

**Abstracts from the
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Research in Choral Singing**

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ABSTRACTS

Kari Adams (University of North Texas)

*Singer and auditor perception of choral spacing in ensembles of varying size:
A pilot study*

The purpose of this study was to examine singers' preference for choral spacing in an auditioned university choir with changes to ensemble size. A secondary purpose was to examine how preferences changed based on voice part, position on the risers, and years of experience. Participants ($N = 41$) sang a 12-measure excerpt of *Set Me as a Seal* by René Clausen in close (1-inch between shoulders), moderate (12-inches between shoulders), and spread (24-inches between shoulders) spacing while watching a pre-recorded video of the ensemble's assistant conductor. A sound engineer recorded the trials. Singers completed a survey indicating their perceptions of how the spacing changes impacted their sound, including changes to their individual tone, their ability to hear the ensemble, and the level of tension they experienced. They then selected their overall spacing preference. I randomly selected a small group ($n = 16$) from the full ensemble to repeat the procedure. I then analyzed overall preference for the large ensemble, overall preferences for the small ensemble, and preference changes from the large to the small ensemble. Participants in the large ensemble preferred spread spacing (63.4%) followed by moderate spacing (34.15%). When examining singers who participated in both groups, the majority (56.25%) preferred the same or increased spacing when singing with the smaller group. Auditors ($N=24$), who were practicing choral music educators currently enrolled in a summer master's program, listened to matched pairs of recordings from the large group and from the small group. Then, they indicated their preference between the pair of recordings. Auditors tended to prefer the wider spacing option when comparing either moderate or spread to close spacing and exhibited no preference between moderate and spread spacing. Auditors indicated that they were better able to distinguish between spacing options in the small group than the large group. Results of this study lend credence to Daugherty's (2003) suggestions that singers generally prefer spread spacing. Interestingly, the preferences of singers in this ensemble did not align with Ternström's (1999) conclusions regarding ensemble size. Further research is needed to better understand the effect these variables may have on individual spacing preferences. Since these previous recommendations may not be generalizable, choral music educators may need to consider the importance of seeking student feedback regularly to ensure they are using the best spacing option for their ensemble.

Irene Apanovitch-Leites (University of Southern California)*How do singers relate? Examining the link between empathy and choral singing*

Today's social and political climate necessitates a revived interest in research on social behaviors and empathy. People who participate in choirs, volunteer for choral events, and support choral music-making typically engage in an environment where social and prosocial skills are present. An important human social skill is empathy. To date, few studies have examined the relationship between choral singing and empathy. How levels of experience and involvement in choirs impact one's ability to be empathetic remains elusive. This presentation will focus on research that investigated the link between empathy and choral singing.

An online survey was completed by a 102 participants affiliated with a large university in California. Participants' empathy scores were measured using a known instrument in psychology research called the Interpersonal Reactivity Index. Information on participants' musical training, level of experience in choral singing, musical background, values in music training and participation, and basic demographic data were also collected.

Findings suggested that there was no significant correlation between participation in choral ensembles and dispositional empathy. However, participants with 6 or more years of choral singing experience tended to have higher empathy scores than those with fewer than 6 years of experience. The data also showed interesting trends concerning values held toward studying and performing music. Notably, these trends were observed within the gender and year of study subgroups of participants. Detailed findings will be presented at the conference along with implications for choral music education.

Patrick Antinone (Texas Tech University)*Choral pedagogy: The effect of moveable versus fixed pitch systems on sight-singing instruction for beginning choral students*

