exemplified by Dilworth's (2012) article on effective repertoire choices and strategies to achieve success with changing voice singers. His extended article has been reprinted and appears on many lists of recommended resources.

Conference presentations involving changing voices are perennial favorites (Wayman, 2018), but we found no published data on which conferences have included changing voice sessions. Such clinics often become publications or are featured on websites in an apparent effort to reach practitioners. For example, Killian and Wayman (2010b) presented such a session on changing voices at a national NAfME (then MENC) venue, and a summary was published in *Teaching Music* which appeared on the NAfME website in sections including "Navigating the Voice Change: Voicings," "Navigating the Voice Change: Repertoire," and "Bonus Content" of audio recordings under the title "Range is Everything." Such experiences appear to be common and illustrate professional organizations' efforts to disseminate information to practitioners.

Given the increased availability of both research and practitioner information, we questioned whether such increased availability might translate into changes in practice. Specifically, do directors know more about changing voices than they did twenty years ago? Are there differences in strategies? Do educators believe they have enough information when teaching changing voices? These questions were addressed by Killian (2003) when choral workshop attendees (N = 405 in 8 states collected from 1998-2000) responded to questions about their programs, the numbers of male singers, and specifically what accommodations they made for changing voices. We speculated that, given the dissemination of additional

information, reactions 20 years later might have changed, and we determined to replicate the study. Our replication addressed the same questions as Killian (2003) with the addition of an overarching question regarding possible changes over time. Questions included:

1. What strategies are used to accommodate boys' voices in grades 4-9?
2. What repertoire voicings are most frequently used in grades 4-9?
3. To what degree do teachers feel challenged when working with changing voices?
4. What needs do teachers perceive regarding changing voices?
5. What is teacher awareness of changing voices in their classes? and
6. What are possible changes across 20 years (1998/2000 to 2020)?

Method

In order to examine possible changes in self-report by choral educators regarding their work with changing voice boys, we designed a survey modeled after Killian (2003). The original survey was a checklist based on the comments of a panel of practicing music educators ($N = 47$) who provided lists of accommodations made for changing voices as well as repertoire voicings selected for that same population. Note that the resulting checklist items were not interpreted as recommended methods; rather, the inclusion of items was limited to accommodations and repertoire voicings mentioned by two or more pilot participants.

The resulting survey consisted of a checklist of accommodations (Treble Singers Only,

Rewrite Parts, Sing an Octave Lower, Assign Non-Singing Responsibilities, Separate Choirs by Gender), and repertoire voicings (2-part Treble, 3-part Mixed, SAB, SATB) as well as demographic information. Respondents also listed the approximate number of boys they taught in grades 4-9 and estimated how many voices were unchanged, changing, or changed. This question was to determine the awareness of participants regarding their students' changing voices since some pilot respondents indicated a lack of familiarity with their boys' ranges or changing voice stages. We asked teachers to include male students in grades 4-9 since these grades encompass the ages inclusive of most changing voices (Fischer, 2010; 2014; Killian, 1999; Killian & Wayman, 2010a). Additional questions included challenges of teaching changing voices and desire for more information. Finally, the survey concluded with an open-ended question asking teachers what was needed to make their boys' choral experiences more successful.

For our 2020 replication, we made small modifications. Based on the authors' experiences while conducting recent choral workshops, we added: "Sing Falsetto" (Wayman, 2018) to the accommodation checklist options and "Unison" and "TB" to the repertoire voicing checklist options. Additionally, we changed the gendered language to more appropriate ter-

minology, i.e., references to boys' and girls' choirs were changed to T/B choirs and Treble choirs (Agha, 2017; Aguirre, 2018; McBride & Palkki, 2020). We recognize that much important information is now available regarding transgender and non-binary singers (Agha, 2017; Aguirre, 2018), but we purposefully limited the study to the same terminology (male voices) as was used in the original study for comparison purposes. Respondents were able to mention transgender/non-binary issues in free-response comments, but none did. Permission from the appropriate Institutional Review Boards for the Protection of Human Subjects was sought and granted for all surveys. The actual survey appears in Figure 1.

Boys' Changing Voice Survey

1. Circle all grade levels to which you teach music:
   Pre-K K 1 2 3 4 5 6 7 8 9 10 11 12 College Adults

2. Do you direct a choir? Yes No
   If yes, circle the grade level of the singers
   Pre-K K 1 2 3 4 5 6 7 8 9 10 11 12 College Adults

3. Approximate years of teaching experience: _____

4. Your gender: _____

5.

	Approximate number of boys you teach in each grade	Approximate number of boys in each voice category		
		Unchanged	Changing	Changed
Grade 4	_____	_____	_____	_____
Grade 5	_____	_____	_____	_____
Grade 6	_____	_____	_____	_____
Grade 7	_____	_____	_____	_____
Grade 8	_____	_____	_____	_____
Grade 9	_____	_____	_____	_____
Grade 10	_____	_____	_____	_____

6. How do you accomodate boys' changing voices? (check any that apply)

   _____ Select treble singers only
   _____ Re-write selected parts
   _____ Instruct them to sing an octave lower
   _____ Instruct them to sing in falsetto
   _____ Assign them non-singing responsibilities
   _____ Have seperate treble and tenor/bass choirs
   _____ Sing Unison music
   _____ Sing 2-part treble music
   _____ Sing TTB/TTBB music
   _____ Sing 3-part mixed music
   _____ Sing SAB music
   _____ Sing SATB music
   _____ Other (please explain) _____

7. On a scale of 1-5, how challenging is working with boys' changing voices?
   Very challenging 5 4 3 2 1 No problem

8. Do you feel you have enough informatino about changing voices?
   Not enough information 5 4 3 2 1 Plenty of information

9. What do you need to mkae your boyd choral experience more successful? (use back if needed)

Figure 1
Changing Voice Survey (2020 Version)

Volunteer participants checked as many accommodations and voicings as applied to their situation. Participants, consistent with the original study, were a sample of convenience from volunteers who attended various venues regarding adolescent voices. Participants in this replication (N = 186) included attendees at state and regional music education conferences (Texas Music Educators Association, n = 77, New Mexico Music Educators Association, n = 11, and Southwestern American Choral Directors Association, n = 11) and respondents to an online version of the survey (Dallas, TX Independent School District, n = 33, Fort Worth, TX Independent School District, n = 26 and closed Facebook pages, Choir Directors of Texas and Elementary Music Teachers, n = 26). Calculation of actual response rates was impossible due to unavailability of numbers of participants in each venue. All data were collected during the early months of 2020, necessitating the use of online surveys due to the COVID-19 pandemic.

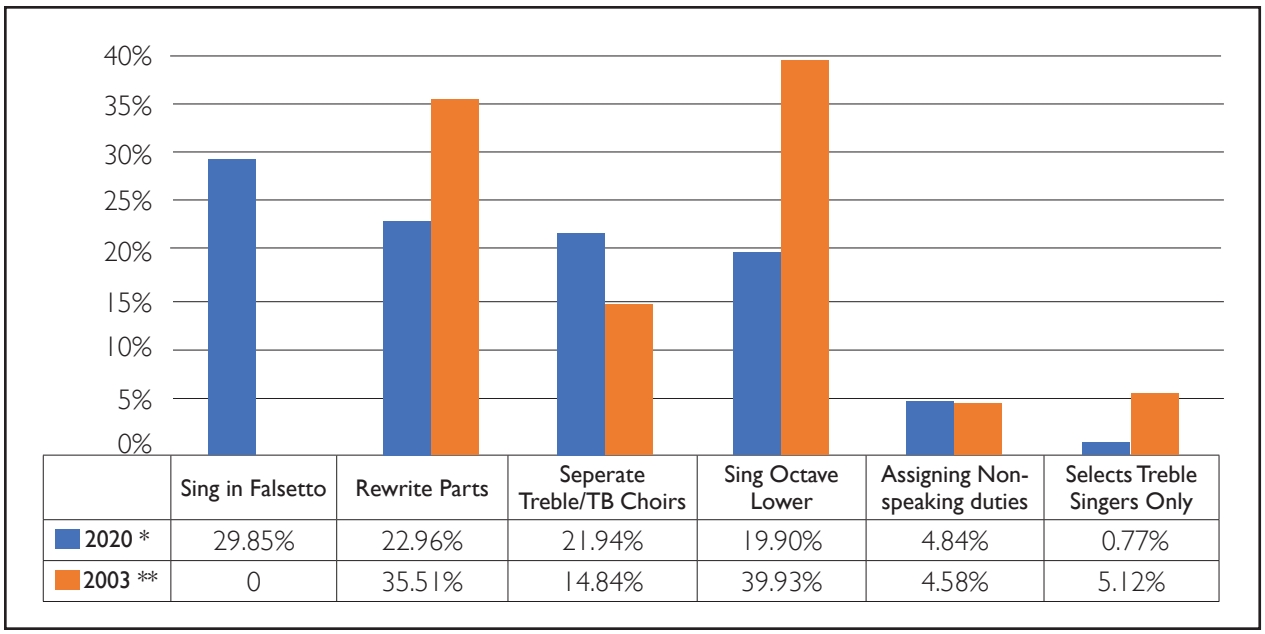
Results

Raw data consisted of frequency data regarding accommodation strategies and repertoire voicings used for changing voice boys, Likert-scale responses to opinion questions, estimates of numbers of unchanged, changing and changed voices, demographic information about directors' years of teaching experience and teaching venues, as well as content analyses of free-response opportunities. The design of the present investigation was purposeful, allowing the comparison of current results with those of practicing music educators from twenty years earlier. We reasoned that the availability of additional recent information (cf. Review of Literature) might influence the common practices of current respondents.

The original study utilized some statistical analyses; however, we elected to display current results solely as descriptive data, believing that the sample of convenience, and inclusion of both in-person and online responses made the use of statistical analyses somewhat suspect. We also reasoned that comparisons of responses across two decades might provide an interesting perspective of current choral education practice, stimulating future quantifiable research.

Accommodation Strategies

All respondents selected strategies used to accommodate boys' changing voices from a compiled list. In 2020, 173 different respondents (93.0%) checked multiple specific strategies (392 responses); 13 made no response. In 2003, 337 respondents (83.0%) made 568 responses while 69 did not respond. All subsequent data were converted to percentages to account for differing respondent pool sizes and response venues to allow comparison of data. See Figure 2 on page 28 for 2003 and 2020 comparisons of the specific accommodation strategies selected.



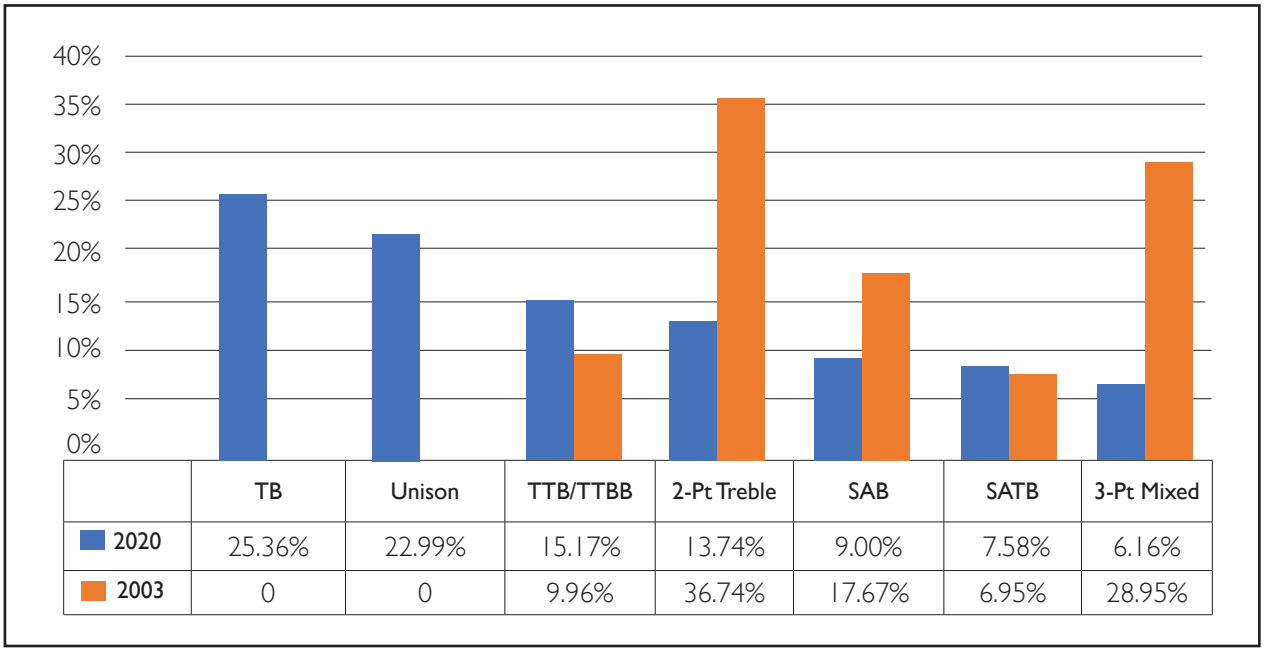
	Sing in Falsetto	Rewrite Parts	Seperate Treble/TB Choirs	Sing Octave Lower	Assigning Non-speaking duties	Selects Treble Singers Only
2020 *	29.85%	22.96%	21.94%	19.90%	4.84%	0.77%
2003 **	0	35.51%	14.84%	39.93%	4.58%	5.12%

Figure 2

Percentage of Accommodation Strategies for Changing Voices Comparing 2003 and 2020

Repertoire Voicing Selections

Respondents indicated their choice of repertoire voicings to accommodate changing voice boys from a prepared list and could select as many as appropriate. Overall, 176 different 2020 participants checked voicings from the provided list resulting in 451 responses; 10 did not respond. See Figure 3 for 2003 and 2020 comparisons. Participants could also respond to "Other," which allowed explanation of their answers and/or strategies or voicings not



	TB	Unison	TTB/TTBB	2-Pt Treble	SAB	SATB	3-Pt Mixed
2020	25.36%	22.99%	15.17%	13.74%	9.00%	7.58%	6.16%
2003	0	0	9.96%	36.74%	17.67%	6.95%	28.95%

Figure 3

Percentage of Repertoire Voicings for Changing Voices Comparing 2003 and 2020

mentioned on the checklist. For 2020, 29 (15.6%) respondents added comments while 157 did not. For 2003, 104 (25.6%) made entries under "Other." Like the 2003 data, 2020 "Other" comments included primarily anecdotes of effective strategies and ideas for ways to individualize repertoire.

How Challenging? Enough Information?

Participants responded to a 5-point Likert scale to answer the question: "How challenging is working with changing voices?" anchored by 5 (very challenging) and 1 (no problem). In both studies, responses ranged from 1-5 and were above half (3.0) with very small differences between means of 3.8, SD 1.2 (2003), and 3.3, SD 1.1 (2020). A larger mean indicated response toward very challenging.

Likewise, participants responded to a 5-point Likert scale to answer the question: "Do you have enough information about changing voices?" anchored by not enough information (5) and plenty of information (1). In both studies, responses ranged from 1-5 and were above half (3.0) with small differences between means of 3.8, SD 1.2 (2003), and 3.1, SD 1.3 (2020). A larger mean indicated responses toward "not enough information". Figures 4 and 5 allow graphic comparisons.

Estimation of the Numbers of Changing Voice Boys

As in the original study, teacher estimations (specifically, how many changing voice boys were taught and in which voice change stages those boys were) revealed that teachers made estimates that were consistent with published data (Cooksey, 1999; Fisher, 2010, 2014; Killian, 1999; Killian & Wayman, 2010a). Teacher estimates indicated that: in 2003, 406 respondents taught 27,350 boys or 67.35 boys per teacher, while in 2020, 186 respondents taught 10,255 boys or 55.13 per teacher. Table 1 on page 30 allows comparison of 2003 and 2020 data for teacher estimates of the percentage of boys with unchanged, changing, and changed voices.

What is Needed to Make Boys' Choral Experiences More Successful?

In a free-response format, teachers were asked, "What do you need to make your boys' choral experiences more successful?" In 2003, 226 (55.7%) of the 406 participants responded. In 2020, 116 (62.4%) of the 186 participants responded. Table 2 on page 30 presents the categorized responses across twenty years.

Demographic Information

Teaching Venues

Teaching venues varied between 2003 and 2020 as seen in Table 3 on page 30. In 2003 the largest percentage taught pre K-fifth graders (45.0%), while in 2020, the largest group of participants taught exclusively sixth-eighth graders (46.2%), which also included some

Table 1.

Teacher Estimates of Percentage of Unchanged, Changing, & Changed Voices in Grades 4-10

Grade	Total # Boys Listed		# Unchanged, Changing, Changed Listed		% Unchanged		% Changing		% Changed	
	2003	2020	2003	2020	2003	2020	2003	2020	2003	2020
Grade 4	8594	1522	7753	1573	91.60	91.54	7.44	8.01	0.95	0.45
Grade 5	8407	1568	7238	1598	77.25	76.85	19.19	16.90	3.56	6.26
Grade 6	5056	2438	4488	2211	61.23	66.53	30.95	25.96	7.82	7.51
Grade 7	2361	2061	2115	1842	43.31	33.93	45.30	43.97	11.39	22.10
Grade 8	2051	1579	1830	1337	20.98	14.06	46.89	40.69	32.16	45.25
Grade 9	881	575	781	480	5.76	11.67	31.37	37.92	62.87	50.42
Grade 10	N/A	512	N/A	391	N/A	6.14	N/A	26.60	N/A	67.26
Total N	27,350	10,255	24,205	9432	16,786	5032	5416	2610	2003	1790

Table 2.

What us needed to Make Boys's Choral Experiences More Successful

Response Categories	2003	2020
Music/Literature Needs	35.83%	18.56%
Teacher Request for Additional Information	18.33%	19.16%
Time/Scheduling Issues	13.75%	11.38%
Teacher Anecdotes	9.58%	7.19%
Psychological/Sociological Considerations	8.75%	13.77%
Teaching Techniques/Suggestions	7.08%	15.57%
Recruiting Issues	6.67%	5.39%
Male Vocal Models*	0.00%	8.98%

Note: *Category added to the 2020 study due to increased mentions

*Categorization reliability = 92.17%
(agreements divided by agreements + disagreements calculation - Madsen & Madsen, 2016).

Table 3

Percentage of Respondents Teaching Various Grade Groupings

	Pre K-5th	K-8th	6-8th	6-12th	9-12th	K-12th
2003	45.00%	5.00%	19.80%	9.90%	1.50%	18.80%
2020	26.34%	4.30%	44.09%	8.06%	16.13%	1.08%

who taught exclusively sixth grade music. Notably, only a single 2020 respondent taught K-12 students, while a large number (18.8%) did so in the 2003 sample.

Directing Choirs

Overall, 84.0% of the 2003 respondents and 88.7% of the 2020 respondents indicated they currently directed choirs.

Gender

In 2020, 61.3% of the respondents self-identified as female and 38.7% as male. Gender was not a question on the 2003 survey.

Discussion

Comparison of choral directors' self-report in 2020 and 2003 regarding their work with boys' changing voices revealed many similarities as well as some notable differences. As we addressed our original questions, it was noted that 2020 teachers reported they still find working with changing voices very challenging, but only slightly less so than their 2003 counterparts. Similarly, 2020 teachers reported they have slightly more information on the topic, but very few believe they have enough. A few more effective strategies/accommodations were mentioned in 2020, but many teachers still listed the same needs that were mentioned in 2003. So it appears that much work remains to be done. Specifics are discussed below.

Location

Twenty years have passed between data collections, but the two samples (both samples of convenience and including only individuals who were interested enough to attend events on adolescent singers) should not be considered typical of all music teachers, nor can the two samples be considered similar to each other. The location of respondents varied between 2003 and 2020. The 2003 data consisted of collections between 1998-2000 from Minnesota (n = 93), North Dakota (n = 82), North Carolina (n = 55), Utah (n = 29), Florida (n = 43), Tennessee (n = 22), New Mexico (n = 20), and Texas (n = 62). The 2020 data were collected exclusively from the southwest, primarily Texas, with a few from New Mexico and the Southwestern ACDA, which includes Arkansas, Colorado, Kansas, Missouri, New Mexico, Oklahoma, and Texas (ACDA website). Further, all of the 2003 data were collected face to face, while 47.3% of the 2020 data were collected via online surveys. Thus much caution should be used when comparing these data.

Accommodations for Changing Voices

In 2020, the most prevalent accommodations included a combination of singing in fal-

setto, rewriting parts, and singing an octave lower (total of 72.7%). See Figure 2. In 2003 the accommodations included a combination of singing an octave lower and rewriting parts (total of 75.4%). The "Sing Falsetto" option was not available to 2003 respondents, but, notably, only one 2003 respondent mentioned falsetto in free-response opportunities. It is not clear whether either group was aware of data indicating that falsetto is not available until later voice stages (Cooksey, 1999; Killian & Wayman, 2010a), or whether singing in a lower octave is not always possible during all stages of the voice change (Cooksey, 1999). Comments in the free-response sections, however, would imply such awareness. For example, respondents in 2003 modified their checklist answer of "Sing Octave Lower" with phrases such as: "Octave lower if possible," "Octave lower when it works," and "Sing octave down only on selected notes in the music,"

Respondents in 2020 indicated increased specificity that seemed to demonstrate their awareness of the variability in changing voices. Representative responses included: "Lots of vocal training with falsetto working transitions, switch t/b parts as necessary, leave out notes," "Change key, mark out individual notes," and "Transpose music constantly to fit the ranges of most of the singers in the choir."

Notably, 21.9% of 2020 respondents recommended separate Treble or T/B choirs, while only 14.8% of 2003 respondents chose this option. Teaching venues seemed quite different for the two groups (Table 3), and this fact may have affected whether directors believed there was a possibility of separating choirs into Treble and T/B groups.

It should be noted that although "Selecting Only Treble Singers" was checked 29 times (5.1%) in 2003 and three times (0.8%) in 2020, only four people made that their only choice (all in 2003). Additionally, while "Assign Non-Singing Duties" was chosen by 26 (2003) and 19 (2020), only four (2003) or two (2020) made it their only choice of accommodation. Thus, neither group of respondents appeared to indicate a tendency to exclude changing-voice boy singers.

Repertoire Voicings

Figure 3 presents a comparison of repertoire voicings between 2003 and 2020. Note that "TB" and "Unison" were 2020 additions and that a combined 48.35% of 2020 respondents chose those voicings. Despite comments that more repertoire voicings seemed to be available for changing voices (Wayman, 2019), many 2020 respondents mentioned the need for more appropriate repertoire. Based on informal conversations with publishers who track T/B music sales, southwestern choirs may have more separate T/B and Treble choirs, and the data in Table 3 tended to confirm that speculation. Remember that 2020 respondents taught in the southwest, primarily Texas, while 2003 respondents included a mix of midwestern states as well as Texas. Unfortunately, we did not ask either 2003 or 2020 respondents whether they actually had separate Treble and TB or Mixed choirs, so no data were available. It would appear logical that as more separate choirs (TB or Treble) are formed, fewer SAB or 3-Part Mixed or SATB repertoire would be needed. Notable differ-

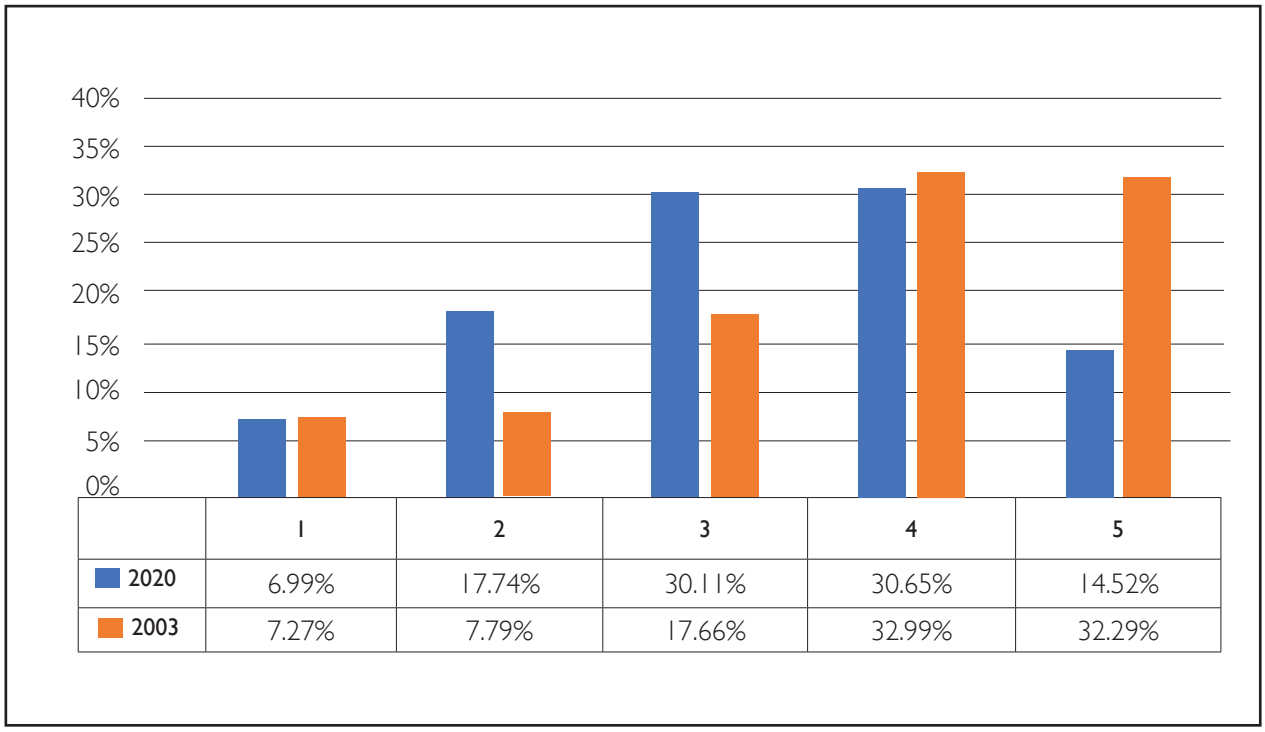
ences appeared in 3-Part Mixed selections (2020 = 6.2% while 2003 = 29,0%). Publishers informally confirmed that 3-Part Mixed voicings were becoming less common. Whether practitioners are buying fewer 3-Part Mixed octavos, whether composers are not writing for that voicing, or whether fewer publishers are providing that option is undeterminable. Additional research regarding to what extent publishers affect repertoire voicing patterns seems merited.