Sight-singing is recognized as a critical component of choral pedagogy. (Armstrong, 2001; Daniels, 1988; Demorest, 2004; Szabo, 1993). A variety of pedagogical resources available to teachers include syllabic pitch systems, which typically fall into one of two categories: fixed systems that correspond with absolute pitch and movable systems that correspond with tonal function (Frey-Clark, 2017). While American choir directors have indicated a preference for moveable systems (Demorest, 2004; Bradley & Floyd, 2006; Kuehne, 2007; May, 1993; McClung, 2001; Nichols, 2012; Pembroke & Riggins, 1990; Smith, 1998), research indicating the relative effectiveness of movable versus fixed pitch systems has been largely inconclusive (Demorest & May, 1995; Henry & Demorest, 1994; Killian & Henry 2005; Lorek & Pembroke, 2000). Meta-analysis revealed need for further research regarding strategies that may improve the pedagogy of sight-singing (Mishra, 2016). Therefore, the purpose of this study was to examine the effectiveness of movable versus fixed pitch systems on on sight-singing instruction for beginning choral students. Participants (N = 76), were students in two intact beginning choir classes at a suburban junior high school. Both choirs received fifteen-minutes of identical sightsinging instruction during daily rehearsals: two weeks of orientation in the key of C followed by a baseline pre-test; two more weeks in the key of C followed by post-test #1; and subsequently, two weeks in the key of F followed by post-test #2 in which Group A (n = 38) utilized Movable-Do and Group B (n = 38) utilized Fixed-Do. Lessons for each choir were recorded to insure consistency of instruction. Pre-post tests, consisting of researcher-designed tests mimicking daily drill, were administered via individual recording. Individuals heard recorded verbal instructions which concluded with the playing of the tonic triad and starting pitch followed by a thirty-second practice period and a second playing of the tonic triad, starting pitch and instructions to begin. Procedures were identical to those practiced in class. Students pressed record on a second device, set their own tempo and performed the exercise. Raw data consisted of number of pitch errors. Post-tests were independently assessed by two experienced choral educators. Data analysis included the difference between raw scores, the pre- to post-test individual gains within groups and the difference between the gain scores. A two-way ANOVA indicated significantly higher scores for the Moveable-Do group on post-test #2 in the Key of F. Results are discussed in terms of applications in the choral rehearsal.

Andrea Asztalos (University of Szeged)*Role of choral warm-up exercises in the development of children's singing abilities*

Choral warm-ups involve a series of instructor-led activities at the beginning of a rehearsal or before a performance. It is widely believed (Phillips, 2004; Collins, 1999) that warming-up a choir is critical, and often a first step when directors take the podium. The goal of choral warm-ups is bring together the individual singing voices in order to create a choral group sound (Smith & Sataloff, 2006). The choral conductors should address body alignment, breathing mechanisms, phonation of the vocal chords, and resonance while cultivating healthy singing mechanisms through a variety of warm-up exercises (Ehmann & Haasemann, 1981). The choral conductors' background, training, beliefs, practices should contribute to a conductors' warm-up success (Olesen, 2010).

The purpose of this paper is to examine and describe children's choir conductors' belief about warm-ups and their practices in conducting warm-ups, to state rationale and necessity of the vocal warm-up before children's choir rehearsal and to provide a structure for designing meaningful warm-up activities, present examples of effective warm-up exercises, and offer methods and resources for future use.

Participants in the research process participated 125 children's choir directors, who conduct children's choir in Music or General Primary School in Hungary. The research methods employed were observations, online questionnaire, semi-structured interviews. Data were analyzed using qualitative and quantitative analysis. We observed 18 kinds of warm-up exercises and sorted in 7 groups. Structure and proportion of warm-up exercises were variable and depended on type of the schools, age and musical qualifications of children.

A well-planned and efficiently executed warm-up is essential for developing a good singing habit and creating an attentive atmosphere in children's choir rehearsal. Choral singing is just like any other warm-up exercise before vigorous physical activity. Because the vocal cord is an extremely sensitive organ, it needs special care and training in order to have good voice production.

Rebecca L. Atkins & Takeshwar Singh (University of Georgia)*Effects of focus of attention on muscle activity of singers*

Studies of motor skill performance have shown that adopting an external focus of attention is beneficial to performance in a variety of tasks including balance, long jump, golf, basketball, and swimming (for a review see Wulf, 2013). Additionally, iEMG evidence revealed that an external focus (on the effect of the movement) produced small, more frequent muscle movement during execution, and an internal focus (on body part executing movement) resulted in larger muscle movement at a slower frequency (Lohse, Sherwood, & Healy, 2010; McNevin, Shea, & Wulf, 2003; Wulf, Dufek, Lozano, & Pettigrew, 2010) rather than on body movements, can improve performance during training and retention testing. Previous research has mostly concentrated on movement outcomes, not on the quality of the movement itself. Thus, this study combined surface electromyography (EMG).