Awareness of Changing Voices

Examination of the self-reported data in Table 1 revealed that overall a remarkable number of male singers were receiving music instruction. The 2003 data indicated 406 respondents reported teaching 27,350 boys or 67.4 boys per teacher, while in 2020, 186 respondents taught 10,255 boys or 55.1 per teacher. Both sets of data show that the numbers of unchanged voices decreased with each year in school, and the number of changed voices increased. Interestingly, in 2003 the number of changing voices peaked in Grades 7 and 8 and declined in Grade 9; in 2020 changing voices peaked in Grade 7 but declined in Grades 8 and 9. Since these data were only estimates by individual teachers, this result should not be considered conclusive; but it perhaps indicates an observed tendency toward earlier vocal maturation (Fisher, 2014; Killian, 1999; Killian & Wayman, 2010a, Reiter, 2012). The studies cited, all involving US singers, concurred that voices were changing earlier, but the reader should note that these conclusions were questioned among researchers investigating UK choristers (Ashley, 2010, 2013; Ashley & Mecke, 2013), so clearly further research is advised on the unresolved issue of whether voices are changing earlier. The teachers' estimates may indicate the awareness they have of their singers' voices or may suggest that they also were aware of what the data should show. We did not ask respondents whether or not they tested voices individually, and that is certainly a ripe area for future research. Further research focused on the timing of maturation among adolescent male singers is undoubtedly warranted. The reader is reminded that teacher estimates rather than confirmed data was a major limitation of this study, so generalizations are cautioned.

How Challenging? Enough Information?

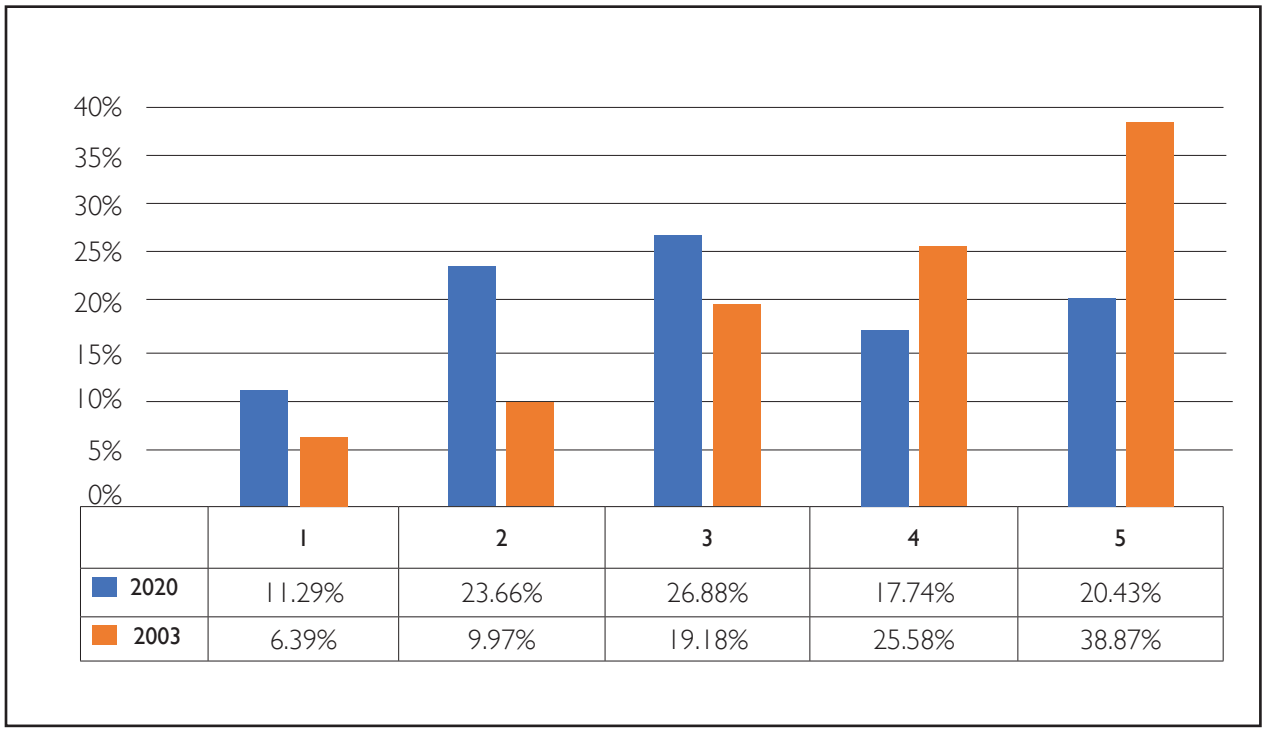
Results seemed to indicate that 2020 respondents viewed working with changing voices as slightly less challenging (M = 3.3 on a 1-5 scale) than their 2003 counterparts (M = 3.8). Similarly, 2020 respondents tended to think they had slightly more information about changing voices (M = 3.1 for 2020 and 3.8 for 2003). See Figures 4 and 5 on page 34. However, note that both sets of means are above the midpoint of 3.0 on a 1-5 scale, so teaching changing voices remains fairly challenging, and more information would be welcome. In fact, only 21 (11.3%) of the 2020 respondents believed they had "plenty of information" despite the prevalence of articles and clinics about adolescent voices. Open-ended comments confirmed this conclusion.



	1	2	3	4	5
2020	6.99%	17.74%	30.11%	30.65%	14.52%
2003	7.27%	7.79%	17.66%	32.99%	32.29%

Figure 4

Comparison: On a Scale of 1 (not challenging) – 5 (very challenging): How Challenging is Working with Boys' Changing Voices?



	1	2	3	4	5
2020	11.29%	23.66%	26.88%	17.74%	20.43%
2003	6.39%	9.97%	19.18%	25.58%	38.87%

Figure 5

Comparison: One a Scale of 1(plenty) to 5 (not enough): Do You Feel You Have Enough Information About Boys' Changing Voices?

Were these differences created by 2020 teachers' increased knowledge? Or were these differences situational? Further comparisons among teachers who have separate TB and Treble choirs might be a fruitful area of research. Note that the 2003 data included teachers who taught grades K-12, K-5, 6-8, and high school while the 2020 data included teachers who primarily taught grades 6-8. See Table 3. This one difference might make the two data sets rather incomparable. So generalizations, however interesting, should be made with great caution.

While 2020 teachers self-reported they knew slightly more about changing voices, they still indicated their desire for more information (M = 3.1 for 2020 on a 1-5 scale vs. 2003 M = 3.8). Further, 2020 teachers still found teaching changing voices quite challenging but slightly less so than 2003 respondents (M = 3.3 for 2020 and 3.8 for 2003). Note that responses closer to 5 indicate "more challenging" and "need more information." See Figures 4 and 5.

Open-Ended Responses

Responses to the question "What do you need to make boys' choral experiences more successful?" were quite similar between 2003 and 2020, with most involving the need for additional information, time and scheduling challenges, teacher anecdotes, and the need for recruiting information. One area of difference was that respondents in 2020 mentioned a category that did not appear in 2003: "Need for male vocal models." The need for appropriate music literature was rated much lower in 2020 (18.6% vs. 35.8%), perhaps indicating the increased availability of materials and publications (Cf. Review of Literature). A number of respondents included their own teaching suggestions in their open-ended responses. More teaching suggestions were made in 2020 (15.6%) compared to 2003 (7.1%) perhaps implying an increased self-confidence and knowledge of effective strategies among the 2020 teachers.

Interestingly, psychological considerations were mentioned more frequently in 2020 (13.8% vs. 8.8% in 2003), perhaps reflecting our general society, especially during the time of COVID-19, as well as additionally available studies on the topic (Dilworth, 2012; Fisher, 2014; Freer, 2007; Killian, 1997; McBride & Palkki, 2020; Sweet, 2010; Warzecha, 2013).

Teachers in the 2020 sample seemed to mention more specific strategies and explain them in greater detail. This fact may reflect increased knowledge, improved confidence, or be the result of having more time to respond to an online survey rather than answering quickly before running to the next session during a conference. Examples of the more specific answers:

> I have unchanged voices sing in the proper section, either soprano or alto. As the voice changes, we assess what needs to happen and move them around as needed. As long as the singer is supported and praised for singing the "right" part, I've had few issues.

> I teach them to know where they are in the voice change process (M1, M2, M2A, NB, SB), to not sing below their lowest note, and to use falsetto when needed. Additionally, use transposition of most music to keep songs within the ranges needed.

Teachers in 2020, like their 2003 counterparts, continued to request more information and further repertoire, often using more detail to do so. Representative responses included:

More support from the middle/high school choir teachers in my pyramid area. It would be great if in the spring semester teachers would come and do a "workshop" and Q & A with all the boys and maybe even check their ranges, etc. Just like the band director comes and checks them out on instruments.

> I would like a refresher course on how to serve the boys who are going through voice change. Strategies to help them navigate through the time when they can only sing 3 notes would be helpful. I would also like to have separate choirs for middle school boys.

> A whole school environment that really supports the efforts of young men who choose to sing, within the classroom as well as across the school. Choir needs to be a place for students who enjoy singing, not just a dumping ground to fill numbers.

> Quality choral literature that is sensitive to the male changing voice. Contests that understand it may be necessary to rewrite a vocal part to accommodate the male changing voice.

> Quick ways to assess voice ranges Easy principles to know to rewrite voice parts Directives that encourage changed, changing, and unchanged voices to sing comfortably in their natural way. I need more input from an older male singer. What did "it" feel like? How did he feel emotionally? What did he do to keep singing as he went through the voice changes?

> Energy, lots of activities and goods pacing, motivated by competition and food.

> The more data I gather about their voice in class, the better I teach.

> Some teachers seem to believe that falsetto is something students just know how to do. As a male who had a teacher like that, I will tell you that I quit singing for many years because of that attitude. I would leave choir in pain, and it just wasn't worth it. I finally had a teacher (band director, of all things) who had us sing our parts. He encouraged me to sing in whatever range was comfortable, as long as I

could hear the tune. That helped me discover that I, in fact, loved singing as long as I could sing in my register.

Overall, it was inspiring to read of the enthusiasm, the concern, and the thirst for knowledge expressed by the 592 directors (2003 plus 2020) and the care they communicated for the combined 37, 605 male singers they taught. Much research remains to be conducted on this important topic. We would urge presenters at workshops and similar events to use these directors' stated desires for more successful strategies as inspiration for workshop content, as we continue to collect data and disseminate the resulting information to the teachers and students who benefit. The summary of the 2003 study remains most appropriate today:

Further study might address qualitative research regarding individuals working with changing voices, development of quantitative measures of singing achievement among changing voice boys, examination of the correlation between what directors say is the most effective method and what they actually do, exploration of techniques teachers use to determine voice ranges and stages among their choir members, and further exploration of what directors across the nation are actually doing to assist young singers to make music during their voice change. It is hoped that this study will serve as a springboard to many more specific investigations of teaching boys with changing voices and help to identify best practices from among the recommended strategies. (Killian, 2003, p. 9).

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Article

AMERICAN CHORAL DIRECTORS ASSOCIATION

IJRCS

International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

International Journal of Research in Choral Singing
(2021) Vol. 9 41-67

Assessment in the Choral Classroom: A Case Study of a Secondary Choral Program

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Abstract

Assessment in the large choral ensemble classroom continues to be a widely examined topic among music education practitioners and scholars. Scholars have dedicated a significant body of research to identifying and examining the assessment practices of music educators (Denis, 2016; McQuarrie & Sherwin, 2013) However, due to their design, a number of the studies did not thoroughly explore the why and how of music assessment through the voices and experiences of students and teachers (Kotora, 2005; McClung, 1996; McCoy, 1991; Russell & Austin, 2010). This instrumental case study (Stake, 1995) explored perceptions of assessment practices as reported by high school choir students and their choir teacher.

Research questions examined participants' beliefs about assessment, the factors that influenced those beliefs, their experiences with assessment practices, and the challenges of assessing choral music students. Through analysis of multiple types of data collected from various data sources, the findings revealed that the teacher used both musical and nonmusical assessment practices to evaluate student learning. Students perceived all assessment practices, musical and nonmusical, to be in support of what they viewed as the primary goal of the choral program—ensemble achievement. The study identified external and internal influences that directly affected the use of assessment practices at Allen Thomas High School (ATHS), including the choir's role in the school curriculum and culture.

Keywords: music assessment, secondary choral music, grading, evaluation, music education

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Assessment in music education has been the subject of debate among music education professionals for many years. Paul Lehman's pioneering publication, *Tests and Measurement in Music* (1968), served as a call to music educators who were seeking, at the height of the post-Sputnik era, to understand the importance of measurement and evaluation in music classrooms across the country. But over fifty years later, professional dialogue remains largely unchanged as music educators continue to search for answers to the many questions about music assessment. Through initiatives such as the National Association for Music Education (NAfME) Model Cornerstone Assessments (2016) and revisions of the National Core Arts Standards (2014), music educators have positioned themselves, although with varied success, to argue that music possesses merit as a necessary curricular component in American public schools.

The unique challenges of music teaching and learning have created tensions among administrators, teachers, policymakers, and music educators (McClung, 1996; Russell & Austin, 2010). Pedagogues such as Colwell (2008) and Lehman (2008) posited that music educators generally struggle to find common ground on issues about goal setting and curricular choices. They reported that such controversies have contributed to a variety of views among music educators about the nature of assessment. Such disparity, combined with the subjective nature of music teaching and learning, has impeded attempts to develop fair and reliable assessment measures within the current data-driven, standards-based educational landscape.

Previous studies reported that logistical matters, such as the number of students taught, time constraints, workload, and administrative support influenced music educators when making decisions about assessment (Conway & Jeffers, 2004; Ferm Almqvist et al., 2017; Lehman, 2008; Russell & Austin, 2010). These challenges are confounded by additional challenges, which are unique to ensemble teaching and learning including a lack of professional development on the topic of assessment; discrepancies in contact time with students (due to scheduling issues and/or interruptions); lack of strategies for assessing individual students in large classes; addressing parent and student apathy; and a shortage of available resources for collecting, managing, and storing assessment artifacts and data (Kotora, 2005; McClung, 1996; Russell & Austin, 2010).

With increasing pressure to provide data and to assess individual music students' skills and knowledge, extant literature indicates evidence of prevailing trends toward assessment practices in ensemble music classrooms that do not reflect a student-centered, individualized, data driven approach. LaCognata (2011), Kotora (2005), and McCoy (1988) all reported a prevalence of music ensemble teachers (instrumental and choral) using assessment practices based on nonmusical criteria, especially attendance and participation. According to Russell and Austin (2010), though some music teachers incorporated both achievement and nonachievement criteria into their grading practices, they tended to assign greater weight to the latter. Russell & Austin (2010) concluded that choral teachers assigned greater weight to attitudinal assessments, while their instrumental counterparts prioritized performance assessments.

The inherent subjectivity and fairness issues related to assessing students' behavior, participation, attendance, and attitude, and the widespread use of nonachievement criteria for assessment in music education may leave music educators vulnerable to challenges from students and parents, including legal challenges (Russell, 2011). Moreover, the use of nonmusical and nonachievement criteria-based assessments in music classrooms negatively influenced stakeholders' perceptions of the rigor and expectations of school music programs (Aitchison, 1993; Denis, 2016; Kotora, 2005; McClung, 1996).

These concerns, and the general trends toward greater accountability, have led music teachers to utilize a variety of achievement-based assessment strategies to evaluate musical skill and knowledge including alternative assessments (e.g., portfolios, projects, journals), traditional written exams, and individual and ensemble performance assessment (LaCognata, 2011; Kotora, 2005; McClung, 1996; McCoy, 1991; Russell & Austin, 2010). Even though such strategies were designed to objectively measure and evaluate individual musical achievement, written exams may be vulnerable to questions of validity (Wesolowski, 2020) and bias (McMillan, 2018) while performance assessments are reportedly unreliable (Bergee, 2003; Latimer et al., 2010; Reimer, 2009; Ryan & Costa-Giomi, 2004). Additionally, performance assessments of group achievement have not demonstrated reliable evidence of individual achievement (Broomhead 2001; Henry & Demorest, 1994).

These studies suggest that a significant body of research has addressed the many issues related to music assessment. However, most of the studies, due in part to their designs, did not explore the why and how of music assessment through the voices and experiences of students and teachers. Though several studies have examined teachers' use and perceptions of assessment in music education (Harrison et al., 2013; Hawkins, 2018; Kancianic, 2006; McCoy, 1991; McClung, 1996; Reimer, 2009; Russell & Austin, 2010; Tracy, 2002), fewer studies have investigated student perceptions of those assessment practices (Aitchison, 1993; Conway & Jeffers, 2004; Kotora, 2005; McClung, 1996). Furthermore, the existing research fails to address the thought processes of teachers when planning and implementing assessment practices in their classrooms.

This qualitative perspective could provide additional insight to previous findings. The lived experiences of this study's participants combined with the findings generated from the field may contribute to a growing body of knowledge that seeks to understand the values, beliefs, and perceptions of those engaging with and making decisions about assessment in music classrooms. Therefore, the purpose of this instrumental case study was to examine participants' experiences with assessment practices in a secondary (high school) choral ensemble class and to explore their values and beliefs about assessment.

To do so, I used a case study methodology to collect and analyze data to address three primary research questions:

1. How do participants perceive, value, and experience assessment practices in the choral classroom?

2. How do school culture and other factors influence participants' perceptions, values, and experiences of assessment in the choral classroom?

3. What challenges do choral teachers and students encounter when implementing and engaging with assessment in the choral music classroom, and how do those challenges influence assessment practices?

Method

I used an instrumental case study (Stake, 1995) to investigate assessment practices as they existed in a real-life context. The purpose was to investigate a key topic or concern about a single, bounded case leading to understandings and assertions about various assessment practices in the choral classroom. By situating myself in the naturalistic and interactive learning environment, the case-study methodology allowed me to create a real-life portrayal of the case and to use field data to examine more thoroughly the key instrumental focus of the study.

Research Site

The site was Allen Thomas High School (ATHS - pseudonym); a suburban, Southeastern public high school in the United States. A total of 212 students were enrolled in choral classes at ATHS at the time of data collection. The choral curriculum included five developmentally sequenced choral music classes: Mixed Choir (beginners and advanced mixed, grades 10–12), Men's Choir (grades 9–12), Women's Choir (grades 9–12), Concert Choir (women's choir, grades 10–12), and AT Singers (advanced mixed, grades 10–12). All ATHS choirs were curricular. Auditions, which took place in the spring prior to the next academic year, determined students' choir placements.

Many of the choir students experienced formal music instruction for the first time as a student at ATHS. The feeder elementary and middle schools that ATHS students attended did not offer music instruction by a certified music educator. Table 1 on page 45 provides demographic information for ATHS as reported by National Center for Education Statistics (2018) compared to the enrollment in the choral classes. I used student registration information provided by ATHS. The research site provided variation in the demographic makeup of each choir including the socio-economic differentiation of the student population, and a representation of students at various stages of their musical and vocal development.

Table 1

Demographic Information for Andrew Thomas High School and the Choral Program

	Total students	American Indian	Asian	Black	Hispanic	White	Two or more races	Male	Female	% Free and Reduced Lunch
ATHS	1520	>1%	>1%	35%	7%	56%	>1%	49%	51%	36%
Men's	33	0%	0%	9%	>1%	90%	0%	100%	0%	N/A
Mixed	54	0%	0%	20%	0%	79%	0%	41%	59%	N/A
Concert	38	0%	0%	15%	>1%	84%	0%	0%	100%	N/A
Women's	58	0%	3%	17%	3%	74%	>1%	0%	100%	N/A
ACSingers	17	0%	0%	23%	0%	76%	0%	41%	59%	N/A

Participants

Teacher

Ms. Andrews (pseudonym) was the lead choral educator at the high school and had been teaching at the school for 13 years. She developed a large choral program built on what she described as a "foundation of musical skill and understanding." According to the ATHS choral handbook, Ms. Andrews desired to "cultivate the development of skills in vocal technique, sight-reading, vocabulary enrichment, and performance skills." In her role as lead choral teacher, she oversaw and administered all forms of classroom assessment procedures.

Students

Students (see Table 2 on page 46) were selected to participate based on their availability and willingness to contribute to the study. I aimed to gather a representative sample of the diverse student population. Student participation represented a cross section of the school and choir population and provided perspectives from varying levels of experience in choral singing, vocal skills, and musical development. A total of 20 students participated: 10 students were beginners and 10 were advanced; 10 students identified as male and 10 students identified as female. The advanced students, mostly 11th and 12th graders, possessed more experience (three to four years) and greater familiarity with the assessment practices. For beginning students (mostly 9th and 10th graders), this was their first or second year in a choir.

All 20 students participated in one of three focus group sessions. Following the focus group discussions, I selected the 10 individual interview participants. I selected students based on my judgment of their multifaceted contributions to the focus group discussion and their ability to inform the research questions.

Table 2
Student Participants

Name (pseudonym)	Grade	Choir	Level	Years of Experience	Gender	Race
Brandi	9	Women	Beginner	0.5	Female	White
Alice	9	Women	Beginner	0.5	Female	Black
Miranda*	10	Women	Beginner	1.5	Female	White
Maria*	10	Concert	Beginner	1.5	Female	Black
Nina	10	Concert	Beginner	1.5	Female	White
Jake*	9	Men	Beginner	0.5	Male	White
Sidney	9	Men	Beginner	0.5	Male	Black
Lane	10	Mixed	Beginner	1.5	Male	White
Charlie*	10	Mixed	Beginner	1.5	Male	White
Jude	10	Men	Beginner	1.5	Male	Black
Jess	12	ATS & Mixed	Advanced	3.5	Female	Black
Catherine*	12	ATS & Mixed	Advanced	3.5	Female	Black
Liz*	11	ATS & Mixed	Advanced	2.5	Female	White
Barbara	12	ATSingers	Advanced	3.5	Female	White
Becca	11	ATS & Mixed	Advanced	1.5	Female	White
Tommy	12	ATSingers	Advanced	1.5	Male	White
Mark*	12	ATS & Mixed	Advanced	3.5	Male	White
Joseph	12	ATS & Mixed	Advanced	3.5	Male	White
Michael*	12	ATS & Mixed	Advanced	3.5	Male	White
Bryant	11	ATS & Mixed	Advanced	1.5	Male	White

Note. * denotes participants who completed an individual interview

Data Generation

Prior to collecting data, I received Institutional Review Board (IRB) approval and collected informed consent and assent forms from all participants. Data generation occurred over a 10-week period from October 2018 to March 2019. Data were generated from multiple sources. My role was participant observer where participants understood my function as researcher (Stake, 1995).

Primary data sources included field notes generated during observations of assessment practices, focus group discussions, teacher reflections, and semi-structured interviews (Roulston, 2010). Focus group and individual interview protocols are available in the Supplemental Materials. I included and analyzed a collection of artifacts, such as handbooks/syllabi, grade reports, and written student work.

Teacher data included five written reflections and two semi-structured interviews (Roulston, 2010). The written reflections were responses to prompts, which I emailed to Ms. Andrews and were generated throughout data collection. The purpose of gathering teacher data was to better understand her choices, values, and lived experiences: the 'how and why' dimension of implementing various assessment practices. Data generated from the students included the content of focus group discussions, individual interviews, and artifacts of student work.

Data Analysis

Analysis of the data included the interpretation and deconstruction of not only the data in research texts, but also the meaning of my impressions (Stake, 1995). I transcribed observational field notes and teacher reflections into texts throughout the data collection period. I recorded and transcribed all focus group discussions and interviews. I completed transcripts before subsequent interviews. Groups were scheduled to use the data to inform the direction of future protocols.

Both during and after data collection, I employed categorical aggregation, using NVivo, to deconstruct and organize complex data into categories as I searched for meanings, patterns, and relationships that supported behaviors, issues, and the contexts unique to this particular case (Stake, 1995). At the conclusion of my fieldwork, I used Maxwell's (2013) strategies for qualitative data analysis as a guide: (a) reading and memoing, (b) categorizing strategies (coding and thematic analysis), and (c) connecting strategies (narrative analysis) (p. 105).

Trustworthiness

I pursued credibility of the data and interpretations through triangulation, the gathering of rich data, prolonged engagement, and member checks (Stake, 1995). Triangulation of multiple types of data (audio recordings, memos, jottings) collected from different sources (artifacts, interviews, and observation) sought to verify the findings and interpretation. My

prolonged engagement with the participants and site contributed to a greater understanding of the various complexities of this case, thereby strengthening the trustworthiness of the findings (Stake, 1995). Through the process of member checking, participants examined rough drafts of interview transcriptions and reviewed them for accuracy and agreeability (Stake, 1995). Ms. Andrews also approved the findings and the final manuscript.

Clarifying Researcher Subjectivity

My relationship to the site of this case study was multilayered. The teacher was a colleague and friend. I also worked at ATHS as a collaborative pianist. While there were benefits to my familiarity with this setting, such as trust and rapport with the students and teacher, that familiarity held the potential to create power or boundary issues that could impact my study. The in-depth nature of the study could potentially create tension if participants viewed findings as a reflection of my personal feelings towards them as individuals.

To address the potential power issues in my new role as a researcher, as opposed to my typical role of teacher/instructor, I was deliberate and intentional about how I defined my role. The recruiting script, the interview script, and my interactions with the participants communicated my desire to create a comfortable, confidential, and safe space. Individual student interviews and focus group discussions took place away from the view of Ms. Andrews and other peers. Students could skip interview questions that they were not comfortable answering. I also gave students the opportunity to review and approve/disapprove of their contributions. To address the existing adult-student power differentials, I maintained respect for the participants, I listened attentively, and I responded to their statements from a neutral and empathetic position (Roulston, 2010).

The student participants and Ms. Andrews appeared comfortable and eager to talk with me. Ms. Andrews reassured the student participants that she supported the study and encouraged them to be open and transparent without fear of consequences. Therefore, the familiarity between myself and this case ultimately proved to benefit the depth and authenticity of my findings.

Findings

Descriptions and narrative illuminated aspects of the students' and the teacher's lived experiences with the various assessment practices. Themes emerging from data analysis included the following: ensemble achievement, individualized assessments reinforcing accountability, the choir's role in the school curriculum, and challenges that impacted assessment. External and internal influences at ATHS, including the perceptions of the learning outcomes and nature of the choral music experience, interacted to influence the assessment decisions and practices. It is important to situate these findings in the context of the formal assessment practices implemented at ATHS to draw conclusions from the emergent themes (see Table 3 on page 49).

Table 3
ATHS Assessment Practices

Assessment	Description	Graded (Yes/No)
Individual Participation	Students received a daily participation grade. Students received 50 points per week for participation and points were deducted from that total score when students failed to meet the expectations communicated in the syllabus. Expectations included: (a) actively participate in class each day, (b) remain quiet when not singing, and (c) have only required materials at seat. Ms. Andrews posted summative, weekly participation grades and reported this information to students and parents through an online data collection and reporting platform used at ATHS to track attendance, record, and report grades, and communicate with parents.	Yes
Concert Attendance	Students received deductions from their concert attendance grade for unexcused absences from concerts, tardiness to the performance, incorrect uniform, and improper concert etiquette (behavior). Students who were excused from a performance were expected to report to the teacher to schedule make-up work, which included written work or an aural exam. For each required performance, Ms. Andrews assigned parent volunteers to document student attendance and to evaluate their concert attire. Ms. Andrews evaluated the documentation to determine the concert grade and was available to the students upon request.	Yes
Contextual Singing Assessment (CASA)	Students used a personal device to generate an audio recording of themselves while singing and performing with their classmates as an ensemble during class rehearsal. Students submitted recordings via Charms or email. Each student received individualized, formative feedback from Ms. Andrews. Students were occasionally required to submit a self-assessment of their CASA recording.	No
It Works in Theory (IWIT)	IWIT (Heron, 2013), a standards-based assessment model, utilized differentiated and peer instruction to teach sequential and comprehensive music theory concepts to students in ensemble classrooms. Students moved at their own pace through 26 levels of theory knowledge. To advance to the next level, students were required to score a 90% on the theory exam. The student's nine-week theory grade was an average of all theory test scores.	Yes
Other Singing Assessments	Students were individually assessed using live solo and small group performances during rehearsals. Examples of singing assessments observed included: (a) performing in quartets, (b) individual demonstrations in class, (c) performing in octets, and (d) recording small groups and playing back for group evaluation. Students in AT Singers and Mixed Choir were occasionally required to submit recorded assessments that were completed at home or in a practice room (in contrast to CASA).	No

Assessment as Essential for Ensemble Achievement

The students' and their teacher's definition of what it meant to sing in a school choir held a strong association to the purpose of assessment. The concepts of team, collaboration, and a focus on interactive learning were foundational to the choral curriculum and learning environment at ATHS. The students' views about assessment reflected those values. Although the teacher had individual learning goals for students, the goal of ensemble achievement (performance goals accomplished by the collective efforts of the ensemble) reflected the spirit of what it means to sing in a choral ensemble and, therefore, emerged as the primary goal. A central finding of this study was that students understood individual achievement and assessment as being linked to ensemble achievement and in some ways secondary to ensemble achievement.

> When it all comes together, it just is awesome. If you don't grow as an individual with your understanding of music and your knowledge of the particular piece, then you're not going to contribute anything to the ensemble, and then the ensemble is not gonna [sic] grow as much. So, it's kind of like building blocks, one has to have them before the other one. Both [individual achievement and ensemble achievement] are yes, very important. The end goal is going to be ensemble growth, but the short-term goal is gonna [sic] be personal growth. (Liz)

Liz understood her individual achievement in choir as directly related to ensemble achievement with assessment being a component of the process, not the goal. Students, like Bryant, aspired to excel as individuals so that they could be valuable members of the team (ensemble):

> And at the same time, with other classes' homework and stuff, you do it really reluctantly. You don't really want to do it, but with choir, the work that we take home, practice and stuff, you want to do it because you want to make it better. You want to do it for the overall outcome, not just yourself. (Bryant)

Being a part of something bigger than themselves was a key component of their learning experience that influenced their perceptions of assessment and their individual achievement.

Role of Participation

Ensemble achievement, as the primary goal, required students to develop a fundamental understanding of and to demonstrate mastery of the proper rehearsal and performance behaviors and skills. These behaviors and skills were perceived as necessary to cultivate an environment that was conducive to the type of interactive learning and performance that is typical in choral music education.

Ms. Andrews regarded the participation assessment as useful, but she acknowledged the issues that were potentially associated with this practice by stating: "There's no way I can monitor each and every child's participation fairly." She attempted to be transparent and open about the participation grades and to address subjectivity by posting a daily participation log. Furthermore, she was candid about the difficulty in accurately assessing students' individual daily participation: "Who's to know if they just start singing the minute that I walk by and then they stop … you can't really know their level of participation from the conductor's podium."

Her response reinforced the complexities of evaluating participation in a large group setting. Like many other music educators, Ms. Andrews used a combination of "subjective impressions and objective documentation" to assess daily participation (Russell & Austin, 2011, p. 44). Because student engagement and attendance were essential to the achievement of the ensemble, participation and attendance were heavily weighted (68% of the students' nine-weeks grade).

When I asked students how they were assessed in choir, all three groups responded with participation first. Students, such as beginning student Maria, understood the expectations for participation:

> The 50 [grade] in choir means you come to class; you participate. You're not just sitting in your chair, talking to your friends, disturbing them from learning the music that they need to learn because you also need to learn it, too. You had to participate in class, be on time, you had to show up. You had to act like you're into it, instead of just sitting there like: "Oh, this is boring and I'm ready to go home." And I sang when we were supposed to, and I put effort into the class. I didn't just sit there and slouch back in my chair, barely open my mouth when I sang.

Students like Maria understood there were observable expectations for meaningful participation, including but not limited to punctuality, singing, proper posture, responsiveness to the director, and attentiveness. Catherine, an advanced choral student, described her participation grade as including musical outcomes, including addressing or fixing musical mistakes:

> That means that I put forth effort to do whatever we're doing in that week. I put forth effort to achieve. When she says, "Fix something," fix it, not keep messing up that same thing that she said fix and just doing what she says to do when she says to.

Other students shared their perceptions of the expectations for their participation evaluation:

> I'm thinking, just being on your phone, maybe a lot [*sic*]. I would think that that would come off. Or just if you're obviously not reading music or singing or not paying attention at all. I think as a teacher, you can somewhat tell. You can't necessarily tell if someone's into it, but you can tell if someone's not into it because their body language will show you. (Michael)

For the students, the participation assessment practice was a necessary component of the choral experience. It reinforced the classroom structure and dynamic that was essential for cultivating ensemble identity and achievement. Therefore, student participants did not perceive the evaluative process that resulted in the participation grade to be unfair.

Evaluating Attendance

Ms. Andrews formally assessed concert attendance to motivate students to attend performances. She stated:

> Concert. That one is just, you got to come to the concert. It's [concert grade] to get them to come there because if they come there, they're going to do all the things or most likely, they're going to do all the things that they're supposed to do at the concert.

By assigning a grade for concert attendance, she reinforced the practical and tangible aspects of presenting a musical performance that require each ensemble member to be present. Therefore, the grade reflected the significant value of the performance as part of the choral class experience. Students understood the expectations for concert attendance and concert attire:

> The Christmas concert I showed up on time and I was wearing my choir dress. My hair was down and out of my face. I had pretty makeup on and didn't look like I rolled out of bed. I had my earrings, my pearl necklace, and my closed-toe black shoes, and I was ready to sing. I was there on time. (Liz)

Maria stated:

> It says that you are willing to put yourself forward and come and be in the choir, instead of just sitting at home, when you know you're in choir, you have a concert. So, you have to push yourself, be like, "Oh, wait. I have a concert tonight." You just can't stay at home. You have to go to your concert, 'cause [*sic*] that is a huge grade.

Mark described what he perceived to be Ms. Andrews's evaluation of the students' individual contribution at concerts: "Well, whenever you walk in you sign in and you should be wearing your entire uniform. So that's at least 100 right there." Interestingly, students' musical contributions on stage were not evaluated as a part of the concert assessment, but the value associated with concerts shaped Mark's understanding of the criteria for this concert assessment. He stated:

> …Then to the best of your ability, if you're on stage, if you're engaged watching her conduct. 'Cause [*sic*] if you're just standing there doing nothing she's gonna [*sic*] see you. We're choir kids, we pop around and jump. We move with the music. And if you're doing nothing, she can see that. (Mark)

Concerts and performances were a natural outcome of the choral music experience. For that reason, students like Lane were motivated intrinsically (being a valuable ensemble member) and extrinsically (grade) to attend:

> We work for months and months, so the performance, the concert, that's like the most important thing to go to. That, that's what should be graded the highest. We work the hardest and the longest on [concert music]. We spend the most time on it. (Lane)

For the students, concert attendance held similar value to that of a final exam. Concerts represented the culmination of their daily work and achievement as individuals and as an ensemble.

Individualized Achievement Assessments and Student Accountability

Ms. Andrews utilized several individualized, achievement-based (musical) assessment practices focusing on theoretical musical knowledge and singing skill. Though these individualized assessment practices measured and reported individual student achievement, students recognized that they also influenced ensemble achievement by holding individuals accountable for their own contributions.

Accountability Through Music Theory Assessments

The self-paced, sequential, and comprehensive attributes of the It Works in Theory (IWIT) model (Heron, 2013) distinguished it as an innovative approach to assessing music theory knowledge. Ms. Andrews believed that students saw the theory assessments as more academic because these written, formal assessments, generated an individual grade, a grade that motivated many of the students to continue to progress through the theory program.

While the exam format was a traditional pen and paper test, the timing and frequency of the assessments were not traditional. Ms. Andrews desired to find additional ways to

integrate theory concepts into the rehearsal process. Her statement here reflects tensions experienced by other music educators when balancing instruction, assessment, and transfer of skills:

> I don't want to compartmentalize it, but I do sometimes. I was just thinking yesterday, I have to do a better job of referencing these things that they're learning when we're talking about theory inside of our rehearsal and making sure that they understand that those things cross over into the stuff that we're doing. That's hard to do just because we're not doing those things together at the same time. We have theory time and then we rehearse, which I know is not the best, but how else? I don't know how else to do it at this point.

Students saw the theory grade as consequential, affecting their achievement in choir, and as a qualitatively different component of their choral music class, more akin to assessment in other high school classes:

> Well, the motivation, with theory, for me considering I'm not a music major, I'm not gonna [*sic*] be in music education, the motivation is less like, "Ooh, this is exciting," and more like, "All right, for the grade and for being able to pass and do well in the class." That's kind of bad, but that's how it is with other classes. That's how I am with a math test. I understand why it's necessary, but it's not necessarily the fun part of it. (Michael)

Despite Ms. Andrew's concerns that she compartmentalized theory in her curriculum, students were able to articulate specific knowledge and understanding gained through IWIT that transferred to their ensemble experience:

> Now that I know some about theory I can be like, oh this is this key signature, which is kind of cool. I just think that's cool. That's just me being a choir nerd. Then other times I can be like, oh this marking right here means attack it and release, and then this dynamic marking means forzando, so loud, quiet, loud. So, it's cool. I can put more into the music than other people might be able to because I have a better understanding of what is written into [sic] the paper. (Liz)

Additionally, IWIT generated concrete student achievement data that Ms. Andrews used to report student learning to administrators and parents. This formal, objective assessment practice distinguished IWIT from the other strategies used to assess the students.

Accountability Through Singing Assessments

Performance assessments included various types of singing assessments. These assessments were almost entirely focused on evaluating individual performances of the repertoire

that was being rehearsed in preparation for performance, as opposed to solo literature or sight-singing exercises. Ms. Andrews implemented several forms of live solo and small group (one singer per part) singing assessments where students demonstrated proficiency on their part.

The use of a contextual, authentic singing assessment (CASA) was different from the more conventional forms of performance assessments used in that students recorded themselves singing within the context of the ensemble, not away from the ensemble as demonstrated in the process for collecting the solo, recorded singing assessments. That the students recorded in the choral context and could hear other voices while recording offered unique benefits and removed some of the anxiety experienced when singing alone in front of their peers. These recordings offered additional benefits for rehearsal planning as Ms. Andrews explained:

> I have started to use [CASA] when I hear something individually that I don't hear in the group, but it's from a lot of people. Then I can go back and say, "Okay. The basses don't really know that measure. It sounds like they do because I'm hearing two or three sing the right notes, but the rest of them are off." I can go back and fix. That's what happened with the last one that they did. They didn't know [the measure]. I thought they knew it, but they didn't know it.

Ms. Andrews believed CASA to be the most valuable assessment practice she used; it generated data that demonstrated and tracked musical growth and individualized achievement while also reflecting the daily learning environment and context. The students agreed:

> I feel like you can definitely hear me even with the other parts in the background, and that probably personally helped me, the other parts. 'Cause [*sic*] that's just how I'm used to singing something, but that still didn't necessarily come out perfectly. (Michael)

Liz reflected on her experience with CASA:

> I feel like I sound a little bit better than that [recording]. It feels different because when you're singing with a group you can hear how your part blends in with all the other parts. And I feel like it's easier when I'm singing with the choir, because I don't have the melody there because the guys do, so I can hear how my part supports their part.

The data generated by CASA facilitated a more accurate assessment of the students' individual contributions. Ms. Andrews stated, "That's what they really are doing. I mean, they're not singing a solo." She also perceived that CASA had an immediate effect on en-

semble achievement:

> I noticed that the ensemble sounded better. I think everyone was attempting to make their best sound, which they do not always do. I also heard some voices singing louder than normal. I think it's louder because they're all singing, trying to get it into the [device], so it records, but I think some things are better actually because they're thinking about them. They know that they have to, okay, I just said, "I'm listening for right notes, right rhythms, good tone, and good diction." Okay. They're thinking about those four things and trying to do them correctly. (Ms. Andrews)

Several students were aware that they sang differently when recording their solo assessments compared to the CASA recordings. Catherine stated: "Because when I'm by myself, sometimes I'll sing it differently, a little bit, then you would in a choir, because in a choir, you're all supposed to fit the same sound that you're looking for." Another student commented that she could sing "freely" when recording a solo singing assessment.

Students also perceived that recording themselves within the context of the ensemble was helpful for them and Ms. Andrews, less stressful than the solo recording, and that it improved their individual understanding of the repertoire:

> I think it helps, because you're singing into the phone and then sending it to Ms. Andrews so she can individually assess you instead of doing it as a group where she hears everybody and not just one person. So, then she knows, hey, you need to come up on pitch, you're too high so you need to drop down, or if you're right on. (Jake)

Ms. Andrews implemented individualized musical assessments to foster the individual development of students, which contributed to ensemble achievement. Although students rarely performed as individuals in class, individualized singing assessments were important to the students and to Ms. Andrews. The use of performance assessments emphasized the importance of individual musical skills and reinforced the value of everyone's contribution.

Choir's Role in the School Culture and Assessment

"Choir is different" was a sentiment communicated frequently by students when describing choir class and how it compared to their other classes. Students integrated this distinction into most facets of their choral music experience. The participants' beliefs and values about the nature of the choral music experience, influenced by the choir's role in the school curriculum, were instrumental in understanding how assessment fundamentally worked in this setting.

Choir was an elective course at ATHS. Participants felt that this designation influenced

the perceived role of choir in the school culture. Ms. Andrews was acutely aware of the elective designation when making decisions about outcomes associated with learning in choir and the assessment of those outcomes. Students were required to take one fine arts credit (elective) for graduation and they described choir as somewhat extracurricular, even though it occurred during the school day. Liz explained: "You're expected to learn that [math], but you're not expected to take choir unless you want to, or you need a fine arts credit." Bryant noted: "Choir is extracurricular. And [parents are] like, 'That's what it's supposed to be extra. It's not the main thing.'"

Students cited various reasons for electing to participate in choir: they enjoyed singing, they liked the social benefits of being in choir, choir was "fun," it was less "stressful" than other parts of their day, and they liked the teacher. These reasons contrasted with their descriptions of their required courses and reinforced the differences between participation in choir and other classes in which one student described learning as "being hunkered over a desk." Because the learning environment in choir was more interactive and group-oriented than their required courses and even other electives, participants believed that the assessment practices should reflect those differences.

Choir as Activity

Much of the learning in choir occurred within a group setting, and students demonstrated learning through the psychomotor process of singing. Therefore, some participants believed choir to be more like an activity, such as athletics, and less academic in nature. Ms. Andrews stated:

> Everyone thinks that choir is not a real class. . . most teachers think "oh, you guys are just singing." Like, "All y'all [*sic*] are doing is singing." I would think that most parents think that. I think the general public thinks that we don't have a curriculum really and we just sing.

These perceptions troubled Ms. Andrews. She structured her classes to provide sequential learning opportunities appropriate for students with varying levels of musical skill and knowledge. And yet, to her, her colleagues, and the public perceived singing to be of less academic value or rigor than other types of acquired skills and knowledge.

The belief that choir was an activity and not an academic class was evident in how students described the ways they were assessed in required courses compared to how they were assessed in choir. Students shared that formal, individual assessments occurred less frequently in choir, when compared to their other classes, contributing to a less stressful learning environment:

> I feel like people don't have as much stress in choir as other classes, because with your other classes you have to study for all these big old tests, and you have to be

> doing your homework at home. If you're not getting something, you have to figure it out. But in choir, there's not that stress of, "Oh, well I have this test on this day," every week. (Maria)

Students like Michael saw their experience in choir as having similarities to other activities, such as sports, and less like their required, academic classes, such as math and history:

> You actually are going and talking about [choir] almost, how my brother would [about] a football game. It's like: "All right, we're learning this and this and I'm excited to sing this at this time." And then Josh will be like: "Yeah, and we did this in practice," but it's not like the grade of it all, even if there is a grade. (Michael)

One student, Mark, was surprised when I asked him if participation was assessed in his required courses: "Like a participation grade in other classes? It's just strictly academic so you don't get judged on whether you're paying attention or not or else you'd get zeros all the time. [Choir] is an elective." Mark and others considered participation to be an irrelevant form of assessment in required classes because grades were determined by individual achievement on formal, mostly written, assignments. Individual participation in core academic courses did not impact the collective achievement of the required class as it did in choir.

Principals, Parents, and the Public

Administrators' (local and district level) expectations for assessment in choir and their position that choir was not academic influenced Ms. Andrews's beliefs about assessment. During our interview, she reported the lack of interest and expectations from administrators when it came to assessment in choir:

> Ms. Andrews: The fact that from the top down, everyone wants us to keep records of everything and we need data. Everybody is talking about that… they are not talking to us because nobody expects us to do anything.
>
> Researcher: Have they ever said that? Or is it just understood?
>
> Ms. Andrews: I think it's just kind of understood.
>
> Researcher: And there's never been a time where they've asked for [data]?
>
> Ms. Andrews: No, there's never been a time where anybody has asked for it. But there actually has, you know, been times when I've gone to my principals and said: "This is what I'm doing, this is what you're asking

> from me, but I don't really have a way to give it to you." [They said:] "Oh, don't worry about it. It's ok. We just really want that from English, math, science, and social studies."

Teachers of required courses and other content areas were expected to generate individual data to document student learning and were given financial support to do so. The lack of expectations, investment, and guidance for individualized assessment and data reporting for choir influenced Ms. Andrews's beliefs and ultimately her decisions about assessment in choir.

According to some students, parents differentiated between required classes and choir class in their expectations for levels of achievement, which influenced assessment values. Most students indicated that their parents prioritized their performance in academic classes as more important than choir. For some students, participation in choir was a privilege given to those who were doing well in their required courses.

Students reported that their parents made participation in choir contingent upon meeting their expectations in other courses. For example, Bryant shared: "My parents have told me straight to my face: 'You're doing academic homework first because choir's less important than the academics.'" Liz explained that she was required to get good grades to be able to participate in extra choir activities: "My parents have said to me that if I don't get good grades in my academic courses then I can't go on to All-state or stuff like that."

The pressure to present quality performances was deeply engrained in the music education culture at ATHS and in the community. These public performance expectations influenced the scope and purposes of assessment. While Ms. Andrews believed that assessment was necessary, the performance demands she experienced limited the frequency of formalized assessments. The visibility of the choir, through well-attended public performances, reinforced the value of participation by regularly putting them on display. High-quality choral performances, a demonstration of ensemble achievement, shaped the public's perceptions of the choral music program.

The elective designation and the role of choir in the school culture and curriculum was a powerful distinction that influenced the students' and Ms. Andrews's expectations of assessment in the choral classroom. Ms. Andrews supported the notion that while external and internal factors affected her assessment decisions, in turn, assessment (or lack thereof) influenced the way others perceive choir:

> I was going to say, choir compared to other classes, I think in just over my time as a teacher, I have seen that a lot of other teachers, administrators, people in education don't view choir as a class, maybe, because of our lack of true, individualized assessment.

These beliefs, along with choir's non-academic status, voluntary participation, and focus on ensemble identity coalesced to create a unique learning environment. Participants per-

ceived the assessment model to be effective and appropriate in this environment.

Balancing Assessment Challenges and Performance Expectations

Instructional time, large enrollment, performance expectations, assessment knowledge and training, and the efficiency of the current assessment practices were key challenges that affected assessment. Ms. Andrews attempted to reconcile the need for individualized assessment practices with the demands and challenges that existed in her classroom:

> I think that I'm not satisfied with the way that I'm currently assessing because I'm not able in the class time to do what I want to do and teach them all of the things that I have to teach them to catch them up from not having music from kindergarten to 8th grade. . .I can't do [individual assessment] every day because we don't have time. If we had every kid sing every song by themselves every day, we could not get through the literature that we're working on.

Like other music educators, Ms. Andrews expressed frustration with the lack of training and experience with individualized assessment practices appropriate for performance-based classes. When asked about how much training she received in her pre-service and in-service professional development she stated:

> I would say not much. Maybe, a couple of days in our undergrad we spent talking about that, I think, but, not related to how to do it in a choral setting. More like the data assessment part of it. And then, we didn't talk about it [assessment] at all in my master's degree that I can remember. And professional development, one session, I think.

She acknowledged that this deficit in her training influenced her early assessment decisions and that she adopted assessment practices that she had learned from student teaching that were solely based on attendance. She has since tried to adopt assessments that were "more reflective of what the students are actually doing in class."

Ms. Andrews reflected that the amount of time required to evaluate singing assessments was a considerable challenge. Due to large enrollment, the number of student submissions was overwhelming:

> It is difficult to try to listen to recordings for each of the 212 students in the choral department all at once. It takes hours and hours to do. I may need to rotate the recorded assessments, maybe do one class per week, so that I don't have to spend so much time grading all at once.

Both the students and Ms. Andrews acknowledged that time combined with large enrollment was a deterrent for individually assessing students because more students equate to more time spent evaluating submissions and potentially more time away from the rehearsal process. Though Ms. Andrews desired to individually assess students, the amount of time required to do so with some consistency conflicted with the primary goal of using instructional time to rehearse and prepare music for performances.

Discussion

The perspectives of the student participants and Ms. Andrews illuminated the tensions, outcomes, and challenges of assessment in choir (see Figure 1). Collectively and independently, three categories of influences impacted assessment at ATHS: (a) external influences, (b) the choir's role in the school curriculum, and (c) internal influences. Based on those influences, Ms. Andrews designed assessment practices which evaluated individual participation and individual musical skills and knowledge.

The ATHS assessment model reinforces the relationship between assessment and ensemble achievement in that the assessment practices supported and were essential for accomplishing the primary choral program goal of ensemble achievement. Ensemble achieve-

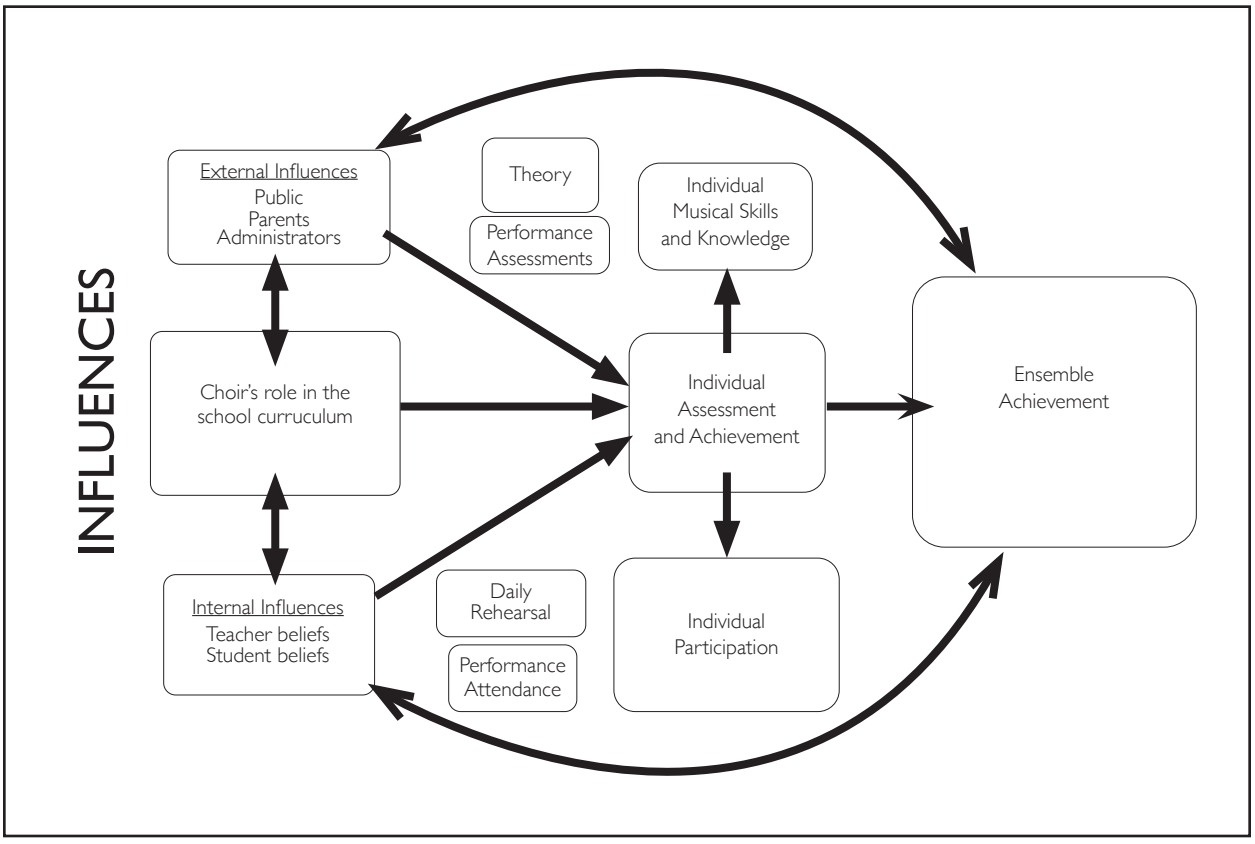

Figure 1
Interactive Model of Assessment at ATHS

ment, demonstrated through public performances and the experiences of the participants, was then instrumental in shaping the role of choir in the school curriculum and the external and internal perceptions of the choral experience. The interaction of these factors, influences, and outcomes forms the synergistic relationship.

Because ensemble achievement and group instruction were highly valued, the use of nonmusical assessments for individuals was considered appropriate by participants and was also perceived to be a necessary component of the complete choral music experience. This finding contrasted with McClung (1996) who reported that many choral students preferred music tests and sight-reading assessments over attendance and participation.

Though scholars have noted the inherent reliability, validity, and fairness concerns when using nonmusical criteria to evaluate students in large group settings and the potential negative implications for music educators (Harrison et al., 2013; Russell, 2011), students in this study did not perceive there to be bias or fairness concerns with these nonmusical criteria contributing substantially to their final grade. This finding also differs from the results from Harrison et al., (2013) who found that nonmusical assessments led to perceptions of favoritism and issues of fairness.

Russell and Austin (2010) labeled assessment criteria designed to evaluate participation, attendance, and behavior as "nonachievement criteria" (p. 39). However, the findings of the present study cast doubt on labeling these assessment strategies as nonachievement criteria. In this case, students were demonstrating observable skills and understandings about the rehearsal and performance process, namely, voice building, posture, facial expression, engagement with the musical score, and other behaviors that were related to their individual contributions. These skills and behaviors demonstrated achievement and mastery of the expectations for meaningful participation in a choral ensemble.

Despite reported reliability concerns about the use of performance assessments to document students' musical achievement (Bergee, 2003; Latimer et al., 2010; Reimer, 2009; Ryan & Costa-Giomi, 2004), the individual accountability generated by singing assessments at ATHS provided a positive impact on the various ensemble's level of achievement. Like Crochet and Green's findings (2012), participants perceived that the CASA strategy enhanced individual musical skills for performance. CASA also provided information about students' achievement in relation to the authenticity of the teaching and learning process. The validity and reliability of the contextual singing assessment (CASA) warrants further exploration.