Few studies have tested focus of attention in music (Atkins, 2017; Duke, Cash, & Allen, 2011; Stambaugh, 2017) this phenomenon has yet to be studied systematically in the context of vocal production. I evaluated 20 trained singers' vocal tone as they varied their focus of attention. Each participant performed a short vocalise, a phrase of "My Country 'Tis of Thee," and a prepared solo piece under six different conditions in which they focused attention on either keeping the vibrato steady, the position of their soft palate, directing their sound to points in the room at three different distances from the singer, or imagining "filling the room" with sound. Each session began with singers performing with no focus instructions, which served as a baseline for comparison. Expert listeners rated all performances on seven variables. Multivariate analyses of variance (MANOVA). Trained singers' resonance and overall tone quality was described more positively and rated higher by expert listeners under external conditions (fill the room, direct sound to the back wall) compared to no instructions and internal instructions (think of soft palate, vibrato consistency) (Atkins, 2017, 2018). It is still unknown how these instructions affect coordinated muscle activity within the vocal mechanism and the body.

We tested the effects of internal and external focus of attention on singers' respiratory and phonatory muscle activity (trapezius, posterior neck, and the sternocleidomastoid) through surface electromyography. Participants were 9 (male =3) undergraduate applied voice students (5) and choral singers (4) from a large university in the southeast region of the United States. The singers performed a cappella the first full phrase of "My Country 'Tis of Thee" under a baseline condition (no focus), followed in randomized order by thinking about two near-internal tasks (soft palate, tongue), two far-internal/near-external (directing sound to the mask area, focus on breath), and three external tasks (emotion/character, filling the room, directing the sound to point on the back wall). After each condition we asked singers to speak specifically about what they were thinking as they performed each condition.

We extracted the frequency and muscle activity of the trapezius (TZ), posterior neck

(PN), and sternocleidomastoid (SCL) beginning with the onset of sound to the onset of the final pitch (before the first breath). Preliminary results showed no differences in activity between external and internal focus, but activity varied for each individual. Participants reported differing thoughts for the same condition. Directives from voice teachers and choir directors may be interpreted differently by each individual singer, resulting in varying muscle activity. Further research is warranted.

Sarah J. Bartolome (Northwestern University)*The Drakensberg Boys Choir School: Ensemble singing as bridging social capital in South Africa*

The purpose of this ethnographic study was to explore the culture of the Drakensberg Boys Choir School (DBCS) in South Africa, with particular attention to issues related to the multicultural nature of the choir and the way the choir serves as a source of social capital for choristers.

This exploration of the culture of a South African boys choir required the integration of standard ethnographic data collection strategies employed over the course of a month-long period of fieldwork. As fieldworker, I lived in the boarding house, interacting with the boys and the staff on a daily basis, observing and fieldnoting classes, lessons, rehearsals, performances, and other events that define the DBCS experience. I also conducted semi-structured interviews with all of the choristers (101 boys), the director (1), accompanists (2), and staff members (9). Additionally, I interviewed two alumni and one former DBC director for a total of 116 interviews. Material culture related to the DBCS experience was also examined, including past concert programs, the organization's website, mission statements, recruiting materials, assessment documents, handbooks, CD/DVD recordings, and audition packets.

Following the data collection, each of the interviews was transcribed in full. The entire data set (fieldnotes, interview texts, and material culture) was examined repeatedly for emergent themes related to choral culture and the theory of social capital (Coffee & Geys, 2007; Putnam, 2000). Further analysis took the form of closed coding. Triangulation was achieved through comparisons among data sources. Through an extensive process of member checking during two return trips to South Africa it was possible to clarify and validate the multiple data sources. The full extent of the data was pieced together to create a picture of the culture of the Drakensberg Boys Choir School as perceived by various members.

Findings suggest that the DBCS experience serves as a source of bridging social capital for the choristers, although the impact of the experience may be more significant for boys previously enrolled in racially homogenous, Afrikaans schools. Living, studying, and making music with diverse choir members contribute to the development of bridging social capital and age may also be a factor in the way boys experience diversity in the DBCS environment. This discussion contributes to a growing understanding of the ways music participation functions in the lives of individuals in 21st century communities.