That choir was different from required courses and even from other electives was an important finding impacting the use of assessment and perceptions of assessment at ATHS. These findings aligned with previous research which suggested that this distinction influenced administrator and student expectations (McClung, 1996), influenced parent's perceived expectations for grading (Conway & Jeffers, 2004), and shaped the teacher's philosophy of assessment (Tracy, 2002).

Finally, a significant assessment challenge for Ms. Andrews was lack of instructional time, which is consistent with previous findings (Conway & Jeffers, 2004; Kotora, 2005; Russell

& Austin, 2010; Tracy, 2002;). The students' lack of music instruction prior to their participation in choir at ATHS compounded this issue. Ms. Andrews felt pressured to use instructional time to teach and reinforce basic musical concepts and skills while also preparing for performances.

Limitations

While the findings of the current study are valuable to practicing choral music educators, they are limited to a particular group of students who auditioned for and enrolled in the choral program at ATHS. Therefore, students' acceptance of the existing assessment practices, as demonstrated by their continued participation in choir, shaped their perspectives and experiences.

Students who elect to participate in high school choirs may share demographic characteristics (Elpus & Abril, 2011) which are important to consider when interpreting findings relating to students' perceptions of fairness in assessment and grading practices. By selecting participants and sites for future studies that represent diverse demographics, communities, experiences, and grade levels, music educators can broaden their understanding of the complexities associated with assessment in choral music. Due to time constraints, I did not fully explore the demographic characteristics of the participants in this study or the implications of those factors; an interaction that is worthy of its own investigation.

Additionally, there could be alternative explanations for the students' positive perceptions of assessment in choir. Further exploration of the participants' achievement in other subjects in school and their motivation(s) for enrolling in choir would provide clarity and depth to the present findings. The voices of students who dropped out of choir, due to feeling alienated by assessment strategies, are absent from the present study. Their voices are critical to the discourse and continued study of assessment in choir.

Finally, I tended to conflate the terms assessment and grading throughout the study. Though my initial goal was to examine a variety of assessment practices (formal/informal, formative/summative), the participants frequently associated assessment with grading and this association informed their responses.

Conclusions and Implications for Music Education

Like the many investigations that preceded it, the findings of the present study shed light on some core difficulties that are associated with music assessment. For example, at ATHS, there were few administrative expectations that Ms. Andrews produce or submit documentation of individual student learning other than the summative grade that students received at the end of each grading period. She was, however, ethically compelled to implement assessments because they supported, in her mind and in the minds of her students, the goals that she developed for her classes. The learning outcomes associated with such goals generally aligned with state and national standards.

To create assessments in widely diverse classes, Ms. Andrews relied heavily on assess-

ments of nonmusical criteria—primarily participation and attendance. Ms. Andrews, her students, and their parents perceived such evaluations, though not specifically connected to music knowledge learning outcomes, to be appropriate and to support the ATHS music program goals, which were primarily associated with ensemble success and the cultivation of a life-long love of music. In short, I concluded that the participants' beliefs that nonmusical assessments were relevant to learning in this context superseded the various concerns about the validity and reliability of Ms. Andrews's nonmusical assessment practices.

Though limited to this study, the lived experiences, perceptions, and beliefs investigated here underscore the many tensions that exist in a profession that seeks to be a valued part of the academic community while honoring the large-group ensemble tradition rooted in our music education culture. Attempts to reconcile the nature of teaching and learning in choir with calls to adopt achievement criteria assessments that mirror individual assessment practices in other content areas further confounds this conflict. A core belief at ATHS was that choir participation was positively perceived to be more like an activity and less like an academic class. This important finding also merits additional study.

The findings of this study did not specifically call into question the value of individualized achievement criteria assessment practices or the importance of acquiring musical skills and knowledge. Instead, they provided a rationale for practitioners and researchers to develop, reexamine, and identify individualized assessment practices that are relevant to the types of skills and knowledge that choristers and teachers value. Specifically, the music education community would benefit from a more nuanced understanding of participation as a music-related (achievement) assessment criterion that reinforces skills intrinsic to ensemble performance readiness and then determine how to assess these skills in a fair and equitable way.

By attempting to reform the performance ensemble assessment model to one that more easily conforms to assessment norms in education, music educators should carefully consider the value of vocal development, ensemble performance skills (participation), and the notion of team effort that was both relevant and foundational to the students' experiences in choir, in this case. We must identify and examine choral music assessment models that value the participatory and collaborative nature of choir without marginalizing certain student populations. Perhaps there exists an opportunity for music educators to espouse the position of choir in the school community as a place of empowerment and identity, embracing and highlighting the strengths of our choral programs instead of focusing on their deficits.

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Article

AMERICAN CHORAL DIRECTORS ASSOCIATION

IJRCS

International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

International Journal of Research in Choral Singing
(2021) Vol. 9 68-91

Male adolescents' narratives about their choral (non)participation in public secondary music schools of Greece

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Abstract

The purpose of the present study was to investigate boys' views about their participation in secondary school music ensembles with emphasis on the factors which influenced their decision whether to join school choirs. To fulfill this aim, the researcher conducted individual semi-structured interviews with 17 boys, students and graduates of two provincial public secondary music schools in Greece. These boys seemed to avoid their school choir, suggesting that enrollment in an instrumental ensemble and playing a musical instrument are activities of a higher social status, in comparison to participation in choirs and singing, respectively. Furthermore, according to their narratives, they seemed to choose music ensembles that (a) balance individuality with teamwork, (b) instill a sense of duty ("to feel needed"), (c) assign distinct individual roles, and (d) provide opportunities for personal expression, as well as (e) opportunities to distinguish themselves. In addition, they preferred ensembles which (f) do not have a mandatory character, (g) possess a high social status, and (h) provide opportunities for interaction with older individuals who are role models. This study aims to contribute to the international discussion about the reasons which prompt boys to avoid choral singing.

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Introduction

One of the issues that has long attracted attention in the field of choral music has been the low participation of men and boys in choirs. In one historical review, Koza (1993) cited references, from as early as 1915, on the lack of men in choirs, and since then, the female-to-male participation ratio seems to be constantly increasing (Camp, 1987; Cox & Stevens, 2010; Freer, 2010a). Several researchers have addressed this problem. Some of them have highlighted the physical age-related vocal difficulties faced by boys in singing, especially during puberty (Cooksey, 1992, 2000; Demorest, 2000; Swanson, 1984). Others have focused on the existence of gender stereotypes according to which there are musical activities that are more suitable for boys, while other activities, such as singing, are more suitable for girls (Green, 1997; Hallam et al., 2008; Marshall & Shibazaki, 2012; McKeage, 2004; O'Neill & Boultona, 1996; Wych, 2012).

The purpose of the present study was to investigate boys' views about their participation in Secondary School music ensembles with emphasis on the factors which influenced their decision whether to participate in school choirs. The participants were 17 boys, students and graduates of two provincial public secondary music schools in Greece, where the researcher worked as a teacher.

Despite a growing body of narrative research in the field of choral education, "Largely missing from the conversation," as Freer (2006) stated, "are the voices of boys who are not participating in choral music at school" (p.72). This assumption led to the adoption of a more holistic approach, which went beyond the study of choirs. Thus, in the present study, the participants were four boys who sang in the choral ensembles of their schools; four boys who had withdrawn; and nine boys who had chosen to solely participate in instrumental ensembles.

This study aims to contribute to the international discussion about the reasons which prompt boys to avoid being in school choirs. The different cultural context in which the research took place, as well as the special profile of the participants, who were students of schools that provide specialized music training, could possibly help to better understand an issue which is already well-documented.

Background

Gender division of music activities

As a number of studies, mainly from the field of ethnomusicology, have suggested, gender division of musical activities is a phenomenon that does not only exist in western societies (Wade, 2004). While investigating the position of women in music, Green (1997) maintained in her book *Music, Gender, Education,* that there are musical activities that affirm what she named *patriarchal definitions of femininity,* activities that threaten these definitions, and activities that interrupt them or simply challenge them to a lesser degree. In

western societies, in particular, the activity that affirms these definitions is singing, whereas females' instrument playing interrupts, and composition and musical improvisation by females threatens them (Green, 1997).

According to Dibben (2002), children generally show a preference for specific instruments or music activities based on their gender. More specifically, besides singing, girls seem to prefer the piano, violin, and woodwinds, while boys show a preference for the guitar as well as percussion and brass instruments (Abeles & Porter, 1978; Hallam et al., 2008; O'Neill & Boultona, 1996; Wych, 2012). These preferences primarily originate from stereotypes dictating that there are instruments of feminine or masculine nature because of their own features or because they are common in particular genres (Dibben, 2002; Marshall & Shibazaki, 2012). These stereotypes are so strong that they become apparent from an early age, as documented in Marshall and Shibazaki's study (2012) of four-year-old kindergarten children. This suggests that children learn from an early age to avoid music activities that do not seem to fit their gender.

Regarding childrens' preferences for musical instruments, a series of studies have indicated that Greek students tend to associate the flute and recorder with girls, and the electric guitar and drums with boys, as do their peers from other countries (Argyriou, 2011; Markou, 2018). Noteworthy is the case of the introduction of Greek folk instrument classes in secondary music schools in 1988; this provided girls access to the once male-dominated field of folk music. Interestingly, three decades after the inclusion of folk instruments in the curriculum of these schools, a gender division appeared, according to which, girls mostly choose instruments such as the *santouri* (instrument of the hammered dulcimer family), while boys opt for the *bouzouki* or the folk clarinet. This fact indicates the dynamic nature of gender stereotypes, as well as the human tendency to constantly create and modify them (Ververis, 2018).

After having done a historical review of literature, Harrison (2007) argued that stereotypes concerning children's music activities appear to have gradually diminished, but only for girls. Stereotypes remain strong for boys who continue to avoid the flute and singing as they did a hundred years ago (Harrison, 2007). Abeles (2009) also agreed that stereotypes have weakened in recent years, adding that this is more evident in higher education than in secondary schools. Furthermore, recent studies have suggested that gender stereotypes affect not only the music activities that students choose, but even more general decisions such as whether to pursue music. Collins (2009) pointed out that the number of girls learning music is greater than boys. McGregor and Mills (2006) attributed this to the fact that many boys believe that, unlike other school subjects, music does not impart the element of masculinity. For example, boys' greater preference for physical education (Shropshire et al., 1997) may be due to the fact that students regard it as the most masculine subject, whereas they consider subjects related to the humanities and music less masculine (Colley et al., 1994). According to Whitehead (1996), such stereotypes affect boys more than girls.

Gender, school music ensembles, and the Greek context

According to Richardson (2018), the relationship between students' gender and their involvement in school music ensembles has been a popular topic of academic research during the last thirty years. Elpus (2015) estimated that, in the period 1982-2009, girls significantly outnumbered boys in all three types of ensembles (choir, band, and orchestra) usually offered in US high schools. School choirs were the ensembles with the greatest gender imbalance; male enrolment was about 30%. This imbalance seemed to be even greater in Greek secondary schools. In one study by Meligopoulou (2009), girls outnumbered boys in school choirs by a ratio of 85:15 in public secondary Schools; 82:18 in private secondary schools; and 77:23 in public secondary music schools.

Harrison et al. (2012) argued that boys usually consider singing as a feminine activity when they refer to the classically oriented school choral ensembles, something which may not be true in other singing contexts. This became apparent in a study by Freer (2015), in which the participants were 35 boys, students from two secondary music schools of Greece. The students of both schools preferred the nearly all-male and un-auditioned vocal ensembles of Greek Orthodox chant ("Byzantine music") over classically oriented choral ensembles. When the researcher asked them why they preferred these groups, the most frequent answers were: (a) Predominance of male singers, (b) welcoming of loud, masculine singing, and (c) emphasis on melody over harmony (p. 98). Interestingly, although chant is an exclusively a cappella vocal tradition, no boy viewed these ensembles as "choirs." Durrant and Himonides (1998) observed that "although the Greeks have assimilated many Western European cultural elements, especially music, there is no sign of practice of what is called choral music in Greece" (p. 61). However, after a few lines, these authors mention that "someone in Greece could meet the practice of Byzantine music in the Orthodox church" (p. 61), a contradiction indicating the common belief that chanting is not a form of choral singing.

At this point, I would like to note that the phrase "loud, masculine singing" (Freer, 2015, p. 98) probably indicates boys' reluctance to sing in their higher vocal register. This cultural element could probably explain boys' preference for chanting over classical choral singing. This assumption leads to the work of Ashley (2008, 2009), who, having had interviews with boys from Great Britain, attempted to provide an answer to the question, "How high should boys sing?" (which is also the title of one of his books). Ashley observed that although there are boys willing to use their high vocal register, a choice resulting in the famous sound of British boy choirs, there are cases of boys who seem to resist this practice, mimicking vocal techniques used by singers of the modern music industry. As boys themselves actually decide how to sing, Ashley proposed the term *vocal agency* to describe this phenomenon, based on the common in the social science term *agency* which "denotes individual capacity for free thought and action" (Bruce & Yearley, 2006, p. 7). According to Ashley (2009), most boys avoid singing in the high register in fear of their peers' reactions. The anxiety about

their peers' approval or disapproval is a very common theme in boys' narratives. As Sweet (2010) argued, it is not uncommon for middle school boys, who participate in choirs, to experience their peers' non-accepting attitude.

Concerning the factors which affect boys' participation in choirs, a number of researchers have pointed out the physical age-related vocal difficulties which boys experience during puberty due to voice change (Demorest, 2000; Swanson, 1984). Although boys' changing voice is a well-documented research topic (see, for example, Cooksey, 1992, 2000), Freer (2007) noted a gap between research and practice, as choral educators keep reproducing traditional methods of choral instruction despite a wealth of research-based information on the subject. For example, many teachers are reluctant to provide special instruction to boys during voice change, in fear of causing harm to their students' voices. Instead, they simply tell them that it will pass, or they ask boys to quit singing during this period (Freer & Elorriaga Llor, 2017). With regards to Greek educators, Simou and Papapanagiotou (2009) conducted a research study with the participation of 43 choral educators who taught in secondary music schools. As their findings suggested, only a few teachers (11.6%) took boys' stages of vocal development into consideration when choosing repertoire for their classes. Even the most experienced teachers seemed to lack theoretical and practical knowledge concerning adolescent boys' changing voice. In addition, Freer and Ververis (2011) examined the National Curriculum of these schools. To their surprise, in the section regarding the teaching of choir, a mandatory course for seventh to ninth grades, they noted a complete absence of references relevant to voice change of boys or girls. Nevertheless, I would like to mention that the curriculum, which replaced the old one in 2015, now provides a plethora of relevant research-based information, a fact indicating a relative progress during the last decade.

According to Adler and Harrison (2004), boys avoided school choirs because of their lower status compared to school bands and orchestras, since, in a patriarchal society, any activity taken as feminine automatically gains a lower status. To support this claim, these authors relied on Connell's (1987) theory of *hegemonic masculinity*. Reflecting a more general trend in social sciences, Connell's theory attributes a performative character to gender. According to Connell, masculinity is an element that in our societies gives status, power and a hegemonic role over those who do not possess this element. It seems that a man acting on the socially acceptable, according to his gender, ways of behavior, earns his hegemonic characteristics. However, he has to constantly negotiate and claim them, since there is always the fear that he may lose them if he does not behave in the way society expects (Connell, 1987). As Harrison (2008) maintained, hegemonic masculinity is a means of oppression for everyone, irrespective of gender and/or sexual orientation. In the case of boys and men, in particular, it limits their emotional horizons, expression of sensitivity as well as their involvement in a wide range of activities, such as singing. Having investigated the ways in which Australian choirboys negotiated gender stereotypes, Hall (2015) introduced the gender/class intersection to the discussion. As she argued, it is the choirboys' middle-class habitus which enables them to configure a counter-narrative that is based on

the embodiment of an elite masculinity as opposed to an abject form" (p.54). Constructing alternative masculinities, these boys gain access to a wider range of cultural systems. However, Hall pointed out that creating gender counter-narratives is a privilege of middle-class boys only, a fact which should problematize music educators as it depicts another source of inequity.

Finally, summarizing the findings of various studies concerning boys' participation in school ensembles, Freer (2012) suggested that adolescent boys in the United States seek:

> musical experiences where their skills match the challenges; in-class competitions and learning-based games; physical knowledge of their own voice change process; the acquisition of skills rather than the perfection of a particular repertoire selection; skill-based feedback from peers and/or teachers; and challenging, highly rhythmic, multi-voiced repertoire (p. 20).

All suggestions mentioned above may benefit music teachers working with adolescent boys contributing to the improvement of choral education.

Method

Participants

The purpose of the present study was to investigate the boys' views about their participation in secondary school music ensembles with emphasis on the factors which influenced their decision whether to participate in school choirs. To fulfill this aim, I conducted individual interviews with 17 boys, students and graduates of two provincial secondary music schools in Greece, in which I worked as a music teacher. At the time of the interviews, 10 of the participants were high school students, while the remaining seven had graduated from these schools about 1-2 years before. To assure the participants' anonymity, I used nicknames instead of their real names.

Secondary music schools in Greece are (government-funded) public schools with an extended school day. Students attend classes in the same subjects as in all Greek secondary schools, in accordance with the National Curriculum, in addition to music-related subjects that include individual instrumental lessons, various theoretical courses on both Western classical music and Greek traditional music, and music ensembles (Simos, 2004). To enroll in a secondary music school, students must successfully pass an entrance exam which, among others, includes a test of their aural and vocal skills. According to their founding law, the purpose of these schools is the training of students wishing to pursue a career as professional musicians, without falling behind in general education courses, in case they decide to pursue a career in another field. However, as a series of studies has suggested, the popularity of these schools within the educational system of Greece lies more on the broader education they offer, rather than the special vocational training they provide (If-

anti & Zorba, 2010; Spyropoulou, 2009). The two schools (which I refer to as "MS1" and "MS2" throughout the rest of the paper) had much in common due to their geographical proximity and their relatively small number of students. The location of each school was in the capital city of two neighboring islands. With a similar population size of about 30,000, both cities had a tradition in the arts and letters (fine arts, literature and music), with a significant cultural life for their size, in addition to being the home of university departments.

According to Pring (2005), a case study always presents points of similarity and differentiation when compared to other case studies, due to its unique features. A study in secondary music schools of Greece presents some very unique features beyond their different cultural and social context. First, all secondary music school students participate in school music ensembles. This is to ensure that there is no conflict between music and other activities (e.g. sports) that could distract students' interest. If there is a conflict, it concerns whether the students will choose a choral or an instrumental ensemble. Second, regardless of the ensemble with which they choose to participate, all seventh, eighth, and nineth grade students attend a mandatory course on choral singing for two hours per week. This means that all boys continue to sing throughout their voice change period and receive vocal training whether they participate in the school choir or not. Third, since these students receive a more intensive training in music than the average student of a typical secondary school, their views could provide a different dimension to already documented topics.

Interviews

As mentioned above, the participants of the present study were 17 boys, students and graduates of two secondary music schools in Greece. I interviewed all the participants individually, after having fulfilled the required, in accordance with Greek legislation, procedures for conducting research studies in public schools with the participation of minors. Consequently, all the participants, as well as their parents in the case of minors, gave their written consent to take part in this project, before its final approval by the Ministry of Education and Religious Affairs. In the present study, the interviews with the participants had a semi-structured form, as I posed a series of standard questions without limiting the conversation to them, especially when the boys were in the mood to speak. While the use of standard questions facilitated the process of data analysis to some extent, the discussion with the participants highlighted aspects that could otherwise have passed unnoticed (Beatty, 1995).

As the aim of this study was not to test the validity of an existing theory, but to explore the meanings that boys assigned to their music activities, I adopted an interpretivist approach, concentrating on the uniqueness of each boy's story, avoiding procedures that could lead to the quantification of data (Kiriazi, 2011). Furthermore, following the principles of grounded theory, I tried to avoid fitting boys' responses to predetermined theoretical categories and, thus, applied the method of open coding during data analysis (Babbie, 2011; Cohen et al., 2007).

The contribution of interviews to research is crucial as they allow the researcher and the participant "to discuss their interpretations of the world in which they live, and to express how they regard situations from their own point of view" (Cohen et al., 2007, p. 349). However, the direct interaction between the researcher and the participants, which is the main advantage of this method, is at the same time its weak spot. Since each individual may interpret an event in a different way, the researchers inevitably filter participants' responses according to their own way of thinking and values (Pring, 2005). According to some social scientists, a true understanding of social phenomena occurs only when researchers "immerse" themselves so deeply in their data that they begin to think and see the world in the same way as the individuals who provided these responses (Breakwell, 1990). During the design of the present study, I decided to conduct interviews with students from the schools where I was working as a teacher of music theory and music ensembles, both choral and instrumental. My choice to study the views of students with whom I had daily contact for a long time and shared a relationship of intimacy with them, proved to be crucial for an in-depth understanding of their perceptions. On the other hand, my personal relationship with the students made it necessary to develop a reflective sight, especially during data analysis.

Research "at home" and the researcher's position

Although autoethnography, with a few exceptions (see, for example, Freer, 2006), is not a popular research method among music educators, the "study of the familiar" has been gaining ground in fields, namely anthropology and education, as the growing interest for types of research such as ethnography at home and action research, respectively, suggests. As a field, anthropology has received negative critiques for retaining a colonial nature because of its concentration on the study of "exotic" non-Western cultures. In recent decades, however, there has been a shift mainly due to: a lack of funding for fieldwork research abroad; an increasing number of foreign students who study at Western universities and return home to conduct research; and the increased dangers that Western anthropologists face in particular places of the world, especially after the 9/11 attacks (Maghal, 2015).

According to Hockey (1993), conducting research in a familiar context can be beneficial for researchers who, in this case, are less likely to experience situations that will cause culture shock or disorient them. In addition, being aware of facts that a "foreign" researcher cannot interpret, gives the "home" researchers the opportunity to assess the sincerity and accuracy of the answers they receive. The respondents tend to share information with the latter easier, perceiving them as individuals who face the same problems and sympathize with them (Hockey, 1993). In the present study, most participants seemed to trust me, recognizing, that apart from being their teacher, we shared many common features: as a male islander who attended a secondary music school when I was a teenager (specifically, MS1). This trust became apparent, not only by the ease with which the boys shared their views, but also by the questions they asked me about the period when I was a teenager and a mem-

ber of my school choir. This finding raises the question of how "local" are the researchers of "here" and how "foreign" are the researchers of "there," since in any ethnographic survey, not necessarily at home, the researcher always has features of both similarity and differentiation in relation to the participants (Hellawell, 2006; Madden, 1999). In our case, although I shared many common features with the participants, the fact that I was also their teacher and a researcher, created a distance as well. As Motzafi-Haller (1997) highlighted, something which often escapes the researchers' attention concerns the distance that their identity and academic education automatically create, despite their shared experiences with the subjects of the study.

According to Ruby (1982), in ethnographic research, researchers should develop a reflective sight: temporarily moving away from their own self, observing, and becoming aware of their own influence on the research field. When conducting research "at home", a researcher must constantly shift roles from being an "insider" to that of an "outsider," like wielding a double-edged sword (Mercer, 2007). In the present study, I used my personal relationship with the participants as a method of triangulation, which in many cases revealed a contradiction between what the boys said in their interviews and their behavior in school. For example, although the majority of boys were aware of the gender stereotypes which they criticized, their choices were consistent with these stereotypes. Thus, there was a contradiction between what should be happening, according to the boys, and what was actually happening. This conflict between their values and reality was a source of confusion for some boys. As Sudman and Bradburn (1983) maintain, it is common in interviews for participants to give false information, often unconsciously, wanting to present an idealized image of themselves or to give answers that will satisfy the interviewer.

Findings

"Singing, something that anyone can do"

Concerning the choice of musical instruments, the choices of the boys that participated in the research study appeared to be in line with the findings of most studies (Hallam et al., 2008; O'Neill & Boultona, 1996; Wych, 2012), according to which, boys show a preference for instruments such as the drums, guitar and trumpet while girls prefer instruments such as the piano, flute, and violin. Interestingly, although most boys seemed to be aware of the gender stereotypes, which they disapproved of, they did in fact choose an instrument that "fits" their gender, hence reproducing these stereotypes. Regarding music ensembles, the data suggested a general preference for instrumental ones, as 14 out of the 17 boys had selected to participate in the following: classical orchestra, contemporary-music ensemble, rock band, traditional-music ensemble, folk-music ensemble, and baroque ensemble. Only four boys had chosen to consistently participate in a vocal ensemble, whereas four other boys had done so occasionally over the previous years but then chose to quit in order to join an instrumental ensemble.

Furthermore, the boys seemed to recognize that choirs possessed a lower status in comparison to instrumental ensembles. According to Haris, it appeared that the instrumental ensembles of his school were enjoying greater recognition, something that he did not support. It is worth noting that although Haris had never attended his school choir, he found this situation unfair:

> Certain music ensembles are perceived as having greater importance and this is not good. Because basically it is unfair for the students who have worked hard to achieve something. I strongly disagree with what is happening.
>
> Which ensembles do you believe possess higher status?
>
> Instrumental ensembles are considered more important because most students in our school prefer them.
>
> —(Haris, student of 10th grade, MS2)

It is worth noting that none of the boys who participated in the study mentioned their vocal abilities as a reason not to attend choirs. In fact, when asked to rate their vocal skills, with the exception of two boys, they all argued that these ranged from average to good. This is not surprising since the participants were music school students; therefore, their vocal skills were obviously better than the average student of a typical secondary school.

An interesting point regarded the devaluation of singing which, according to many participants, is something that "anyone can do." Indicative is the following excerpt by Yiorgos:

> Of course, when you hold an instrument, you feel more excited [than when singing], since singing is easier. Singing does not demand the same effort as does an instrument.
>
> —(Yiorgos, MS2 graduate, Music Technology university student)

Furthermore, Dionysis suggested that participating in an orchestra and playing a musical instrument are activities of a higher social status, compared to participating in choirs and singing, respectively, as free access to the choir may give the impression that singing is something inferior that anyone can do without any training:

> A choir is an ensemble where everyone sings. You regard it as secondary. Even if you make a mistake, nobody will notice it except for someone with a very good ear. In general, they consider it secondary. If there are too many students in an ensemble, they say to the teacher, "Send some of them to the choir." Furthermore, others choose orchestras or bands because there they are given the

> chance to distinguish themselves, to have a solo, to play the instrument they like; unlike singing which everyone does. [This way] they do something exceptional.
>
> —(Dionysis, student of 10th grade, MS2)

According to many boys, an element that can provide status to vocal music seems to be that of singing in parts. For Argyris, part-singing was a crucial factor in differentiating between choral and *group* singing, terms which do not refer to the same thing. In the following excerpt, he explained why he did not regard his previous experiences in the Elementary School chorus as choral:

> The first time I sang in a choir with polyphonic features [several voice sections] at last, and [in a sarcastic tone] not in the first grade choir where we sang the National Anthem, was in seventh grade when we started an ensemble in order to participate in *Moussikoi Agones* [a competition for school music ensembles] and it was a multi-voiced ensemble.
>
> —(Argyris, MS2 graduate - Archaeology university student)

The fact that part-singing is a significant factor which differentiates choral from group singing is also obvious in the words of Thanasis and Christos:

> A choir is divided into four sections... the basses, the tenors, the altos, and the sopranos. In practice, not everyone sings together, but they constantly alternate with each other, creating something unique. It's very nice...
>
> —(Thanasis, student of 11th grade, MS1)

> I liked that we sang in parts. First, second voices... such things. We were divided into tenors and basses; and our sound was beautiful.
>
> —(Christos, MS2 graduate, semi-professional musician)

Individuality within groups

By examining the features that the participants preferred in a music ensemble, we can draw conclusions about the elements that could raise its status, in these boys' opinion at least. First, a constant feature in the responses of many students, regardless of the type of ensemble they had chosen to participate in, concerned their personal contribution and the importance of their presence to the ensemble. In the following excerpt, Vaggelis explained why he had chosen to participate as a drummer in an ensemble; an experience he did not seem to enjoy:

> I was there more because the ensemble needed me, since there was no one else to play the drums. I didn't like it very much… I didn't have fun… it was a bit boring… But I wanted to support this effort.
>
> —(Vaggelis, MS1 graduate, Polytechnic School student)

Similarly, in the following excerpt, Fotis expressed a sense of duty towards the ensemble as he felt his presence there was significant. In addition, he expressed his enthusiasm at having what he considered an upgraded role that year.