Melissa Baughman (University of Oklahoma)*A content analysis of diversity represented on collegiate choral department websites*

When prospective college students think about becoming music majors, they may choose to explore music department websites as a first step, which can leave a strong first impression on potential recruits (Becton, Bernerth, Feild, & Walker, 2011). Using signaling theory as a model, it can be suggested that prospective applicants make assumptions about an organization's culture based on "peripheral cues" (Braddy, Meade, & Kroustalis, 2006). Thus, when a potential student views a choral department's webpage, will they see students and faculty members that look like them? Will they see anything representing a commitment to valuing diverse musicians? Since recruiting diverse students is becoming increasingly important (e.g., Fitzpatrick, Henninger, & Taylor, 2014), it seems relevant to explore how specific areas of study within music schools address diversity through online publicity materials.

The purpose of this content analysis is to examine diversity represented on choral department websites of NASM-accredited institutions ($N = 59$) from two large states within the Southwest Region of ACDA. In this session, I will present findings that answer the following research questions: (1) How is perceived diversity represented on choral department webpages? (2) How diverse do the choral faculty members appear to be? (3) Is a desire for diversity addressed (e.g., diversity statement)? If so, in what way(s)? I will examine all photos and videos; provide descriptions of the perceived race and gender of faculty members (when photos are present); share an analysis of diversity statements included (or not) on choral area websites; and other diversity efforts as they emerge. The answers to these questions will provide a baseline indicator of how choral programs in two select states are attempting to recruit and support a diverse pool of applicants for choral music study through their program websites, with implications for the broader collegiate choral community.

I will share positive examples from choral programs that appear to promote diversity online. Gaps in online diversity representation, with implications for all music professors, will be discussed in an attempt to inform all faculty members of a need to share the responsibility in diversifying their online presence. Attendees will leave this session with tools to analyze their own choral department webpages, as well as practical solutions for improving their online recruitment efforts to ensure that students of all populations are represented and valued.

Melissa Baughman & Hunter Birkhead (University of Oklahoma)*Voice pedagogy in the high school choral rehearsal: An exploratory case study*

The importance of voice pedagogy in the choral rehearsal has gained some attention in vocal music research (Corbin, 1986; Cottrell, 2010; Freer, 2011; Smith & Sataloff, 2003; Tepe, Deutsch, Sampson, Lawless, Reilly, & Sataloff, 2002; Webb, 2007). Researchers have addressed specific pedagogical methods in studio voice instruction (Gutshall, 2006; Naseth, 2012), but technique-specific pedagogical methods for ensemble rehearsals have been examined mostly in instrumental music (Chaffin, 2009; Tan, 2017). Thus, there is still a need for literature regarding the implementation of voice pedagogy in the choral setting.

The purpose of this exploratory case study is to examine the application of voice pedagogy in a high school choral setting. Through an evaluation of interviews with the conductor and a series of rehearsal observations, we will seek to answer the following questions: (a) Which specific vocal techniques does the choral director intend to teach in the observed rehearsals? (b) What vocal techniques are taught in the observed rehearsals? (c) What strategies does the conductor use to teach vocal technique? (d) Do the observed pedagogical strategies align with the conductor's goals for teaching vocal technique? One choral conductor from a high school in a Southwestern suburban area will participate in this study. Data will be collected through the following methods: (a) an initial interview of the choral director to establish a basis for their pedagogical goals related to vocal technique, (b) weekly observations of 50-minute choral rehearsals with the auditioned ensemble over a span of 8-10 weeks, and (c) a post-study video-stimulated recall interview with the conductor.

All three points of data collected will be analyzed using qualitative methods of transcribing, coding, and combining codes into themes. We anticipate that the choral conductor will aim to teach several standard concepts of vocal technique, but may or may not demonstrate a variety of strategies for teaching them. Also, the choral conductor's goals for teaching specific techniques may or may not align with their actual teaching. The results of this study may help form a baseline for the investigation of other high school choir conductors' vocal technique instruction. Future researchers should consider a larger-scale examination of voice pedagogy strategies used in high school choral rehearsals in order to determine what methods are most common. Further investigation of the effectiveness of specific rehearsal strategies for teaching vocal technique also seems warranted.