> This year I enjoy being the only one [in the Folk Music Ensemble] playing the *toubeleki* [percussion instrument]. Unlike last year when there were two of us. The other guy was the leading percussionist and I was a bit like an assistant… So this year, since I knew I would be alone, I just had to play in that group again.
>
> —(Fotis, student of 11th grade, MS1)

Noteworthy is the case of Alexander, who, during the research study, was the only boy in his final years of high school to participate in the school choir. In his account of his experiences in the choir, Alexandros tried to highlight the importance of his role, as he considered himself one of the "pillars" of the choir.

> The school choir is good if we overlook the fact that it is based on five individuals that sing out. But, in general, it is good. Because if there are certain individuals who are the pillars of the choir and the others lean on them to sing correctly, the result is good.
>
> —(Alexander, student of 11th grade, MS2)

This view is quite interesting if we take into account that Alexander was referring to a two-part choir of 30 singers, a fact that does not justify his self-image as a "pillar." Nevertheless, it becomes clear that his case presented nothing different from the other boys' cases, since he wanted, like everyone else, to feel that he was "important" to the ensemble in which he sang.

A way for students to contribute to a music ensemble is through collaborative rehearsals. In the case described by Achilleas, it seems that the teacher of an instrumental folk ensemble, asked older students to help the younger ones by applying a peer-to-peer teaching method. From Achilleas' narration, we realize that the older students highly valued this teacher for his trust and his decision to give them a role of responsibility.

> When five-six of us were playing folk violins, …along with the help of our teacher, who wasn't a violin player, I was helping too. That is, I would give my

> opinion. That's how I learned about giving, as well as taking.
>
> —(Achilleas, MS2 graduate, Music university student)

Apart from personal responsibility, which every group member should have, for Thodoris it was also important to have opportunities for personal expression. This explains why he chose to play the mandolin in the Baroque ensemble, where he had the freedom to improvise on several occasions:

> Even there, I didn't feel that I had any particular constraint. I could add my own stuff providing that they were correct.
>
> —(Thodoris, student of 12th grade, MS1)

Stratos also considered it important for students to have the right to add their own personal touch to the work of an ensemble:

> I liked my last year in school ensembles very much as I tried to add my own ideas, especially in the instrumental ensembles.
>
> —(Stratos, MS1 graduate – professional musician)

Furthermore, many participants referred to the opportunities that an instrumental ensemble offers its members to distinguish themselves. This element proved to be a consistent pattern in the answers of the boys, who showed a preference for activities that require personal responsibility while providing opportunities not only for personal expression, but also for self-promotion. As Elias argued:

> In the choir, you don't have the opportunity to distinguish yourself… and those seeking self-promotion, cannot find it in the choir. A choir is something totally collective… whereas in an orchestra, even if you do something collective, an individual has more opportunities to distinguish oneself. Especially in orchestras where there is only one instrument of each kind, each student plays his own part and nobody else… it seems that he is the only one who plays this [instrument] and, also, he can play with more virtuosity.
>
> —(Elias, student of 12th grade, MS1)

Argyris described this phenomenon in a much more mature way, as one would expect from the adult he had become. The use of the word *superiority* by Argyris resembles Connell's (1987) theory of hegemonic masculinity, in which masculinity refers to actions that provide the elements of status and power through which a man claims the hegemonic role attributed to his gender:

> I believe that men want to show superiority and to stand out. That's why they refuse to participate in choirs. In the case of playing musical instruments, we are interested in virtuosity or showing off our skills. For example, when playing the bouzouki [Greek folk instrument], the bouzouki player can interrupt the song at a certain point to demonstrate his skills… The choir is not suitable for something like that; under no circumstances does it operate in terms of competitiveness. On the contrary, if somebody stands out from the ensemble, it is not considered good for a choir. If you want to stand out, the choir is not for you…
>
> —(Argyris, MS2 graduate - Archaeology university student)

Based on their responses, boys appeared to appreciate it when they had distinct individual roles within a group, combined with opportunities for personal expression. Except for being personal, this role was distinct because boys wanted to feel that their presence was important to the operation of the ensemble. However, these two elements seemed to contradict traditional teaching approaches in the field of choral education, since the philosophy of choral singing emphasizes the absolute homogeneity of sound, where no voice stands out (Fagnan, 2008).

Finally, I would like to refer to the cases of four students, two of which had never enrolled in their school choir. At the time of the interviews, all four boys had voluntarily joined community choirs outside of school. In the following excerpt, Argyris expressed the increased status that this extracurricular music activity gave him, in addition to the importance of his interaction with other more experienced singers.

> I really liked being part of this [community] choir because it was my first serious choral experience and because I realized that I myself had chosen it, without anyone forcing me to do so. Also, I liked the fact that even though I was a student, I realized that I could interact and cooperate as an equal with people who were older than me and many of whom were my teachers [from secondary music school].
>
> —(Argyris, MS2 graduate – university archaeology student)

Similarly, Yiorgos highlighted the fact that, like all the other members, he had joined this choir by choice, not because it was mandatory. In addition, he maintained that he not only got more out of this choir due to its higher quality, but also because of his interaction with the older and more experienced singers.

> When you are in a group with child participants only, you see it as a game… There [in the community choir], you went to do really serious work and you saw that the others, who go there, have come for the same purpose too. What's

> more, there were certain experienced and knowledgeable choral singers from whom you also learned things.
>
> —(Yiorgos, MS2 graduate – music-technology student)

Discussion

The boys who participated in the present study seemed to avoid choirs, suggesting that participation in an instrumental ensemble and playing a musical instrument were activities of a higher social status, as compared to participation in choirs and singing, respectively. This finding supports Adler and Harrison's (2004) position, according to which, school ensembles did not all possess the same status. Instead, there seemed to be a hierarchy where choirs were at the bottom and concert or marching bands are at the top. Regarding the status of singing, boys reproduced the common belief that singing was something that anyone can do, even without prior training; a misconception often expressed by music educators too (Kemp, 1985; Phillips, 1996). Welch and Sundberg (2002) attributed this belief to the difficulty in coding and evaluating the teaching of singing in comparison to the teaching of instruments which students hold and see; the voice is an instrument that is not visible (Welch & Sundberg, 2002). In addition, music teachers often misunderstood the fact that some children instinctively sing beautifully without having had any previous training or lessons; a fact that one should treat as an exception rather than the rule (Kemp, 1985). For example, it is self-evident that children must learn how to use their fingers to play the piano, but when it comes to singing, many teachers believed that it was an inherent skill (Phillips, 1996).

According to some participants, part-singing was an element which added some status to singing, differentiating choral singing from the group singing that usually takes place in a general music class. Ashley (2015) made a similar division between "choir/choral work and class chorus/vocal work" (p. 117) pointing out, however, the pedagogical value of the latter, which music educators should not treat as a break from the other classes. Additionally, some boys attributed the low status of choirs to the fact that, in their schools, choirs were open to all students, since there was no audition procedure as in instrumental ensembles. I would like to note that this positive attitude towards auditions from these boys was to some degree expected considering their background; they were all students of specialized music schools, having all succeeded in an entrance exam which included an audition. However, as Ashley (2014) suggested, for most boys, an audition was a frightening procedure, which threatened their safety and which they usually tried to avoid.

Furthermore, most participants' assessment of their vocal skills ranged *from average* to *good,* while none of them mentioned difficulties associated with voice change as a reason for their non-participation in choirs. This finding is in line with Freer and Tan's (2014) study, in which none of the 12 participants, all male students of pre-university schools in Singapore, referenced adolescent voice change as a deterrent factor that influenced their

decision whether to sing in choirs. Both studies contradict the common view that boys avoid choirs because they are lagging behind girls, due to physical age-related vocal difficulties, such as voice change during puberty (Demorest, 2000; Swanson, 1984). This contradiction suggests that international research could possibly challenge themes that researchers from North America and Western Europe consider universal.

Summarizing their answers, we can assume that the participants chose music ensembles that (a) balanced individuality with team work, (b) instilled a sense of duty ("to feel needed"), (c) assigned distinct individual roles, and (d) provided opportunities for personal expression, as well as (e) opportunities to distinguish themselves. In addition, they preferred ensembles which (a) did not have a mandatory character, (b) possessed a high social status, and (c) provided opportunities for interaction with older individuals who are role models.

Concerning the degree of individuality in a music ensemble, Cottrell (2017) argued that the typical division of large mixed choirs into four parts reduces the opportunities for individual musical expression, in contrast to instrumental ensembles, where more sections usually exist. As Freer (2007) maintained, adolescent boys seemed to dislike "large-group instruction where everyone is arranged in rows and where conformity is highly valued" (p. 32). The availability of smaller chamber ensembles within a choral program could probably provide a "solution" to this problem. According to Lim (2014), each member of a typical chamber ensemble undertook a distinctive and independent role, particularly when no other member is doubling up their parts, thus increasing the degree of personal responsibility. The existence of smaller vocal ensembles within a choral program is an idea that the authors of some classical choral method textbooks have suggested (see, for example, Collins, 1993; Hylton, 1995; Roe, 1983). According to these authors, smaller groups, which operate in parallel with the main choir, can provide opportunities for students to further develop their skills. However, since the purpose of these ensembles is usually the performance of more difficult music, this practice primarily applies to advanced students, whose successful auditions lead to their participation in such ensembles. Quite often, this marks the highest achievement they can attain as members of school choirs. I propose that giving the opportunity to less advanced students to experience chamber choral singing, even at early stages, is crucial as it may assist in the development of their skills, in addition to fostering a sense of personal responsibility.

Another strategy that teachers could use to increase students' level of responsibility, is to assign them to direct the choir (Nápoles et al., 2013; Woodford, 2005). Indicative is the case, which O'Toole (1997) described, of a group of American high school students, who prepared a choral piece secretly from their teacher, in order to present it to him as a surprise. During the rehearsals, each student had the responsibility of observing a specific element, such as rhythm, tonal accuracy, diction, phrasing etc.

Regarding the opportunities for personal expression, the boys' narratives were in line with a large body of studies on the significance of creative processes as a means of democratizing the choral rehearsal. For example, educators have suggested collaborative prob-

lem-solving activities which may lead to collective decisions about the interpretation of music (Nápoles et al., 2013; Guelker-Cone, 2010). Similarly, Abrahams (2017) and Abrahams et al. (2017) have suggested the embedding of peer-directed learning strategies derived from Paulo Freire's critical pedagogy and Lucy Green's informal music learning, respectively, in order to challenge traditional paradigms in Choral Education. In addition, Freer (2010b) has advocated in favor of improvisation in choral contexts, a practice which "challenges the traditional power structure of conductor-centered ensembles", cultivating an "atmosphere where conductors and students function as co-musicians rather than as leader and followers" (p. 22).

The boys who participated in this study also expressed their dislike for choirs that have a mandatory character, a common policy in music schools and conservatories in Greece. As Laurence (2010) argued, children appear to place greater value on music activities in which they act independently, and thus perceive them as their own. In addition, it seems that boys consider freedom of choice an element of masculinity or, as Connell (1987) argued, the privilege of those possessing the element of hegemonic masculinity. This became apparent in the narratives of the four boys who decided to join community choirs outside of school. In addition to the importance of making decisions on their own, these boys highlighted the valuable opportunities they had in these choirs for interaction with more experienced singers. As adolescent boys think about their possible future selves, older singing peers can positively influence them as role models, thus, encouraging future involvement in choirs (Harrison & Young, 2017). According to Ashley (2009), "older brothers" are more influential than adults. Additionally, Freer (2012) suggested that the influence of older peers is even greater when there is a gap of one generation; for example, when elementary school boys interact with high school boys.

Finally, the researcher did not note a particular trend towards school ensembles of Greek Orthodox chant, in contrast to Freer's (2015) findings in two other secondary music schools of Greece. A possible explanation for this contradiction may have to do with the fact that, in the schools of the present study, these were mixed-voice ensembles, unlike the nearly all-male ensembles which Freer observed. This fact may support the belief that boys feel safer when they sing without the presence of girls. Based on this assumption, Ashley (2015) recommended a *diamond model,* according to which, choral classes in secondary schools should begin with mixed-gender groups of students, split to parallel single-sex groups in the middle stages, and resume with mixed-gender in the later stages (Ashley, 2015, p. 175).

Conclusion

This study investigated the perspectives of boys, from two secondary music schools of Greece, regarding their participation in school ensembles. Summarizing the main findings, one could conclude that the boys who participated in the study seemed to mostly agree with views expressed by their peers from other places of the world as international research

suggests. Nevertheless, some of the ideas expressed in their narratives challenge commonly held perceptions among choral educators. As already discussed, in addition to its interpretivist nature, the unique context of this case study may have limited the possibilities of drawing general conclusions. These "contradictions," however, indicate the complexity of issues related to gender which researchers should not attempt to explain by using general universal laws.

In conclusion, I would like to highlight one final point. As mentioned in the beginning of the article, one of the most well-documented issues in the field of choral education, is that of boys' and men's low choral participation. On the other hand, feminist researchers have criticized the one-sided focus of the field on the issue of boys. Indicative is O'Toole's (1998) reference to the "missing chapter" of choral method textbooks; that of adolescent girls in choral singing. Comparably, as Gackle (2011) pointed out, while there is a great number of studies and publications on the issue of boys' changing voice, the limited research on girls' changing voice makes one wonder if this issue is indeed of minor importance. It is my belief that while most suggestions in this paper derive from boys' narratives, the readers should not regard them solely as strategies for the recruitment of boys. I propose that these suggestions could improve students' choral experience in general, irrespective of their gender and/or sexual orientation. Furthermore, the opposite could send a misogynist message, according to which elements, such as the personal expression of creativity in choral ensembles, are a privilege of boys. Finally, this assumption emphasizes the need for similar studies based on girls' narratives.

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Article

AMERICAN CHORAL DIRECTORS ASSOCIATION

IJRCS

International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

International Journal of Research in Choral Singing
(2021) Vol. 9 92-115

Real Voices, Virtual Ensemble 2.0: Perceptions of Participation in Eric Whitacre's Virtual Choirs

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Abstract

The purpose of this study was to examine perceptions of participation in Eric Whitacre's virtual choirs among mostly amateur singers (N = 312) from 31 countries and answer four research questions: (a) What did participants gain from their participation? (b) What did they learn about their voices and themselves as performers? (c) What were their perceptions of the similarities and differences between in-person choirs and virtual choirs? and (d) How did virtual choir participation influence their current and future choral music participation? Data were collected via a researcher-designed, anonymous online survey. Results indicate that respondents gained a sense of personal satisfaction and global connection. The virtual choir afforded opportunities for those who were unable to participate in in-person choirs due to geographic isolation, schedule conflicts, personal disability, and audition barriers. For many, viewing their performance on video was a new experience and resulted in mostly negative critiques of their own voices. Respondents identified the lack of musical and social interaction between themselves, the conductor, and fellow singers as well as an absence of the embodied experience of being a part of the ensemble. In general, virtual choir participation seemed to encourage future choral singing participation. A discussion of access, assessment, connection, and post-production in virtual choirs as well as recommendations for integrating in-person and virtual music-making to enhance choral participation are provided.

Keywords: choral singing, Eric Whitacre, online survey, virtual choir

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In just over a decade, thousands of singers have participated in Eric Whitacre's Virtual Choirs, a digitally-mediated form of choral singing that has caught the attention of choral enthusiasts around the world. A virtual choir (VC) is composed of audio-video recordings submitted by individual singers that are compiled into a single, digital performance, evocative of an in-person choir (Paparo, in press). American conductor and composer Whitacre released his first VC in 2009 and unveiled his sixth in 2020. In a recent interview, he described the VC as "this gorgeous, delicate, ephemeral artwork . . . that will exist for all time" (CBS Sunday Morning, 2020). For each project, he recruited singers via social media (e.g., the Eric Whitacre Facebook page) and provided downloadable copies of his music, instructional videos, and a conductor track for singers to follow while recording their performances. A production team complied the audio recordings using a technique called multi-tracking and then created a music video presentation using the video recordings (Cayari, 2016). The resulting VC performance was released on YouTube for viewing and publicized through Whitacre's social media. Participation for each VC grew steadily, but it more than quadrupled in 2020, likely due to the pandemic as a result of the novel coronavirus COVID-19 that prevented singers around the world from rehearsing and performing together in person. Whitacre composed "Sing Gently" specifically for VC6 that attracted 17,572 singers from 129 countries and broke previous records for participation (Eric Whitacre Inc., n.d.). Table 1 lists the composition, publication date, and number of singers and countries for each of Whitacre's VCs.

Table 1
Eric Whitacre's Virtual Choirs

Virtual Choir	Whitacre Composition	Publication Date	Number of Singers	Number of Countries
1	Lux Aurumque	March 21, 2010	185	12
2	Sleep	April 6, 2011	1,999	58
3	Water Night	April 2, 2012	2,945	73
4	Fly to Paradise	July 11, 2013	5,905	101
5	Deep Field	November 12, 2018	3,939	120
6	Sing Gently	July 19, 2020	17,562	129

Despite growing interest in online music participation, few researchers have explored this relatively new phenomenon. To date, researchers have examined aspects of online collaboration and community in a VC (Armstrong, 2012), Whitacre's impact on the choral world (Konewko, 2013), social presence and emotional regulation in live versus virtual singing experiences (Fancourt & Steptoe, 2019), and the nature and meaning of VC participation

(Paparo, in press). The present study focused on singers' perceptions of what they learned and the impact of their participation. A broader understanding of VC participation is relevant perhaps now more than ever, as the coronavirus curtailed in-person singing for over a year. Though the data for this study were collected before the pandemic and VC6, this research serves to document singers' experiences of virtual participation and offers valuable insights for choral music educators that will extend beyond the current COVID-19 crisis.

The Virtual Choir

Studies exploring the phenomenon of the VC are part of a larger body of research on social media and music learning[1] that falls outside the scope of the current investigation. Specific research concerning Whitacre's VC was limited, comprising one thesis (Armstrong, 2012), one dissertation (Konewko, 2013), and two peer-reviewed research studies (Fancourt & Steptoe, 2019; Paparo, in press); though other authors have examined aspects of VCs in general. The following review of literature highlights criticisms and praise for VCs, reasons for participation, community and collaboration in a VC, and the nature and meaning of participation.

The overwhelming critique of the VC is that it is a poor attempt to replicate live choral music experiences. Datta (2020), for example, argued that

> 'Virtual choir' is, effectively, a misnomer. Technologically simulated 'performances' during isolation cannot synthesise [*sic*] place, time, affect and emotion, which are not contexts for music-making, but are revealed as integral textures in the fabric of crafting musical sound. (p. 2)

In an examination of participatory online classical music projects, Helms (2015) highlighted similar concerns, noting an obvious difference between VC and in-person choirs is that everyone rehearses separately and cannot see or hear the other performers until the final product is assembled and thus cannot blend and react in the moment to others. Though both require the body in performing and recording, Helms emphasized that "so much of the experience of live musical group performance is multisensorial and reactive" (p. 30). Whitacre himself emphasized the importance of live music-making, stating ". . . Singing together in a room–taking that first breath together and then singing together–nothing beats that, and nothing ever will." (CBS Sunday Morning, 2020).

There are number of other barriers that limit potential VC participation. These include access to technology and the internet, ability to read directions in English, knowledge of how to record and upload, ability to read music or learn from a recording, not knowing that VCs exist, and being philosophically opposed to the fundamental concept (Armstrong,

[1] See Waldron, J. L., Horsley, S., & Veblen, K. K. (Eds.) (2020). The Oxford handbook of social media and music learning. Oxford University Press.

2012; Helms, 2015; Konewko, 2013). Helms (2015) argued that many of these factors mitigate claims of virtual performing ensembles as ways to increase participation and accessibility to classical music. Regarding the creation of virtual choirs, Galván and Clauhs (2020) identified technical challenges such as digital audio latency (delay in hearing the sound of one's voice in their headphones when recording) and variable quality of recordings (related to recording equipment). They shared that students found it difficult to record by themselves without hearing others and struggled to align their recordings with others in their section. Datta (2020) suggested that singers may have felt stressed by the rehearsal process, pressure to record a perfect take, and dissatisfaction with lag time between recording, presentation, and audience response.

In contrast to these concerns, several authors have identified a number of positive aspects that have emerged as a result of this new form of musical participation through digital media. Blackburn and McGrath (2014), for example, posited that traditional musical experiences infused with technology, such as the virtual choir, provided new opportunities for online music education in which students of diverse backgrounds engage in knowledge construction. They suggested that singers in a VC, though working independently, "still practice the same collaborative skills, listening for pitch and timing as well as discussing interpretive ideas, providing feedback within the ensemble and self/peer-evaluation" (p. 225). On the flipside of critique mentioned above, Helms (2015) also noted that, for those who had access, a VC may be a means to overcome certain participation barriers in a traditional, in-person choir, such as disability, geographic isolation or displacement, time-consuming personal issues, and feelings of exclusion based on lack of training or ability. Galván and Clauhs (2020) reported that students bonded during sectional rehearsals and appreciated the opportunity to work collaboratively toward a performance goal during the time of pandemic.

Singers have been motivated to participate in a VC for a number of reasons. Konewko (2013) and Armstrong (2012) argued that participants were primarily drawn to work with Whitacre and sing his music. In a phenomenological study, Konewko (2013) described how Whitacre had enlivened and energized the choral world with his charismatic persona and music in both live and virtual contexts. Other reasons included the innovativeness of the endeavor, the desire to express oneself musically, and thee desire to perform after illness or in spite of disability (Armstrong, 2012). In a subsequent study, Paparo (in press) used factor analysis to examine self-reported data from singers from around the world and found that VC participation was a multidimensional construct. The six underlying dimensions that explained meanings of participation were as follows: (a) Whitacre, relating to Eric Whitacre as conductor and composer; (b) musical achievement, pertaining to singing and musicianship skills; (c) inspirational, encompassing being inspired to sing or inspiring others; (d) individual, relating to convenience of participating virtually and experiencing singing that would otherwise be unavailable; (e) recognition, encompassing positive feedback and recognition; and (f) communal, pertaining to connections with others (Paparo, in press).

Additional evidence suggests that VC singers experience a sense of *communitas*, connec-

tion and collaboration with others. Armstrong (2012) examined collaborative music-making and online community among singers from Whitacre's VC2. Though it was unclear as to how many participants were involved or how the data were analyzed, the author provided evidence from online artifacts and virtual interviews that documented participants' online and offline connection with others through social media and in-person meetings. Armstrong explained, "This project might refute, or at least reframe, perceptions of cyberspace as a lonely and impersonal place and support the notion that social capital and a global orientation can, indeed be fostered through networked collaborative cultural production" (p. 87). In a quantitative study using survey data, Fancourt and Steptoe (2019) compared social presence and emotional regulation in live versus virtual singing experiences in two paired cohorts, totaling 2,316 singers. They found a slightly greater sense of presence, reduced social isolation, and increased connection to others among VC singers. They concluded that VC participation could provide similar emotional and social benefits as in-person singing.

Research on VCs also provides information about how participants prepared their submissions. Paparo (in press) found that participants spent between less than an hour and more than 10 hours preparing and recording their submissions, with amateurs spending more time than professionals. While preparing, they learned their parts rehearsing individually and with others, focused on musical aspects beyond the notes and rhythms, and some even sought vocal and technical assistance from teachers, colleagues, friends, and significant others when needed.

Though the literature offers clarity on certain aspects of participation, questions that are perhaps of most interest to choral music educators related to pedagogy, namely, the nature and value of learning experiences of those who participate in VCs, remain largely unexamined. Therefore, the purpose of this study was to examine singers' perceptions of what they learned and the impact of their participation. The research questions were as follows:

(1) What did participants gain from their experience?

(2) What did they learn about their voices and themselves as performers?

(3) What were their perceptions of the similarities and differences between in-person choirs and virtual choirs?

(4) How did virtual choir participation influence their current and future choral music participation?

Method

Survey

Data were collected via a researcher-designed, anonymous online survey (see Appendix 1). The first of two sections gathered demographic information—age, gender, country of

residence, level of music experience, voice part, and virtual choir. The second included descriptive, Likert-type scale, and open-ended questions that asked respondents to describe their experiences and perceptions of in-person and virtual choir participation. In order to establish validity and reliability of the survey instrument, two experienced music education researchers and two known VC singers reviewed the survey prior to its distribution. The researchers provided feedback on the survey's structure and content. The VC singers provided responses to the questions as well as made suggestions for improvement. Based on the collective feedback, all definitions and two questions were rewritten for greater clarity. This review process was helpful in confirming the appropriateness and effectiveness of the survey to obtain useful data for this study.

Procedure

After receiving Institutional Review Board approval, the survey was distributed using a link to a Google Form and posted with permission on the Eric Whitacre VC Facebook page. Using Facebook was a logical way to reach a large number of potential respondents given that social media was a primary means of communication between Whitacre and singers. This was also a limitation of the study as there was no guarantee who may have seen or had access to the link. It should also be noted that the Facebook page was open to anyone and likely attracted fans of Whitacre's VCs; this may have resulted in overly positive responses. In order to ensure that respondents did not take the survey more than once, they were required to provide their Internet Protocol (IP) address as part of the Consent and Verification process before starting the survey. Information on where to find the IP address was provided. There were no duplicate IP addresses giving some measure of assurance of the uniqueness of each response. Given these limitations, the survey sought to gather data from a purposive, non-probability sample of singers who had participated in one or more of Whitacre's VCs (Palys, 2008). There was a total of 312 responses over the week of January 7, 2019, after which there were no additional responses.

Demographic and descriptive data were analyzed by calculating frequency and percentages. Likert-item responses were analyzed by calculating averages and standard deviations. Open-ended responses yielded over 2840 statements (phrases or complete sentences) that were analyzed using a combination of in vivo and structural coding, which are appropriate for survey responses (Saldaña, 2015). In vivo coding involved selecting a word or short phrase directly from the written responses as a code (e.g., inspiration, community). Due to the wide range of responses in each open-ended question, this process yielded an unusually large number of initial codes. Redundant codes were then eliminated, such as when two or more codes were very similar (e.g., "love singing," "love to sing," and "love choral singing" were coded with "love singing"). Structural coding involved grouping codes into categories related to each research question (e.g., similarities of in-person and virtual choirs). The complete analysis generated 2,723 initial codes, which were refined to 1,556 unique codes, grouped into 74 categories, and counted for frequency in order to capture the most prev-

alent and compelling responses (Saldaña, 2015). An independent researcher reviewed and verified the coding process in an effort to ensure reliability of the analysis.

Tables 2-7 provide examples of codes, categories, frequencies, and percentages of responses for each open-ended question. In Table 2, for example, which shows answers to the question, "What did you gain from your virtual choir participation?", codes such as "fun," "joy/happiness," "moved to tears," "fantastically overwhelmed," and "grateful" captured respondents' *satisfaction.* This category contained 96 coded statements, approximately 22% of the responses for this question. Because survey respondents could share as much or as little as they wanted in each open-ended response, the total number of coded statements was different for each question. Therefore, percentages of code counts are provided for consistency in reporting the results.

Table 2

Coded responses to question 1, "What did you gain from your virtual choir participation?"

Sample Codes	Category	Frequency	Percent
Fun, inspired, joy, happiness, "moved to tears," proud, grateful	Satisfaction	96	22%
Unity, community, sing with people from all over the world, global community, worldwide, belonging, shared experience	Communitas	90	21%
Music, singing, familiar with song, musical aspirations, "musical servant"	Music	54	12%
Whitacre as conductor, composer	Whitacre	48	11%
Special opportunity, groundbreaking, "musical history in the making," "21st century musician"	Significant opportunity	36	8%
Novelty, new, curiosity, experiment, "next best thing"	Novelty	36	8%
Access, audition barrier, schedule, isolation, remote, overcome disability, depression, stage fright	Access	30	7%
Challenge, accomplishment, self-confidence, aspiration, brag, "bucket list," validating	Achievement	26	6%
Related to technology as medium for participation, blending performance and technology	Technology	22	5%
	Totals:	438	100%

Participants

Survey respondents (N = 312) were from 31 different countries on six continents; the majority (65%) were from the US. They identified as female (67%) and male (33%). Respondents identified as amateurs (63%), professionals-in-training (23%), and professionals (14%). They indicated their voice parts as sopranos (46%), altos (21%), tenors (12%), and basses (21%). Their ages ranged from 18-69 years old. The majority of respondents (59%) had more than 10 years of in-person choir participation. The majority of respondents (71%) participated in only one virtual choir. Approximately 27% participated in two virtual choirs and less than 2% participated in more than two virtual choirs. The distribution of survey respondents among the VCs was as follows: VC1 (n = 0); VC2 (n = 2); VC3 (n = 7); VC4 (n = 126); VC5 (n = 273).

Findings

Research Question One: What Did Participants Gain?

The most common response (22%) indicated that participants gained a sense of personal satisfaction as a result of their VC participation. Participants expressed their joy and enthusiasm, such as in the following quote:

> It's such an inspiration to be able to sing with people of all ages, from all walks of life, and to be brought together by music. When I saw the final product of this beautiful piece we've brought to life, the feeling was fantastically overwhelming. (Professional-in-training mezzo-soprano)

The second most common response (21%) indicated that participants experienced a sense of connection with other singers as part of a global community, expressed as follows:

> I loved the feeling of being connected to thousands of other human beings across the globe, the vast majority of whom I will never meet but with whom I now have a sort of connection. We created something amazing together that will last for much longer than we could ever have influenced the world alone. (Amateur soprano)

The next two most common responses indicated that participants gained an opportunity to further their love of choral music (12%) and interest in Whitacre as conductor and composer (11%). Other responses suggested that VC participation was significant/historic (8%), novel (8%), achievement-oriented (6%), and intriguing with the combination of music-making and technology (5%). Responses in the access category (7%) revealed that VC participation was an opportunity for those who were unable to participate in in-person

choirs for a variety of reasons. Two respondents explained how they were able to participate in spite of schedule difficulties and conflicts:

> As a music teacher, being able to rehearse myself (late at night, etc.) and knowing that I can still contribute without having to juggle tons of people's schedules for rehearsals makes this an experience that I can readily participate in. (Professional bass)

> I don't have choirs in my area that fit with my schedule and are accessible to me. This is my chance to take part in a choir again, to sing choral music again, and to be a part of something beautiful, all of which I miss. (Amateur alto)

One respondent explained how the VC was a way to overcome geographical isolation:

> Because of our current position, I have not been able to participate in a local choir for a number of years and have missed the experience. Finding the Virtual Choir afforded me an opportunity to be a part of a choir again without having to travel or be away from my current responsibilities. (Amateur soprano)

Another shared that they were able to contribute in spite of personal disability:

> [By participating in this choir, I was able] to prove to myself that a person can be a positive contributor in a project despite hearing and vision disability. I hope to inspire others who have a disability to participate in life. (Amateur mezzo-soprano)

Finally, another commented that the VCs had no audition and on audition barriers in general:

> There are too many vocal groups that instill too much pressure on the audition process, in my opinion. The Virtual Choir allows everyone to sing regardless of how good you are and for those who may not have been accepted into audition-only groups. This gives them a sense of pride, accomplishment, and inspiration. (Amateur bass)

Though these responses were few in comparison to the total number of responses, they are worth noting when considering how VCs may broaden access to choral music participation for those who may not be able to participate in a traditional, in-person choir for a variety of reasons.

Research Question Two: What Did Participants Learn About Their Voices and Themselves As Performers?

The most common response (30%) indicated that viewing their performance on video resulted in mostly negative critiques of their singing, facial expression, or voice in general, as represented by the following quotes, respectively:

> It was very strange to hear my own voice without being surrounded by others. I knew I was on key, but I was disappointed in my lack of breath control. I have quite a bit of confidence when I'm performing with my chorus, but I got very self-conscious during this experience. (Amateur soprano)

> Most of what I learned was regarding my facial expressions and body language, especially things like needing to relax my jaw more and not use my eyebrows to support the sound when I go to the top of my range! (Professional-in-training tenor)

> I learned that I am incredibly critical of my own voice and of my own abilities. I got incredibly stressed out because I heard the mistakes and the things that didn't go well. (Professional-in-training bass)

As a whole, responses suggested that participants formulated their self-critiques as a result of viewing their recordings, as one amateur bass wrote, "The submission process forced me to listen to my recording not in a 'oh, I sound so bad' sense, but more of in a 'so what I can do better' sense, a.k.a. more critically constructive." However, this was not the case for an amateur alto in particular who explained: "I really don't like the sound of my own unaccompanied voice. I didn't even watch my own video past the first few seconds."

The next most common response (24%) pertained to participants' skills in terms of learning parts, vocal technique, and musicianship. An amateur soprano wrote: "I am able to sing with dynamics and minimal vibrato and still keep energy and emotion of the composition." A professional-in-training soprano shared: "High notes aren't that scary, and with the right amount of preparation I am capable of more than I thought." Another amateur soprano wrote: "I generally had a very low opinion of my voice and myself as a performer, but while recording, I learned that I was capable of singing well."

Other responses captured participants' reactions about their performance, which ranged from proud to self-conscious (15%), and the challenges they experienced singing alone in front of the camera and using technology (6%). Other responses (5%) indicated that participants' confidence ranged from very confident to very self-conscious. Responses in the recording category (5%) suggested that some participants needed better recording equipment while others were satisfied with their equipment, and, as a result, some felt the technicalities distracted from singing while others were pleased. Fewer responses (4%) indicated that VC participation affirmed participants' love of choral singing. Other responses (3%) revealed

that participants spent "lots of time practicing" independently or with learning tracks. Responses also indicated that they loved being part of the group, offering and receiving support and help (3%), and that, though they were striving for perfection, their recordings were imperfect (3%). Finally, a handful of responses (1%) suggested that participants learned nothing at all.

Table 3

Coded responses to question 2, "What did you learn about your voice and yourself as a performer?"

Sample Codes	Category	Frequency	Percent
Critique of breathing, breath control, facial expression, vowels, jaw movement, intervals, tone quality, "I don't like hearing my own voice"	Critique	130	30%
"better singers than I thought," capable of learning, developed my range/voice, improved flexibility/sight reading/stamina, technique, etc.	Skills	103	24%
Fun, humbling, inspired, intimidating, nervous, proud, self-conscious	Reactions	65	15%
Difficult to blend, difficult to sing alone, hard to listen and watch myself	Challenges	27	6%
Affirmed confidence, lacked confidence, more confidence in a group, "need to be secure"	Confidence	20	5%
"first take is most likely the best," un/happy with recording, "used an external microphone when recording"	Recording	20	5%
"I love choral singing," "I love singing great choral music," "affinity for choral music"	Love choral singing	18	4%
"Spent hours rehearsing and listening to the song," learning tracks were helpful, "opportunity to find what I could improve," "practiced sustaining notes"	Learning process	15	3%
Being part of a group, encouraged others, enjoy people, connection to others	Connection	14	3%
"Can't hide mistakes," "not worry about being perfect all the time," perfectionist, vocal imperfections	Imperfection	13	3%
Nothing about my voice, "nothing/not sure what I learned"	Nothing	5	1%
	Totals:	430	100%

Research Question 3: What Were Their Perceptions Of The Similarities And Differences Between In-Person Choirs And Virtual Choirs?

Perceptions of the similarities between in-person and VCs ranged considerably. The most common responses were as follows: a conductor (14%), learning a choral piece (13%), a shared goal of music-making (11%), being a part of a community (9%). The following quotes provide a feel for the aforementioned responses. A profession-in-training bass wrote: "You have a score. You have a conductor. You need to do your best in performance to interpret and present the conductor's vision." A professional-in-training mezzo-soprano wrote: "Choir is all about bringing individuals together and turning parts into a whole, beautiful, musical experience; both virtual and in-person choirs do that." Fewer responses pertained to rehearsing (7%), the feeling/reaction from the performance (7%), singing (6%), musicianship (6%), responsibility to learn your part (6%), the music (6%), and the final product (5%). Even fewer responses included the following: nothing at all (3%), the importance of blending (2%), performing (2%), challenge and inspiration (2%), and helping others (1%).

Table 4

Coded responses to question 3A, "How is participating in an in-person choir similar to participating in a virtual choir?"

Sample Codes	Category	Frequency	Percent
Conductor, follow conductor, conductor's direction, interact with conductor, sing for a conductor	Conductor	75	14%
Learn/master/memorize your part, learn how your part fits with the rest, "train the ear"	Learn	66	13%
Common focus and purpose, common sound, contributing to a group effort/musical whole, collaboration	Shared goal	58	11%
"Community coming together to perform a piece," team work, connecting to others through song, develop relationships with fellow singers, feel part of a group	Community	49	9%
Practice with conductor/recording, prepare/rehearse	Preparation	39	7%
Be proud of the performance, feeling achievement, gratifying, satisfying, pride	Reaction	38	7%
Sing choral music, sing with others, sing together in harmony, singing your part, sing	Singing	33	6%
Express the text, sing in tune, convey expression, develop vocal skills/vocal technique	Musicianship	31	6%

Continued on the next page

"Do my best," responsibility to perform well, responsible for learning your own part	Responsibility	30	6%
Choral music, score, specific song, the music itself, great/good music	Music	29	6%
End result/product, finished product, "it's about the whole in the end," same result	Product	26	5%
Nothing, none, not very similar, very different	Nothing	16	3%
Blend, blend together, "focus on clean sound that will blend," "voice has to bend & not stand out"	Blend	12	2%
Perform/share choral music for an audience, perform same piece	Perform	9	2%
Seek/ask for help, help and encourage others, "virtual help"	Help	7	1%
Challenging music, "chance to perform beautiful, challenging music"	Challenge	3	<1%
Inspire listeners, "inspiration and emotional support from others"	Inspiration	3	<1%
	Totals:	524	100%

Regarding differences, perceptions between in-person and VCs ranged even more than perceptions of similarities. Responses in the musical interaction category, however, were most common (33%) and pertained to the lack of musical interaction between themselves, the conductor, other singers in a VC, and the audience in a VC. A professional-in-training soprano wrote: "It's harder to feel part of an overall sound, and you don't have the same feedback from the director or other singers about whether you're producing the desired sound or the right amount of expressiveness." A professional-in-training mezzo-soprano succinctly explained that "[in a VC,] the sound has been scrubbed and sound mixed by someone else; in an in-person choir, the choristers scrub it themselves by working on blend during practice." These quotes highlight differences in how musical interaction occurs in both types of choirs.

The next most common responses included the need to be more independent (12%), as an amateur mezzo-soprano wrote: "You have to be much more secure in your part in a virtual choir environment. You don't have the benefit of having that 'strong person' in the choir, singing right beside you." Other responses included the lack of social interaction (10%), mixed feelings about the performing experience (7%), lack of conductor feedback (5%), the ability to re-record and submit multiple parts (5%), the solitary nature of VC participation (5%), and the different products of the two types of choirs (5%).

Responses also highlighted the lack of feedback from listening to other singers (4%), embodied response in being surrounded by the group sound (4%), and connection with other choir members during rehearsal (3%). Fewer responses indicated that VC participation is more like solo singing (3%) and pointed out other differences such as the ability to participate anonymously (2%), practice at one's convenience (2%), and critique one's own performance (1%), and the necessity of dealing with technical challenges (1%).

Table 5

Coded responses to question 3B, "How is participating in an in-person choir different than participating in a virtual choir?"

Sample Codes	Category	Frequency	Percent
Alignment of cutoffs/entrances/vowels/consonants, balance, blend, group sound, dynamics, hear other parts, intonation, staggered breathing, tuning	Ensemble	226	33%
Individual preparation, learn on your own, make musical decisions, practice alone, self-directed	Independent	85	12%
Communication with conductor and singers, distanced from experience, "no celebratory beer afterward," lacked bonding	Social interaction	68	10%
Anticipation, excitement, immediate/delayed reaction, intangible, exposed, vulnerable	Reaction	47	7%
Conductor interaction, follow conductor, guided rehearsals, immediate feedback	Conductor feedback	34	5%
Final product, "show day," watch performance	Product	32	5%
Ability to re-record and make multiple recordings	Re-record	32	5%
Alone, singing at home, "alone together," isolated	Solitary	31	5%
Connection with audience and other singers	Connection	27	4%
Audience/singer/conductor feedback	Feedback	26	4%
Embodied feeling, surrounded by the sound	Embodied	21	3%
Solo singing	Solo	18	3%
Rehearsal time, logistics, pacing, experience	Rehearsal	14	2%

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Participate anonymously	Anonymous	12	2%
Self-critique/improvement	Self-critique	4	1%
Technical challenges/obstacles, internet connectivity issues	Technology challenges	4	1%
	Totals:	684	100%

Research Question 4: How Did Virtual Choir Participation Influence Their Current And Future Choral Music Participation?

The most common response (36%) indicated that VC participation had no impact on respondents' current choral music participation. For those who were currently participating in an in-person choir (n = 212), the VC helped them to develop skills (10%), confidence (9%), and motivation (6%). Their participation affirmed their love of singing (4%) and made them appreciate in-person singing even more (4%). It was a chance to inspire themselves and others (4%), sing music by Whitacre (3%), and expand their notions of what a choir could be with the use of technology (3%). For those who were not currently singing in an in-person choir (n=100), it provided an opportunity to be a part of a choir (10%), engage with choral music (4%), connect with fellow choral music lovers (3%), and revive their desire to sing (3%). A handful of responses (1%) suggested that participants were not sure of any impact.

Table 6

Coded responses to question 4A, "How did virtual choir participation influence your current choral music participation?"

Sample Codes	Category	Frequency	Percent
"It didn't," "Not at all," none, not applicable	Not at all	104	36%
Attention to sound/pitch/tone, improved singing/breathing, more independent, more focused, "want more Whitacre music in choir"	Skills	30	10%
Motivated to participate, seek more opportunities to sing, study music as hobby/career	Opportunity	29	10%
More confident, increased self-confidence, "pitch confidence"	Confidence	26	9%
Motivated to develop my voice/learn conducting/study choral music/improve my singing/organize my own choral group	Motivated	17	6%

Continued on the next page

Affirmed love of choral singing, increased enthusiasm, reinforced love of singing	Love of singing	11	4%
Appreciate singing together so much more, pleasure of harmony in-person, greater overall appreciation	Appreciate in-person	11	4%
Inspire others, inspired to sing, inspired to volunteer/ mentor young singers	Inspire	11	4%
More connection to choral music, increased desire to sing choral music, more interested/stronger respect for choral music	Choral music	11	4%
Want to audition/perform/attend workshop with Whitacre, "bigger Whitacre fan"	Whitacre	9	3%
Adapt to new technologically-focused world, use technology for accessibility, combination of choral music and technology	Technology	9	3%
"music can be a powerful connector," stay connected, "universal language"	Connect	9	3%
Want to sing in a choir again, want to sing more	Desire to sing	9	3%
"I don't know," not sure	Not sure	3	1%
	Totals:	289	100%

Responses on a five-point Likert-scale (*strongly agree* = 5, *agree* = 4, *neither* = 3, *disagree* = 2, *strongly disagree* = 1) suggest high agreement with statements regarding future VC (M = 4.57; SD = 1.05) and in-person choral participation (M = 4.08; SD = 1.30). Open-ended responses further clarified participants' perspectives. The most common response (25%) revealed that participants planned on participating in future VCs when available. Almost the same number of responses (24%) indicated that VC participation had no influence on future choral participation because participants planned to sing in in-person choirs regardless. Fewer responses revealed participants' desire and affirmation to continue singing (18%), pursue new challenges (17%), such as join a more advanced ensemble, and seek out other music opportunities (11%), such as composition lessons or other opportunities to sing with Whitacre. Even fewer responses (4%) indicated that participants were not sure of any impact. Finally, the fewest number of responses (1%) expressed uncertainty or unlikeliness of future choral participation without further explanation.

Table 7

Coded responses to question 4B, "How did virtual choir participation influence your future choral music participation?"

Sample Codes	Category	Frequency	Percent
Future Whitacre virtual choir, next virtual choir, participate again, eager for next virtual choir	Future virtual choir	64	25%
No influence	No influence	60	24%
Continue singing as long as possible, sing in both in-person and virtual choirs, join choir, more singing	Continued singing	46	18%
Aspirations such as learn more challenging repertoire, desire to conduct, pursue music as a career, "hungry for more"	Aspire	44	17%
Seek out new opportunities/music/experiences	Opportunities	29	11%
Not sure	Not sure	9	4%
No opportunity/local outlet, no future participation, only solo roles	No future participation	3	1%
	Totals:	255	100%

Discussion

The purpose of the study was to examine perceptions of participation in Eric Whitacre's VCs. When considering the findings, it is important to keep in mind that survey respondents (N=312) were recruited on Whitacre's VC Facebook page and likely had favorable views of their experiences. The findings are unique to these participants and are not generalizable to the larger VC population or to other VC experiences. In this section, I discuss the findings in relation to prior research on Whitacre's VCs and related literature.

Results indicate overwhelmingly that respondents gained a sense of satisfaction, which is congruent with previous research (Paparo, in press). It is worth noting that satisfaction includes musical fulfillment, which is the overwhelming reason for participation as shown in prior research on in-person singing among adults (e.g., Gridley et al., 2010; Kennedy, 2009). Though not the case for everyone, respondents reported a sense of connection to others through their participation; this has also been documented in studies by Paparo (in press) and Fancourt and Steptoe (2019). Virtual participation allowed more than a handful of singers to overcome some common barriers identified by Helms (2015) that can prevent in-person participation, such as geographical isolation, schedule conflicts, personal disability, and audition barriers. This finding also provides support for Fancourt and Steptoe's

assertion that "virtual musical experiences may still have a role to play in supporting those who cannot engage in live experiences such as people who are socially isolated" (p. 1).

Given that the majority of respondents were amateur singers, it is not surprising that watching themselves on video was a new experience that yielded mixed reactions. Armstrong (2012) described her own VC experience as humbling even as an experienced singer. The fact that singers received no feedback from a conductor meant that they had to rely on their own musical and technical skills or, as some did, take the initiative to seek additional assistance. The specificity of self-critiques suggests that they viewed and listened to their recordings in order to analyze their performances and reflect on their strengths and weaknesses. However, there is no guarantee if they did or to what extent they may have done so. The use of video recordings as a means of self-assessment may have been new to singers as it is not usually part of in-person choral singing. Though some respondents offered their assessment of their performance, it is not possible to determine the overall quality of their singing or recordings.

Though several authors have discussed strengths and weaknesses of VC in general, this study serves to document perceptions from those who have participated in Whitacre's VCs firsthand. While both involve singing choral music with the intention of contributing to a conductor-led performance as a choral community, respondents identified important differences that highlight defining aspects of each. In an in-person choir, for example, singers listen to each other to tune, blend, and match expression. They respond to the conductor and their performance is informed by the embodied sensations of the ensemble and environment. In a VC, in contrast, singers listen to a pre-recorded accompaniment track. They respond to a conductor video and must rely on their own musicianship to maintain tempo, tuning, and expression. In an in-person choir, there is a finite number of rehearsals, but usually only one performance (or a small number of performances), whereas in a VC, singers theoretically have unlimited opportunities to record in order to get a performance with which they are satisfied. Prior research revealed that the amount of time spent learning and recording can range considerably based on musical training (Paparo, in press). Singing in an in-person choir is fundamentally a social activity; though it is possible to participate in a choir without interacting socially with others (Jacob et al., 2009). Singing in a VC is fundamentally a solitary activity and requires the individual singer to learn and perform with minimal support. Though they share some common elements, the findings from this study confirm that VC participation is, in fact, very different than in-person choral participation.

Participation in Whitacre's VCs seems to have had no impact on respondents' current choral music participation. VC participation may have had a favorable influence on future VC choral participation for some, while having had no influence on others because of their enthusiasm for choral singing in general. Nonetheless, it is noteworthy that Whitacre was able to attract a considerable number of singers to participate in his VC projects, which confirms Konewko's (2013) assertions about the impact of Whitacre on the choral world. The appeal of Whitacre, his music, and the uniqueness of the VC endeavor were the primary

factors to attract participation (prior to the pandemic) and allowed singers to engage with arguably one of the most popular choral composers of our time (Paparo, in press; Konewko, 2013). Furthermore, the VC experience for those in this study may have reinforced their love and appreciation for in-person choral singing as a unique form of music-making that cannot be replicated in a virtual environment. This should also assuage any concerns about the VC replacing in-person choirs when singing together in-person is again possible (i.e., post-pandemic) or in the more distant future.

Implications and Recommendations

Though the singers' perceptions and the impact of their participation in Whitacre's VC in this study are not generalizable, there are several issues that warrant further consideration. Although the data for this study were collected and analyzed prior to the start of the pandemic, it is worth examining the findings in light of the current reality that many choirs are creating VCs since they are not yet able to sing in person. In this section, I discuss access, assessment, connection, and post-production, and then offer recommendations for choral music educators who may want to incorporate VCs as a part of their curricula.

Regarding access, Armstrong (2012) noted the importance of computer and Internet technology in relation to inclusivity for any virtual project such as a VC. Helms (2015) also pointed out the need for "video and audio recording equipment and the ability to use this equipment in a space appropriate to recording oneself singing" (p. 26). VC participants in prior research used a variety of audio-video devices to which they had access, and when faced with technological difficulties, they sought information and technical assistance from others as well as problem-solved by experimenting (Paparo, in press). Though some participants in this study identified their frustration with recording and the need for better equipment, they presumably navigated these issues successfully in order to submit their recorded performances.

Technology notwithstanding, VCs can overcome certain barriers that limit in-person choral participation. First, because participation is asynchronous, it is possible to transcend time and space constraints of schedule conflicts and geographical isolation associated with in-person rehearsing and performing. Because the final product is a synthesis of recordings that could not be replicated as a live performance, it exemplifies how individuals can interact with music in a postperformance world (Thibeault, 2012). Second, VCs may enable singers with special needs, including physical disabilities as identified in this study, to participate by eliminating the challenges associated with travel or navigating rehearsal and performance spaces. Finally, though participation requires a minimum level of choral experience, VCs without an audition barrier associated with select choirs may provide an opportunity for singers of all levels and abilities.

Regarding assessment, VCs can potentially offer a unique opportunity for self-assessment and personal accountability that is not typically part of in-person choirs. Though

participants in this study did not receive feedback on their submissions, they were able to evaluate and re-record their performances as desired. Previous research has suggested that some singers shared their recordings with others and sought feedback or assistance when necessary (Paparo, in press). It may please choral music educators and voice teachers to know that, as with the participants in the current study, VC participants in prior research reported that they listened critically to musical and technical aspects of their performances (Paparo, in press).

Regarding connection, singers are drawn to in-person choral music participation for social reasons (e.g., Fryling, 2015; Kennedy, 2009). Though it may seem counterintuitive given the limitations of making music alone or in isolation, this study adds to the evidence that the VC can help facilitate real connection among participants. As previously mentioned, VC participation can provide similar emotional and social benefits as in-person singing (Fancourt & Steptoe, 2019), perhaps simply through the intentional act of creating a video knowing that one is part of a larger community of singers. However, with the use of social media, these connections can be more fully realized and strengthened, and have previously led to subsequent virtual and in-person collaboration among participants (Armstrong, 2012; Cayari, 2016; Konewko, 2013). In short, VCs can be a means to create community during times of social isolation, such as the COVID-19 pandemic, and a way to "find togetherness through our online connections" (Armstrong, 2012, p. 125).

Regarding post-production, it is important to recognize that participants may have been musically and artistically satisfied because of the high-quality production value of the final VC performances. Though participants presumably submitted their best possible recordings, singing and recording quality may have varied considerably. This is an important consideration because the overall quality of their singing relative to the conductors' musical vision and the quality of the recording itself ultimately impact the outcome of VC. Participants were aware to some extent that their performances would be altered and mixed for blend and balance as a part of the post-production process, which was beyond their control. The final product was at the creative discretion of Whitacre and his team of professionals.

The issues that emerged from this investigation give rise to a number of recommendations. Though they are perhaps intuitive and may resonate with choral music educators who have ventured into the virtual realm, it is worth pondering how what we have learned (both from this study and our collective experience of teaching during the pandemic) can strength choral music-making opportunities moving forward. These recommendations may help choral music educators in determining how to best incorporate VCs into their curricula both now and in the future.

First, music educators must determine whether students have access to appropriate technology. At a minimum, they should have a computer or other device (e.g., iPad/tablet, smartphone), reliable Internet connection, and an appropriate space to record. In cases where students do not have what they need, music educators should help students seek resources and support from school or other sources. If students are unable to get access,

pursuing a VC may not be the most appropriate option.

Second, music educators may consider creating hybrid experiences that combine both in-person and virtual aspects to include more students, accommodate students with special needs, and extend learning beyond the rehearsal. Virtual rehearsals, for example, may alleviate some conflicts that prevent students from joining choir and provide flexibility during busy times of the year or when rehearsing in person is not possible (such as due to inclement weather). Virtual sectional rehearsals could be an efficient means to introduce new material, reinforce notes and rhythms, or work on particular concepts that pertain to certain singers/sections. It might also be an appropriate opportunity to give beginning singers additional instruction as well as enrichment to more advanced singers. Digital resources such as practice tracks and conductor video, as well as other resources, may provide additional support for those who need it.

Third, music educators may consider the use of recorded performances as part of the learning process for self-assessment, peer assessment and/or conductor assessment. Opportunity for self-assessment that is inherently part of the VC rarely occurs in in-person choir. Far too often singers "fly under the radar" of conductors and rely on stronger leaders in their section. The addition of video recordings with guided prompts may help singers to identify their strengths and weaknesses. The use of individual feedback, though time-consuming, can provide additional guidance and also be helpful for planning future rehearsals.

Fourth, music educators may use digital technology to create dynamic presentations of their performances, such as a music video that could accompany live concerts as well as be shared digitally. This could involve students in creating a musically-appropriate audio-visual presentation and move beyond replication of an already-composed choral work (Cayari, 2016). It could also be structured as an interdisciplinary collaboration with other classes or curricular areas (Galván & Clauhs, 2020). Though potentially time-consuming to create a high-quality product musically and technically, this could add an exciting new dimension to choral music performance for students and audience members.

Fifth, the use of VCs may expand possibilities to create performances that are potentially beyond the scope of the forces or number of singers. One example would be to use digital technology to achieve more complex musical performances, such as 16th-century polychoral works, where a single choir can record performances of multiple parts (Payen, 2015). In a similar vein, music educators may consider using a VC format to create arrangements that showcase the singers in their ensemble. They may invite strong singers to record multiple parts in order to cover sections that have fewer singers.

In closing, it is impossible to know whether VCs will remain as relevant as they currently are out of necessity. Once it is safe to sing together again, it is likely that the pendulum will swing in the other direction and VCs will wan in popularity in favor of in-person choral singing. Nonetheless, it is my hope that this research, which examined perceptions of online music participation in the early 21st century, will help spur new directions for integrating performance and postperformance worlds to help create and sustain rich choral experiences for as many and as long as possible.

Appendix 1. Survey

Time: Completion of the survey should take 15-20 minutes.

Purpose: To examine perceptions of participation in Eric Whitacre's virtual choirs

Definitions:

> In-person choir–consists of singers who meet regularly in a physical location to rehearse and perform together.
>
> Virtual choir–consists of singers in different geographic locations who participate by submitting recordings of their singing in a virtual space online.
>
> Professionals–those who make their livings either in part or entirely for singing (e.g., paid performers).
>
> Professionals-in-training–those who are currently training with the intention of pursuing a career in music (e.g., college music majors).
>
> Amateurs–non-paid music participants (e.g., community chorus members).

Part I: Demographic information

I am: (1) 18-22; (2) 23-29; (3) 30-39; (4) 40-49; (5) 50-59; (6) 60-69; (7) 70+ years old.

I identify as: (1) female; (2) male; (3) non-binary; (4) transgender; (5) other

I live in: (select country from dropdown menu)

I am a(n): (1) amateur; (2) professional-in-training; (3) professional

I am a(n): (1) soprano; (2) mezzo; (3) alto; (4) tenor; (5) baritone; (6) bass

I have participated in the following virtual choirs (check all that apply):
(1) VC 1: 'Lux Aurumque'; (2) VC 2: 'Sleep'; (3) VC 3: 'Water Night'; (4) VC 4: 'Fly to Paradise'; (5) Deep Field

Part 2: Virtual choir experience and perceptions

What did you gain from your virtual choir participation?

Describe what you learned about your voice and yourself as a performer during your recording experience?

Are you currently participating in an IN-PERSON choir? (1) Yes; (2) No

How is participating in an in-person choir SIMILAR to participating in a virtual choir?

How is participating in an in-person choir DIFFERENT than participating in a virtual choir?

As a result of participating in a virtual choir:

> I am likely to participate in future VIRTUAL choirs.
> (1) Strongly Disagree, (2) Disagree, (3) Neither, (4) Agree, (5) Strongly Agree
>
> I am likely to participate in future IN-PERSON choirs.
> (1) Strongly Disagree, (2) Disagree, (3) Neither, (4) Agree, (5) Strongly Agree

How has singing in a virtual choir influenced your CURRENT participation in choral music?

How has singing in a virtual choir influenced your FUTURE participation in choral music?

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Article

AMERICAN CHORAL DIRECTORS ASSOCIATION

IJRCS

International Journal of Research in Choral Singing

The Scientific Research Journal of the American Choral Directors Association

International Journal of Research in Choral Singing
(2021) Vol. 9 116-142

Facilitating Musical Expression in School Choirs: Honoring Individuality, Seeking Unity

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Abstract

Expression is a critical component of musical experiences for many educators and students and some studies show that the most common goal of a musical experience is to influence emotion (Juslin & Västfjäll, 2008). However, the role of emotion in musical expression, and effective approaches for developing musical expression, remain unclear (Brenner & Strand, 2013; Juslin & Laukka, 2003; Meissner, 2021; Pavlou, 2013; Reimer, 2009; Woody, 2000). Unique considerations for singers, including facial expressions, vocal timbre, and lyrics, make choral settings rich environments for exploring how conductors and singers work toward an expressive ensemble performance. This study explored how American high school choral directors and singers conceptualized and practiced musical expression. Data were generated through rehearsal observations, video-stimulated recall interviews (SRI), and semi-structured interviews with conductors and student focus groups. A shared conceptualization of musical expression was constructed through data analysis which served as a working definition for the study. Specific approaches for facilitating musical expression are discussed in the following categories: (a) orienting ensembles toward musical expression, (b) approaches for facilitating musical expression that honor the individuality of singers, and (c) approaches toward a unified ensemble musical expression. Implications for choral directors who wish to facilitate musical expression with singers are described.

Keywords: *musical expression, singing, music and emotion, school choirs, video-stimulated recall interview*

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Expression is a critical component of musical experiences for many educators and students and some studies show that the most common goal of a musical experience is to influence emotion (Juslin & Västfjäll, 2008). However, the role of emotion in musical expression, and effective approaches for developing musical expression, remain unclear (Brenner & Strand, 2013; Juslin & Laukka, 2003; Meissner, 2021; Pavlou, 2013; Reimer, 2009; Woody, 2000). Some studies have found that music teachers and students consider expressivity the most important characteristic in performance and rate it significantly higher than "stage presence," "technical skill," and "theoretical knowledge" (Lindström et al., 2003, p. 31). Until recently however, there have been few attempts to synthesize existing literature related to teaching musical expression across disciplines such as psychology, voice science, and even aesthetics to understand how one might facilitate musical expression, particularly in ensemble settings (Meissner, 2021). Researchers have described musical expression as a musician's technical response to printed music, an emotional response to music, and the translation of musical ideas through technical skills, interpretation, creativity, and personal experiences (Brenner & Strand, 2013; Woody, 2006). Singers have additional and unique resources for cultivating musical expression including facial expression, vocal timbre, and the use of lyrics (Livingstone et al., 2009; Nápoles et al., 2020; Woody, 2000). Vocalists are also more likely than instrumentalists to recommend teaching techniques that encourage "felt emotion or extra-musical meaning" (Woody, 2000, p.19). Additionally, Juslin (2003) outlined five distinct factors related to the musical piece, the instrument, the performer, the listener, and the performance context that may influence expression in musical performances (p. 278). He further asserted that it may be impossible to model each of these factors simultaneously, posing an enormous challenge to research in musical expression.

Perceptions of Musical Expressivity in Performance

Perceptions of musical expression make up the most significant body of work regarding the subject, largely focusing on observer or audience responses to musicians' body movements such as conducting gestures or ancillary movements during instrumental performance. Many studies employ the use of imaging and movement analysis technology (Broughton & Stevens, 2012; Dahl & Friberg, 2007; Luck et al., 2010; Nusseck & Wanderley, 2009) which allow for a clear understanding of how performers respond physically to particular stimuli, including the application of technical skills and emotional intentions. Although larger, upper body movements have been reported as more expressive (Luck et al., 2010), facial expression and gestures have been found to be inextricably linked regarding perceptions of expressivity (Nápoles et al., 2020). Livingstone et al. (2009) reported that facial expression differed depending on singers' emotional intent and communicated emotion during musical performances. Since facial expression and other movements of the face and mouth are unique and complicated elements for singers, it is important to consider the role they play in choral singers' experiences of musical expression.

An Interdisciplinary Perspective

An interdisciplinary review of literature examining musical expression in psychology, voice science, and aesthetics helps one understand the complicated synthesis of events that culminate to form human expression in and through music. A leading researcher in music psychology, Patrik N. Juslin (2003), described musical expression as "a set of perceptual qualities that reflect psychophysical relationships between 'objective' properties of the music, and 'subjective' (or, rather, objective but partly person-dependent) impressions of the listener" (p. 276). He argued that expression is a "multi-dimensional phenomenon" (p. 280) and resides in both the acoustical properties of music and in the mind of the listener. Juslin's GERMS model of expression (see p. 281) integrates five specific components: (a) generative rules, (b) emotional expression, (c) random variability, (d) motion principles, and (e) stylistic unexpectedness. This model aimed to provide a psychological approach to support music educators teaching expressive skills. He argued that emotional expression may be the most crucial of the components for performers, and listeners may perceive an expression in such a way that it evokes an emotional or aesthetic response (Juslin, 2003). Juslin strongly believed that a psychological approach to musical expression could go beyond the study of mechanisms to look more deeply at the "nature of the person *behind* the performance" (p. 281).

Juslin (2013) later developed his seminal framework for music and emotions—BRECVEM—to include the additional dimension of Aesthetic Judgement, now BRECVEMA. The addition of this dimension contributes to the author's aim to understand the process by which a performer or listener might infuse sound with meaning. He argued that this is a critical component in reconciling the relationship between an artistic object and biological events in the form of human emotions.

Juslin and Laukka (2003) embraced the notion that music is a means of emotional expression and suggested that this may be difficult to explain due to intersections with vocal expression of emotions. Drawing from studies such as Scherer's psychological theory of emotion (1987, 2009), Juslin and Laukka confirmed that musical expression, with its physical components, and with special emphasis on the face, are part of a human language of emotional communication. This is particularly relevant for pedagogical practices in choral settings which rely heavily on vocal and facial factors.

Although vocal expression had previously received even less attention than facial expression (Scherer, 1987), studies in this field offer perspectives critical for singers to consider (Juslin & Laukka, 2003). Bachorowski (1999) argued that the ways humans express and perceive emotion through speech acoustics is a key component to communication. Research in vocal expression enabled choral directors to understand the relationships between emotional experiences and acoustical properties of vocal production which could express discrete emotions (Bachorowski, 1999). Findings by Strait et al., (2009) indicated that one's response to emotionally salient vocal sounds was shaped by life-long, multi-sensory experiences with sounds. The authors reported that a musician's training may enhance their

auditory response and ability to detect "vocally expressed emotion" (p. 667). These studies suggest that both musical training and extra-musical experiences of performers may impact musical expression.

As suggested by Juslin (2013), implications for musical expression may also be drawn from the body of literature discussing aesthetics and aesthetic education which are grounded in processes of making meaning through interactions with works of art (Dewey, 1934; Greene, 1995, 2001; Hubard, 2008; Jorgensen, 2001; Reimer, 2003, 2009; Woody, 2000). Aesthetic philosophers such as Bennett Reimer and Maxine Greene suggest that when we engage with the arts it is possible to make a personal connection, imagine an alternative perspective, and recall previously lived experiences (Greene, 2001; Reimer, 2009). Bennett Reimer (2009) asserted that music allows the formation of meaning and requires an engagement of emotional states that has the potential to "transcend" beyond oneself or a musical work (p. 26). In her 2008 study, Hubard employed Iser's theory of aesthetic response to explore the ways in which five high school students interacted with a visual artwork to make meaning of the object. Her findings supported the notion that a meaningful experience may emerge as a reader interacts with a work of art. Woody stated, "As music teachers become more committed to providing 'aesthetic education' to their students, greater insight into the process of learning expressive performance is crucial" (2000, p. 22). Given Juslin and Laukka's (2013) argument that emotions are a key component of expressive performances, and that understanding how performers construct meaning is key to understanding music and emotion, studies such as Hubard's (2008) may provide insight toward approaches for music educators to facilitate expressive performances.

Pedagogies Toward Musical Expression

Scholars suggest that intentional instruction and knowledge about expression benefit the teaching of performance expression (Juslin, 2003). This is complicated by research findings that describe a variety of reported practices by music educators and students for teaching musical expression including movement, self-reflection, figurative language, felt emotion, and teacher modeling. Music teachers reported the use of movement with students as an effective tool for communicating expressive qualities of music (Daley, 2013; Jordan, 1996; Kilpatrick, 2020). Barefield's (2006) findings suggested that the self-analysis of movement as a practice with young singers can go beyond improving techniques to enhancing expression. Others have examined the effects of metaphors and felt emotion (Lindström et al., 2003; Woody, 2006), figurative language, and imagery (Bishop et al., 2013; Sheldon, 2004) in educational settings. The music teachers in Brenner and Strand's (2013) study reported that they developed expressiveness through a combination of technical skills plus interpretation or creativity. Despite students' valuing of such approaches, aural modeling remains the most commonly used strategy by teachers toward musical expression (Brenner & Strand, 2013). Students also suggested that it is necessary to feel the emotion personally

to convey a message successfully to the listener (Lindström et al., 2003). Without the personal experience of the emotion, the audience can tell it was disingenuous and insincere and, it "won't be called expression" (p. 34).

Broomhead (2005) offered three suggestions for increasing individual student expression during choral rehearsals including small group work, phrase shaping and problem solving. To his surprise, he found that after "years of great training," watching "an expressive conductor and interpreter," hearing "countless verbal explanations regarding musical expression" and even demonstrating "an ability to shape a phrase," students were still not independently expressive (p. 64). The author concluded that they were relying on him to show them expressiveness and needed to follow him. He felt he nurtured "expressive dependence" (p. 64) implying that these approaches did not foster the skills singers needed to be musically expressive independent of a conductor. Broomhead's statement, "They had become excellent followers, but not artists" (p.64) suggested that there is artistry in a students' ability to cultivate their own musical expression and begs the question of how music educators might facilitate such a process.

Some scholars have suggested that making meaning through democratic and collaborative approaches— such as dialogue and collaborative knowledge construction—can be a catalyst for self-expression by individuals within an ensemble, potentially leading toward a more inclusive, individualized, critically aware, and empathic musical experience for all students (Allsup, 2003; Jorgensen, 2001; Perkins, 2019; Wolfe-Hill, 2017; Younker, 2003). Younker described such approaches wherein the voices of the singers are heard through collaborative decision making and dialogue which contribute to the meanings that are constructed and expressed. She observed that "choral members are engaged in reflective discussions and demonstrations while exploring the expressive possibilities of a piece of music" (p. 193).

Purpose of the Present Study

Despite attempts to conceptualize musical expression and identify strategies for teaching and learning musical expression, it remains difficult to understand how choral directors facilitate musical expression with singers. This study explored the ways four American high school choral ensembles conceptualized and practiced musical expression to understand approaches for facilitating this work in school choral settings.

The following questions served as a guide throughout this study:

1. How do high school choral directors and singers conceptualize musical expression?
2. How do high school choral directors and singers practice musical expression?
3. How do individual singers unify toward an ensemble expression?

Method

Methodology

A phenomenological approach to this study permitted me to explore the commonality of a lived experience within a particular group. The fundamental goal of the approach is to arrive at a description of the nature of the particular phenomenon (Creswell, 2013). It allowed for the exploration of complex meanings— in search of common meanings— through the embodied, lived-experiences of the participants (Creswell, 2013; Finlay, 2009). Van Manen claimed that, "the aim of phenomenology is to transform lived experience into a textual expression of its essence" (1990, p. 36). I used a phenomenological approach to explore the experiences of choral directors and singers as they worked toward musical expression in high school choral ensemble settings.

Design

Semi-structured interviews, video-stimulated recall interviews (SRI), and researcher observations were used to gain a comprehensive understanding that addressed notions of what musical expression is and how it takes place in choral singing. Interviews were transcribed verbatim. I applied descriptive and in vivo coding over four phases, using a pragmatic approach to identify and construct (a) significant statements, (b) meaning clusters, (c) emergent themes, and (d) textual and structural descriptions (Moustakas, 1994). I then analyzed the data against Van Manan's framework of body, time, space, and relation to others (van Manan, 1990) to understand the ways participants fully experienced this phenomenon.

Participants

Following Institutional Review Board approval, Protocol 15-423, I employed purposive sampling (Berg & Lune, 2012; Patton, 1990) to identify four experienced choral directors recommended by peers as those who prioritized or exemplified a practice of musical expression with their ensembles. All participants were located within American high schools. "High school" in the United States typically refers to grade levels 9-12. The student participants of this study were 14-18 years old. The school choirs that participated in this study functioned as courses that were set in the daily school curriculum. While these courses were elective in nature—meaning, not required—they took place during the school day and were not considered extra-curricular.

Additional criteria for identifying participants included (a) a minimum of 5 years teaching experience in their current school, (b) a diverse representation of educators reflected by gender identity, culture, and/or race, and (c) programs located in different regions of the U.S. representing a variety of community types and sizes: rural, suburban, urban. Following written consent, each choral director assisted in assembling a focus group of 4-6 students who had sung in their choir for at least one year and who were willing to speak on their experiences regarding musical expression. Student participants represented diverse

cultural, racial, ethnic, and socio-economic backgrounds. They self-identified their gender as 11 females and nine males. A total of 24 participants (four directors and twenty singers) contributed to this study. All names used in this article are pseudonyms chosen by participants. School names are pseudonyms chosen to reflect the character of the institution. Narrative descriptions of settings and participants in the form of school profiles can be found in the original study manuscript (Maas, 2016, pp. 71-79). Table 1 outlines the relationships between choral directors and focus group singers in this study by school.

Table 1

Relationships Between Choral Director and Singer Participants by School Site

School Name*	Choral Director Names*	Singer Focus Group Participant Names*
Dean Union High School	Sam	Noah, Drew, Madeline, Marie, Seth
Patriot's High School	Phoebe	Gabrielle, Charlotte, Ash, Cloud, Lawrence, Faith, Frankie
Patagonia Preparatory School	Sebastian	Craig, Matthew, Joseph, Ginny, Angelina, Hermione
Helen Hayes High School	Celeste	Lilou, Alphonse, Luce, Zenya

Note: All participant and school names are pseudonyms to protect the individuals' anonymity

Data Collection and Analysis

Figure 1 outlines a three-phase collection of data that took place at each school. Data were collected at four high schools (grades 9-12) in different regions of the United States during a single school semester. Choral directors and singer focus groups were interviewed separately during each visit and completed three interviews each. A total of 24 interviews took place.

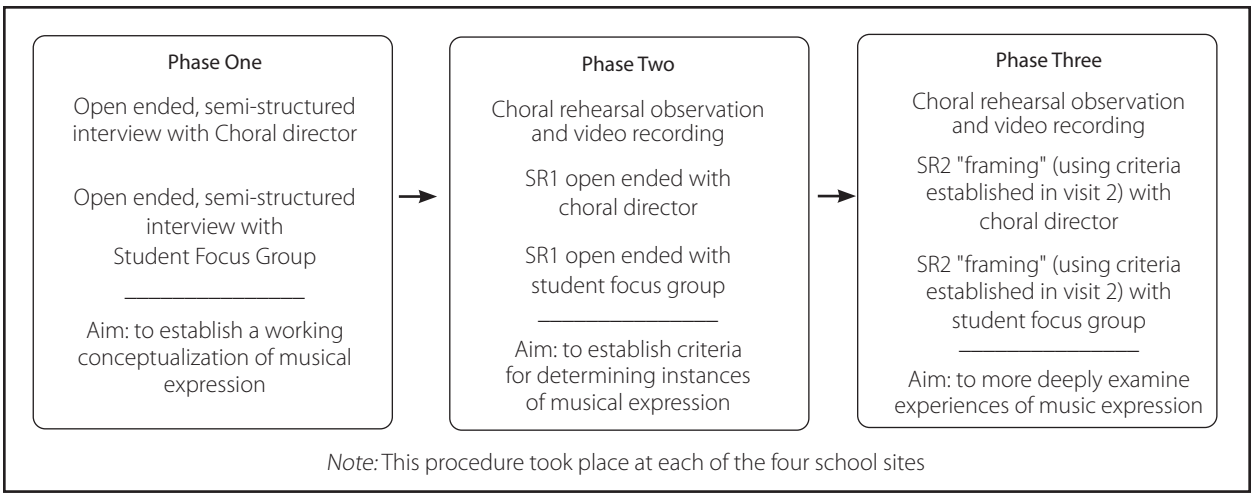

Figure 1

Three-Phase Data Collection Procedure

The first phase included an open-ended interview with participants to establish a working conceptualization of musical expression that was unique to those participants' experiences. Subsequently, two different approaches to video-stimulated recall interviews (SRI) were employed. SRI allows participants to review media—in this case, video and audio of choral rehearsals—in order to recall specific details of their experiences. "The technique of stimulated recall gives participants a chance to view themselves in action as a means to help them recall their thoughts of events as they occurred" (Nguyen et al., 2013, p. 2). As choral directors and singers reviewed the audio-visual recordings of their rehearsals, they were able to recall specific aspects of their experiences. Initially, they were surprised by what they observed and commented that they had not noticed everything that had taken place in the moment. Watching the video gave them an outside-in perspective which they were then excited to explore and reflect upon.

Phase two engaged participants in SRI using an open-ended approach to the media (video of their choral rehearsal) to identify expressive moments and establish criteria as evidence of musical expression. These criteria became an important framework for how the participants recognized and analyzed musical expression in their own work and played a critical role throughout data collection and analysis.

The third phase employed a framing approach to the SRI, using the previously established criteria to present specific clips of the ensembles' rehearsals for review. This allowed participants to analyze these moments more deeply and recall nuanced aspects of a particular moment (Colprit, 2000). Before analyzing each new frame, participants were asked to verify whether or not they felt the frame aptly reflected an expressive moment. If the response was unanimous, the interview continued. If it was not, that clip was not used, and we continued to the next frame. This study revealed the potential value in the use of SRI in phenomenological studies as well as performance and rehearsal assessment. The multi-faceted approach was critical to understanding the nuanced aspects of what, why, and how participants of this study experienced musical expression in their school choral ensembles.

Descriptive and in vivo coding were applied to all interviews revealing keywords and phrases as well as other emergent themes within and across sites. A pragmatic approach allowed for a deeper analysis of the experience as it became clear that participants struggled to separate their conceptualizations of musical expression from practices. Subcategories of practices revealed the need to orient an ensemble toward musical expression through the cultivation of environments that nurtured "safety, risk-taking, self-awareness, and personal responsibility" (Broomhead & Skidmore, 2014, p.35) before employing specific approaches. As categories were identified, keywords and themes were consolidated with the help of the participants until there was a consensus for how each group identified and understood musical expression. Observation notes and researcher memos were generated following each visit making reference when possible to specific emerging criteria and themes.

Validity

As a researcher, I acknowledged the potential impact of my own experiences as an educator and performer on the ways meaning may be construed from data. I wrote a researcher bracketing memo (Finlay, 2009; Maxwell, 2013) prior to data collection to gain clarity of my own preconceptions, allowing it to be part of the process toward understanding. An iterative process took place in which I could observe and acknowledge my own assumptions, then consider participants' experiences from a disencumbered position.

Following data collection, participants performed member checks of interview transcripts and textual descriptions as validity measures to confirm and clarify meanings and intentions. Two researcher colleagues in the field performed a cross-check of meaning clusters and emergent themes during the initial phases of analysis.

Limitations

There were limitations to this study. Student participants represented richly diverse backgrounds in race, ethnicity, and socio-economic status. However, the choral directors who ultimately participated, self-identified as White. A last-minute medical emergency for a participant identifying as Black, led to a recommendation of a peer to replace them in the study and, due to issues of feasibility, I needed to accept this opportunity to continue the study. While these educators represented diverse gender identities and cultures, as well as a wide range of ages and professional backgrounds, they were not racially diverse. This limits our understanding of perspectives and experiences by choral directors of color and assumably, the experiences of their students as well. Additionally, teacher and student participants were all located within high school choral ensembles. Exploring the experiences of musicians in other settings may provide additional insights as expression may manifest differently across diverse cultural settings or when applied to different musical styles or genres. Additional research should take place to further explore the nuances of these experiences and findings should be considered appropriately.

Findings

The findings of this study will be presented in tandem with a discussion of how I contextualized them to arrive at their current meanings. I will first present a working conceptualization of musical expression as co-constructed by study participants. Secondly, I will present strategies for orienting ensembles toward musical expression and describe approaches for facilitating musical expression used by the choral directors and singers in this study. This will be followed by a discussion of issues and approaches pertaining specifically to fostering ensemble musical expression. The article will conclude with a discussion of implications for choral directors who wish to facilitate musically expressive experiences with singers.

Conceptualizing Musical Expression

Participants of this study described musical expression as realizing or conveying meaning through music. Musical expression, as described by these participants, often included emotional intent, or eliciting an emotional response, and it manifested in intentional and unintentional ways. Drawing on descriptions of expression from the literature as a guide, I constructed a working definition for this study from an analysis of the complete study data, including all interviews and researcher observation memos, through and across participating school sites. While there were many nuanced differences between the ways the choral directors and singers of this study developed musical expression, a thorough analysis of emergent themes and meanings revealed common descriptions by all participants of the nature and function of musical expression in their work. Participants felt strongly that musical expression could be experienced outwardly—with, and among, ensemble members and audiences—but it could also be experienced internally, alone, and without an audience. Some scholars might equate this inward realization of meaning with an aesthetic experience where one understands themselves or the world through the construction of meaning with an artwork, oftentimes eliciting an emotional response (Dewey,1934; Greene, 1995; Jorgensen, 2001; Reimer, 2003). Throughout this study, participants found intersections between what they understood to be expression, aesthetics, communication, and art. They believed that musical expression could be a synthesis of these endeavors in and through music.

Descriptions of musical expression ranged from simple statements to complicated interwoven processes. Sam, a choral director with a background in musical theater, referenced the need to bring meaning to the printed score saying, "[musical expression is] a connection between the little black dots on the page and trying to convey some kind of message." Celeste, a veteran teacher from Helen Hayes High School, described musical expression as "the ability to turn notes on the page into something that evokes emotion from the performer and the listener." Sebastian, a choral director at Patagonia Prep, said, "When the composer's meaning and your sensual experience line up, to me you have [a] 100% successful expressive moment."

Students in this study focused more heavily on emotional arousal than their directors. Lawrence, a senior at Patriot's High School, began by saying confidently, "It's the ability to convey your emotions through your voice and your singing." Alphonse's description was similar, explaining that musical expression is "emotion through music, and just bringing out what you're feeling, and using music as a vessel to do that." Angelina clarified the ideas of intent and outward portrayal in her description: "It's all the intent that you put behind a song and the way that you outwardly portray the intent and emotion in your mind through the music." Drew, a sophomore from Dean Union High School, described expression as an infusion of self into the artistic object when he said, "A lot of people look at music and just take it as it is …but when you put yourself into [it] that is when it becomes musically expressive."

Orienting Ensembles Toward Musical Expression

The choral directors and singers in this study described the ways they each contribute to cultivating environments where musical expression can occur. They discussed the critical conditions that must be in place before effectively engaging with specific approaches, which I observed and corroborated throughout data collection. In this section, I will describe the ways the participants oriented themselves toward musical expression through four common themes: (a) building relationships, (b) designing warm-ups, (c) selecting learning materials, and (d) organizing the physical space.

Building Relationships

Singers in this study reported that feeling valued, accepted for who they were, and safe to explore creative ideas and take musical risks, was critical to unleashing their expressive potential. Noah from Dean Union High School said, "In chorus you're allowed to be yourself and who you are… that's why it feels so safe and that's why you can be musically expressive." Phoebe, the choral director at Patriot's High School, suggested that creating such "safe spaces" where students are willing to be vulnerable, is paramount for expressive freedom. She described establishing an environment for ensemble musical expression "where people, students, like them can be who they need to be without fear of judgment or repercussion...where they feel honored for being who they are." She said her role is to help cultivate this space and establish relationships by "setting norms, and expectations for the class and for the way we interact with one another." Hendricks et al. (2014) describe "safe musical spaces" as "learning environments in which students will be more likely to freely express themselves" (p. 38). Broomhead and Skidmore (2014) posited that students could be taught to shift their mindset toward one that is conducive to musical expression. The authors suggest that the first step is to establish an environment that nurtures "safety, risk-taking, self-awareness, and personal responsibility" (p. 35).

The choral directors in this study began to cultivate such spaces by building relationships with and among their students through meaningful dialogue. I observed the use of carefully crafted questions followed by thoughtful responses that acknowledged and validated students' values, experiences, and beliefs. The choral directors integrated their knowledge of students' skills, preferences, cultures, and values into the curriculum. Conductors provided singers with the space and time needed to experiment musically, reflect, revise and refine their work. These actions influenced relationships with and between singers, allowing them to take risks and reach their expressive potential.

Designing Warm-Ups

The "warm-up" segment of a choral rehearsal was seen as playing a critical role in the success and growth of the singers. It was used by the participants of this study as a time for students to prepare the instrument for producing sound as well as preparing mentally for the work that was about to take place. All four choral directors described the importance of

bringing awareness to the potential meaning of each vocal warm-up regardless of the presence of lyrics. As noted by Bachorowski & Owren (1995), vocalizing could elicit or imply specific emotions and meanings that may be expressed by singers. While reviewing video footage of rehearsal, Celeste remarked,

> There—the mechanics are working, but is their mind with it? Is their spirit with it? For example, this exercise, [sings] "Ah thoo," it can be an ecstatic kind of thing or full of wonderment as you roll over the top and come back down.

Participants asserted that an acute awareness of mind, body, and the response to the musical, physical, and emotional demands of a performance significantly impacts their musical expression. The choral directors in this study emphasized the importance of creating the time and space during rehearsal to develop this level of awareness and believed that modeling the expectations for students was critical to facilitating musical expression. They designed specific exercises and chose materials for this purpose. Mindful engagement with the warm-up was key to developing a heightened awareness of aural, physical, and emotional responses. Vocal warm-ups presented opportunities to discuss isolated elements of a specific piece of repertoire to help construct meanings expressed later in the music-making process.

Selecting Learning Materials

A mindful selection of materials with the students' experiences, needs, and interests at the forefront is critical to their potential success (Dewey, 1902). In this study, relevance and preference often reflected experience and, students such as Angelina, described these as significant factors for musical expression:

> When you really like a song, it's easier to get into it. When it's something you care about, you could put yourself into it more, and it's easier to sort of ... get into the head space to express that.

Preference, enjoyment, and students' perceived abilities to successfully perform repertoire were reported by many students as critical conditions of optimal expressive experiences and were also indicators of flow (Csikszentmihalyi, 1990; Custodero, 2002; Tan & Sin, 2020). Csikszentmihalyi (1990) describes flow as "the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it" (p.4). With these conditions in place, students often described losing awareness of time and space during rehearsals. External distractions diminished, allowing them to realize their expressive potential.

Organizing the Physical Space

The ways in which ensemble members were physically oriented in the rehearsal space had a direct impact on their ability to share expressive ideas in both intentional and unintentional ways. For example, the ensembles participating in this study often stood in arrangements that favored eye contact with one another over attention to the conductor. The singers at Patagonia Prep stood in a large circle with no chairs. They used music stands to keep the hands and arms free to move. Helen Hayes' choir sat in one or more smaller circles. When ensembles were subjected to fixed, seated risers, conductors did the best they could to remove or reconfigure the chairs in a U shape. Students reported that eye contact and the ability to "hear across the ensemble" allowed for singer collaboration and were key factors in their ability to be expressive. When singers were physically configured so that they could see one another more directly, body movements, facial expressions, vocal timbres, and emotional response had the potential to be passed on through contagion (Juslin & Laukka, 2003). This became a stimulus for eliciting unintentional responses that could influence and help shape musical meanings throughout the rehearsal.

Approaches for Facilitating Musical Expression: Honoring Individuality

The previous section described how choral directors in this study cultivated environments conducive to musical expression. Once such an environment is established, directors may then facilitate opportunities for students to construct meaning during musical encounters. The construction of meaning through sound "requires an amalgam of mind, body, and feeling" (Reimer, 2003, p. 11), as well as the incorporation and clarification of values obtained through prior experiences (Leddy, 2020). Numerous studies of musical expression have measured perceptions and responses to musical stimuli and make associations with emotional responses; however, little is known about the underlying mechanisms for making such connections (Juslin & Västfjäll, 2008). It is also unclear how musicians draw on these meanings, and how they are applied toward musically expressive performances. The findings of this study suggest that singer-centered approaches, used to foster interactions with a variety of musical elements, are effective strategies for bringing musical objects to life in a way that honors the individuality of each singer.

The following section outlines the various singer-centered approaches toward musical expression used by the choral directors and singers in this study. Participants described the ways they applied these approaches toward constructing meaning for expressive purposes. The elements identified by participants for constructing meaning include: (a) embodiment—body movement, facial expression, and vocal timbre, (b) imagery and imagination, (c) context and background, (d) formal elements of music, and (e) lyrics. In addition to the intentional efforts of participants to convey meanings using these elements, participant accounts and my own observations also revealed the manifestation of musical expression in "spontaneous" ways (Juslin, 2003; Juslin & Sloboda, 2011). In these instances, meanings were constructed and conveyed through a variety of interactions that occurred without

conscious effort or planning. Singers described emotional and physical responses to music as visceral responses. Participant reports also echoed research findings that described contagion between singers affecting body movement, changes in vocal timbre, and changes in formal elements such as articulation, diction, phrasing, or dynamics (Cochrane, 2010; Juslin, 2003; Tan & Sin, 2020).

Embodiment

Researchers have found that musicians adopt gestures and use their bodies in a variety of ways to express a musical intention (Dahl & Friberg, 2007, p. 433). These gestures were considered a distinct "language" that has the ability to express "musical attitudes" (Nusseck & Wanderley, 2009, p. 351) and to convey emotion and intention (Nápoles et al., 2020; Rodger et al., 2012). The findings of this study reveal the embodiment of ideas, meanings, and intentions as a critical factor in the way musical expression manifests for conductors and students in school choirs. For the singers in this study, movements that reflected everyday gestures of verbal communication including those of the head, shoulders, chest, arms, hands, and hips, played a large role in conveying musical meanings and impacted the production of vocal sound. The singers used movement in intentional ways to add meaning, emphasis, or intention to a lyric. Their body movements conveyed unique ideas and emotions and supported vocal technique through an increase or release of energy or tension. Celeste explained,

> Moving could make a difference in the way they sing it. I had them move their shoulders, their hips and it changed the sound. It's something that may not necessarily be in the articulation or the dynamic marking, phrase marking.

The singers of this study described embodiment as a reflexive or sensory response through changes in heart rate, the triggering of an emotional state, or as some described as a visceral response they called "chills." Participants and I observed the embodiment of music in the form of head movements, swaying, bouncing, and foot tapping as unintentional responses that frequently indicated an expressive moment. Gabrielle, a student at Patriots HS, said,

> There will be times in a piece of music where it may call for a sense of stillness and your body wants to reflect that... and there are moments of extreme joy and you want to shout because it's beautiful, and it's exciting, and we're happy, and you can't stand still!

Singers and choral conductors in this study described facial and vocal expressions as critical embodiments of musical expression. While watching rehearsal videos, students emphasized the power of facial expressions describing "bright eyes" and "inside smiles" and changes in facial features that revealed a thought by the singer, but which also seemed to af-

fect their vocal production. Noah noticed, "The bright eyes!" inspiring Drew to comment, "It's the eyebrows. All about the eyebrows." Lilou described a moment in rehearsal when she felt they were being particularly expressive, "Everything came to life in our faces, and you're moving a lot more as a group and individually."

Throughout this study, each of the choral directors emphasized the manipulation of facial structures to assist vocal techniques such as vowel formation, intonation, and resonance which may influence the perceived intention of the music. Participants and I observed that the manipulation of these structures for technical purposes affected facial expressions as well. The student participants reported that facial expressions also occurred as an unintentional, emotional response to music, often triggered by an association or "re-living" of an experience in relation to the musical or textual ideas. I observed changes in facial expressions by both the conductors and singers throughout the study, which often took place without discussion or explanation.

Sebastian, the conductor at Patagonia Prep, suggested that the voice is intimately connected to the mind and intentions of the performers.

> It can just be a whisper or a yelling bellow, but when every part of you is working together to make that certain specific sound… there is nothing about what you're doing at that moment that would betray what you're feeling and what you're trying to express.

Singers and conductors in this study reported that associations between lyrics and speech habits could affect vocal expression. These associations, based on meanings learned through life experiences, informed intentional choices to infuse a phrase with a specific vocal timbre and could trigger spontaneous changes in a singers' tone quality.

Imagery and Imagination

Choral directors in this study often made "imagine if" and "as if" statements when coaching singers, especially when developing vocal techniques which seemed abstract and intangible. Singers described how they formulate images, scenes, characters, and storylines based on musical elements, contextual information, or spontaneous responses. Nina from Dean Union HS said, "It's identifying with that person who is singing the song, who wrote the song, who is identifying with the soldier overseas who may never get home."

Nina's reflection is consistent with the approaches identified by her conductor Sam, who relied heavily on the interpretation of text and character development. Sam facilitated this approach toward musical expression by designing open and guided questions to spark the imaginations of the singers. The use of figurative language played a key role in the ways that the choral directors of this study evoked their singers' imaginations. This approach was most successful when prompts were open enough for singers to derive their own meaning and find personal connections. This required the conductors to relinquish some control

over the expressive intent and honor the artistic choices and musical responses of the singers. The singers made associations between the figurative language, their personal experiences, and the imagery conjured in their imaginations, which often resulted in an outward portrayal of an intention or emotion. These reports echoed findings from the literature describing figurative language as useful for "conveying musical meaning among conductors, teachers, performers, and listeners" (Sheldon, 2004, p. 358).

Context and Background

Choral directors in this study often used historical contexts and biographical information about composers to help construct meaning for their students around the cultural settings and intentions of a piece of music. Charlotte, a student participant, suggested that gaining knowledge or insight in this way helps one construct meaning, "Sometimes she will explain the background of a song, which makes it a lot easier to connect with because you understand the meaning behind why it was written." Her choral director, Phoebe, described her role as "helping them discover the background, or give them some sort of a deeper understanding of the musical work that they are struggling with or they're trying to find a connection to." Sebastian, another conductor, drew on his background as a musicologist to inform expressive choices influencing vocal timbre, articulation, and dynamics with the singers,

> If I was doing a Renaissance piece, I would probably keep the tenors in the head voice or mixed voice the entire time. They should not sound operatic. No self-respecting Renaissance composer will give them octave leaps at fortissimo that they have to sing like they do in the Randall Thompson either. There isn't that kind of climactic expression in the piece. We don't make it histrionic.

Sam presented the context of "Irish Blessing" to her students and posed questions, giving them room to discover additional meanings for themselves:

> We talked about who might have written this song and when, and the kinds of things they might have been writing about at the time based on what might have been going on around them. When we talk about the general ideas, they realize that first, they might have more in common with the music and the composer than they thought and second, they are able to ask themselves what they might know about that situation, and what does it mean to them.

Formal Elements of Music

In this study, contextual information often augmented and informed decisions regarding the implementation and manipulation of the formal musical elements. Singers and directors also derived meaning through change and contrast of formal elements, particularly dynamics, articulation, and phrasing. One singer, Hermione, reflected on their rehearsal of

Randall Thompson's *Alleluia*:

> For something like *Alleluia,* you're literally saying one word, but the reason it's not boring is because it can have so many meanings and the dynamics are what creates those different meanings. At the very start, it seems quiet and internal, whereas at the end it's like "alleluia!"—you're excited and being loud about it.

Conductors and singers made nuanced decisions about the interpretation of musical elements and expressive markings, particularly in the form of change, contrast, and intensity, describing a "push and pull" or release of tension. Expressive choices were also made in the absence of specific expressive indicators by seeking meaning in the openings or spaces between what is known (Greene, 1995). Sam is a choral director with a background in musical theater who used questions to elicit imagery and character development through the interpretation of lyrics. Her students often found deeper meanings in what was left *un-said* throughout the lyrics. They sought connections between the words and the notation and considered the meanings that existed in the gaps.

> …some students picked up on the fact that there's so much silence. [sings "Send in the Clowns" by Stephen Sondheim] dah dah dah dah, isn't it rich? [spoken] rest – rest – [sings] dah dah dah dah, aren't we a pair? [spoken] rest – rest, and they started talking about what that means and wondering why there is so much silence—maybe that means you're feeling conflicted. You know, maybe you're not sure of what you're trying to say, so you're being quiet.

Lyrics

Singer participants attempted to deliberately make meaning of words and phrases in order to understand the intention or message to be conveyed. They drew on rules of speech and diction for clarity, emphasis, and affect. They applied literary devices to the text to provide added meaning, irony, or humor to the lyric. Zenya and Alphonse explained how their director, Celeste, encouraged them to manipulate their diction to affect the lyrics and meaning: "She [Celeste] uses an emphasis on consonants to help us give that message of excitement and joy, [reciting the lyric with emphasis on the consonants] "Gosh, it's cold out here!" Simply understanding the basic meaning of the words impacted the singers' delivery. Hermione, of Patagonia Prep, reflected on a moment during the second SRI when the tenors and basses were singing alone: "Obviously, according to the words, it should be a lullaby. It seemed much more natural once Doc pointed it out, like, 'You're aware what you're singing, right?' Then they just kind of fell into it—softer, sweeter, lighter."

Their conductor, Sebastian, believes having an intention behind the text is critical, "Get inside the words. Sing about something all the time. I don't think people should open their mouths to sing without having some kind of expressive subtext." Throughout this study,

adding intention, meaning, or attempting to convey an idea often evoked the unintentional deployment of speech-related devices. For example, moments described as urgent or of high stakes often resulted in more articulated diction such as stronger attacks on consonants or a richer, more energized vowel sound without directly discussing their application.

Ensemble Musical Expression: Individuality & Unification

The previous section outlined the distinct components that ultimately combine for a complex synthesis of musical and extra-musical factors contributing to expressive, musical encounters. Body movement, the analysis and interpretation of musical elements, lyrics, historical contexts, a singer's skills, techniques, imagination, and personal experience all converge to construct meaning for the individual. The interaction becomes increasingly complicated in ensemble music making where choral directors and singers interact with one another in an attempt to share a unified ensemble expression.

The Role of Dialogue

The choral directors in this study attempted to honor students' individuality while working toward a unified ensemble expression. As discussed earlier, the cultivation of environments conducive to musical expression was central to establishing a physical setting and rapport of mutual respect among singers that fostered flexibility, creativity, and risk-taking. Throughout this study, where environments of trust were clearly established, the facilitation of dialogue during rehearsals acknowledged and validated ensemble members' experiences, values, and beliefs. When conductors invited singers to contribute perspectives toward meanings and take musical risks, they opened the door to a wider range of possibilities, including the unification of individual meanings. In this study, choral directors used generative prompts to engage singers in dialogue and begin to develop a discourse of musical expression. They asked questions such as: What is this piece about? What do you imagine the composer is trying to express? Can you describe the wants and needs of the character singing this piece? What do you know about the historical, social, and cultural context during which this piece was written? What do you imagine when you hear or perform this music?

During this dialogue, an iterative process of questioning and experimentation unfolded. Of particular importance to ensemble expression were the actions initiated by a single individual, which elicited expressive responses from others in the form of eye contact, contagion of energy through movement, timbre, and rhythmic entrainment (Juslin, 2003; Juslin & Sloboda, 2011). This process often led to collaborative, collective understandings for the ensemble members. However, participants of this study did not believe it was necessary for all members of an ensemble to interpret and convey meaning in exactly the same way or to have the same life experiences in order to share a common understanding. Phoebe, a choral director, said, "There is usually a generalized idea but if you were to go deeper everybody probably has their own interpretation of what it is." According to Zenya,

> Having these democratic discussions makes us feel like we're all on the same playing field and we're all in it and working towards a performance rather than Celeste having an interpretation that she wants us to match. We all feel like we're in it together.

For many students like Ash, the dialogue is what enabled the ensemble to collaboratively understand a collective intention. He explained, "It matters not as much the difference between people's interpretations, but as long as there is an idea of one underlying sense of purpose—that's what brings everyone in together." Noah said it most poetically before running out to soccer practice,

> It is like notes on a piano— like there is one note but then when you make a chord there are notes playing at the same time which makes it sound better than just this one note so everyone has these different emotions and when they all come together it sounds like really kind of beautiful I think.

Implications for Choral Directors as Facilitators of Musical Expression

This study substantiates and builds on the body of literature addressing conceptualizations and pedagogies for musical expression by offering insight into the experiences of school choral singers and conductors as they worked toward expressive performances. It aimed to "capture the rich, personal and piece- specific ways in which musicians tend to approach their work artistically" (Juslin, 2003, p. 296).

Through careful review and analysis of their own work using SRI, the singers and choral directors in this study were able to identify and describe nuanced elements of their expressive experiences, including distinct components and the nature of the performers' behavior (Juslin, 2003). The approaches used by choral directors and singers in this study to cultivate musical expression in their choirs included the use of body movement, facial expression, interpretation of musical elements, assimilations between vocal timbres and life experiences, and carefully designed questions to construct meanings individually and as an ensemble. While there were spontaneous, unintentional acts of expression reported, expressive experiences benefited from "explicit instruction and knowledge about expression" (Juslin, 2003, p. 296) as choral directors facilitated the construction of musical meanings using a variety of approaches.

The current study demonstrates that these choral directors modeled student-centered approaches to collaborative meaning-making to foster individual and ensemble expressive potential. Despite the complexity of the numerous, potentially immeasurable factors which contribute to this work (Juslin, 2003), this study revealed three primary implications for choral directors who wish to facilitate musically expressive experiences with their students. To begin, fostering a rapport of mutual respect, trust, and validation, leads to rehearsal en-

vironments conducive to musical expression. Secondly, a process-oriented mindset toward performance might help to prioritize constructivist approaches and create the space and time needed for exploration, experimentation, and imagination throughout the rehearsal process. Finally, singer-centered approaches for constructing meanings may honor the individuality of singers while developing a unified, ensemble expression.

Cultivating Environments Conducive to Musical Expression

In this study, the conductors' backgrounds and experiences had a significant impact on the classroom environment each cultivated, and the ways musical expression manifested for their singers. For example, Sebastian, a musicologist, emphasized historical context, composer intent, and era-specific performance practices as a means of achieving an expressive performance. Whereas Sam, who studied musical theater, emphasized character development, connections to personal experiences, and physical movement. Each conductor's background, coupled with their philosophical stance regarding music teaching and learning, had a direct impact on their approaches to facilitating musical expression.

The findings of this study also demonstrate that the extent to which choral directors effectively facilitate collaboration between singers can impact the manifestation of musical expression in a group setting. Both conductors and singers in this study reported that when trust and mutual respect were established, singers were more willing to experiment, take musical risks, and allow themselves to be vulnerable with their peers. Ensemble configuration implicitly and explicitly informed singers of how ideas were shared, thus influencing the development of trust and relationships necessary to take risks and be artistically vulnerable. These findings build on O'Toole's (2005) notion that singers' perceptions of whether their musical ideas are welcome can facilitate or deter participation necessary for expressive work. Choral directors might consider the ways rehearsal configurations influence singers' perceptions of power and authority and lead to environments either inhibited or liberated as spaces for musical expression.

Furthermore, developing rapport and establishing trust begins with working diligently to know the members of the choir, creating an atmosphere of mutual respect, and ensuring that all singers have the potential for success (Ladson-Billings, 1995). Choral directors of school choirs might look toward culturally responsive and culturally sustaining pedagogies, inquiring about students' musical and personal backgrounds, assets, and cultures beyond the classroom to provide singers with a path to success (Gay, 2018; Ladson-Billings, 1995; Paris & Alim, 2017). If conditions conducive to musical expression are met and expressive inquiry is encouraged, opportunities for constructing, realizing, and conveying meaning will present themselves.

Process-Oriented Approaches

This study demonstrates that facilitating musical expression requires time for constructing meaning and is inherently process-oriented. As such, it is possible that choral directors

who wish to facilitate expressive experiences might consider incorporating this work earlier in the preparation period. They might also reconsider emphasizing product-oriented, outcome-based goals of accuracy and proficiency that are driven by standardized achievement levels. Meissner & Timmers (2019) support this notion suggesting that a focus on technicality over musical communication could limit expressiveness in young musicians. Meissner later proposed a framework for dialogic teaching and learning of expressive musical performance in which he suggests that open questions, a central component to dialogic teaching, support the students' learning of expressivity by "stimulating thinking about the interpretation and may serve to connect musical ideas to the embodied experience of the learner" (2021, p. 1). He positions questions and dialogue about musical character, structure, and expressive tools, along with aural modeling to shift the focus from "technicality to musicality," leading to expressive musical performances (Meissner, 2021, p. 13). This approach reflects the work of choral directors in this study who created openings for students to construct meanings and make critical personal connections in and through music, resulting in expressive musical performances.

When reflecting with the choral directors of this study on their work toward musical expression, they each described a tension that occurs as they attempt to balance perceptions of limited concert preparation time, the desire to get the notes and rhythms right, and an impulse to control the ensemble's expressive intent. However, these conductors also described a shift in perspective as they gained confidence and experience that allowed them to incorporate expressive approaches earlier in the rehearsal process. Singers and choral directors in this study agreed that familiarity and competency with a piece of music rendered the confidence and the cognitive space—in the form of attention— required for making expressive choices. However, the ability to accurately perform a piece of music did not mean that the music would be necessarily expressive. "Being too focused on the technical aspects detracts from being immersed in the music because it creates such a huge barrier between what's on the paper and what you're singing in your mind." explained Matt, a student participant in the current study. Furthermore, participants also agreed that music does not need to be perfectly accurate to explore expressive possibilities.

Certainly, choral directors must be able to imagine an educative setting in which ensembles are able to go beyond the "process/product binary" (O'Toole, 2005, p. 24) with the sole focus landing on the product. The content and format of school concerts and other performing events might change to feature fewer pieces and provide more information about the ensemble's artistic process. Conductors must be humble enough to allow singers agency in their own expressive choices and then be willing to pull back the curtain for audiences, revealing the curiosity, imagination, and hard work that took place. Such encounters may lead to more singer involvement in designing culminating performance experiences that are rich in meaning with long-lasting, residual effects for singers as thoughtful, independent, and expressive musical beings.

Honoring the Artistic Lives of Singers

Philosopher of aesthetic education, Maxine Greene positioned music as an open-ended art unto which the viewer can enter with her own agenda (Greene, 1995). She suggested that an individual's reading of an artwork is an opportunity to find new, unique meanings through that work. This study sheds light on the ways in which choral directors acknowledged the unique, lived experiences through which individual singers engaged with musical works and thus honored those singers' artistic lives. Trusting singers to realize their individuality through their own expressivity frees conductors to focus on facilitating a unified, ensemble expression through co-constructed meanings and the collective, shared experiences of the ensemble. Echoing previous studies (Hubard, 2008), students made their own meaning through close interaction with works of art and one another—not despite the differences in readings among the group, but because the collective contributions produced an even richer reading of the piece. As musicians, the participants of this study then applied their reading of musical texts to develop an expressive performance of the work.

Navigating new approaches in an environment laden with tradition and expectations can be daunting for both teachers and students (O'Toole, 2005). However, the conductors of this study described a confidence that came with time and experience in implementing these approaches and experiencing their success. Throughout the study, I observed their ability to craft questions and prompts that facilitated a creative, singer-centered, and collaborative rehearsal process, leading toward a unified ensemble expression. Choral directors facilitated opportunities to expand on their singer experiences using a "what if" or "imagine if" approach to encourage curiosity and inquiry, reminiscent of John Dewey's description of the imagination as the "gateway through which meanings derived of past experiences find their way into the present" (Dewey, 1934, p. 272).

Furthermore, to work toward a "correct" or "authentic" performance regarding musical expression is to assume that there is one. Understanding composer intent, stylistic nuances, and era-specific performance practices are useful, but ultimately the composer has created a work of art—a piece of music to read, interpret, and perform. Maxine Greene was inspired by learning spaces that dared to provoke thoughtfulness and critical consciousness where "teachers and learners find themselves conducting a kind of collaborative search, each from her or his lived situation" (Greene, 1995, p. 23).

Opportunities for shared, musically expressive experiences have become significantly challenged during the Covid-19 pandemic due to restrictions on group music-making. The inability to make music with others has highlighted the importance of particular qualities associated with expressive experiences, such as expression of emotion, individuality and self-identity, and interconnectedness. Scholars have described the importance of expressive experiences, particularly as we move through and beyond the current Covid-19 global pandemic, for establishing a sense of self as an individual (Stark, 2020). However, Schiavio et al., (2019) illuminate the importance of musical collaboration which "allows for an essential negotiation between individual and collective subjectivity" in which musicians experience

a "sense of community and develop their identity as a group" (p. 712). While this study did not originally aim to address these issues, the implication for how choral directors might facilitate more meaningful opportunities for individual and ensemble expression will be of critical importance as ensembles transition into a post-pandemic landscape.

Juslin (2003) argued that it would be useful to study the nature of the personal behaviors and actions of performers to better understand how musical expression manifests and suggested that an event or interaction occurs between musical properties and the minds of musicians. Attention to these actions and interactions throughout this study shed light on how musical expression took place for these participants in a school choral setting. Although Elliott (1991) criticized aesthetic education as a passive way to experience music without necessitating the act of making music, the act of expression as Dewey (1934) reminded us, requires thoughtful actions. In his book, *Art as Experience,* John Dewey described an act of expression as a qualitative, "transformation of energy into thoughtful action, through assimilation of meanings from the background of past experiences" (Dewey, 1934, p. 60). Continued research in musical expression would benefit from an interdisciplinary approach and might examine the specific ways in which it manifests and is fostered across various cultures, in person and online, with individuals, and ensembles.

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