Cat Bennett Walling (University of Miami)

Intercultural choral exchanges in South Africa: Exploring choral director experiences, understandings and practices

We are living in exponential, exciting and turbulent times of change and rapid globalization. There lies a pressing need for—not only multicultural, but—intercultural, international and transnational experiences and training for music teachers. Beyond multicultural units in university courses, workshops or conference presentations, research suggests that diverse fieldwork and experiential learning may be key for comprehensive music teacher preparation. Specifically, in working with increasingly heterogeneous populations, it is important for choral educators to learn to teach beyond a traditional and Eurocentric paradigm.

There are currently limited multicultural and intercultural professional development opportunities available to choral directors. However, Village Harmony international choir camps provide opportunities for educators to immerse themselves in a foreign culture and explore diverse vocal traditions. With this in mind, this presentation will describe the experiences of two choral directors during and after a 3-week Village Harmony choir camp in South Africa. Research questions were as follows: What kind of musical understandings and practices manifest on a trip of this nature?; and Upon returning to work in the United States, how do choral directors perceive they have changed professionally?

The choral directors in this study—given the pseudonyms Bridget and Sophia—are white women, predominantly trained in the Western choral music paradigm, and working in non-profit choral organizations in the US. Data for this case study were collected through interviews, participant observations, and select video recordings. Posteriori word coding and thematic analysis were conducted to illuminate salient concepts. Two months after returning to the United States, Sophia and Bridget reported that the camp had influenced them in a variety of meaningful ways.

Musical understandings and practices will be summarized under four predominant themes: (1) authenticity, (2) literacy and transmission, (3) comparing and contrasting musics, and (4) making a difference. Most prominent during the exchange was participant attention to and practice of musical accuracy, style and technique. Further, in experiencing an aural vocal tradition, directors reflected often on the use of western standard notation and institutional approaches to teaching and learning in the US. Explicit attention to differences and similarities in US choral singing was noteworthy. Ultimately, pride in singing in an interracial choir and the meaning behind this bond was central. This presentation will ultimately focus on choral director' applications in the United States. Furthermore, implications for the importance of immersive and genuine experiences—as expressed by Sophia and Bridget—will be discussed.

Morgan J. Burburan (University of South Florida)*Pre-service choral music education: An analysis of Florida NASM accredited universities and their curriculum*

Current curriculum in undergraduate music education in the United States has been influenced by a number of organizations, with one of the most notable being the National Association of Schools of Music (NASM) (Chandler, 2012, Groulx, 2015). According to the NASM Handbook, accredited institutions have a responsibility to provide pre-service choral music educators a well-rounded and holistic education (2017, p. 117-119). Methods courses often have a great impact on the success of a choral music teacher (Hourigan & Scheib, 2009, Teachout, 2004) and are the cornerstone of the choral music education curriculum. These courses often model sequential and spiral curriculum, one that pre-service choral music educators will potentially put into professional practice (Madsen & Yarbrough, 1985). Little research has been done regarding choral pre-service music education content and sequencing (Turcott, 2003).

A content analysis of degree requirements and course sequencing of the NASM accredited public and private universities in Florida (N=26) was performed, as well as a descriptive analysis of those that offer undergraduate music education degrees with a choral or vocal music track (n=17). Further analysis of the curriculum content included the coding of the syllabi of choral methods courses with analysis of the resources, goals, objectives, reading materials, assignments, and class discussion topics as outlined by the provided syllabi (n=13). Required and supplemental textbooks content was also analyzed as part of the content analysis. Frequency of class discussion topics, assignments, and reading materials revealed six major concepts with subcategories nested in each topic: Administration (147), professional responsibilities (171), repertoire (95), musicianship (173), special topics (71), and a pre-internship experience (84) were fairly consistently utilized throughout all institutions. A detailed analysis is provided with specifics regarding required courses, their sequencing, goals and objectives, assignments, reading assignments, and sequencing of instruction. A sequential semester course outline based on the common reading assignments, class discussion topics, assignments and assessments is provided as determined by these results. This study makes it possible to find identify the many strengths of various NASM accredited pre-service choral music education programs and can be used to affirm areas of strength for choral music method instructors. It may also be used to refine pre-service choral music education curriculum specifically regarding creating a spiral, sequential curriculum that is consistent with NASM standards.

Christopher Cayari (Purdue University)*Virtual choral singing: Beyond the Eric Whitacre Virtual Choir*

In 2010, Eric Whitacre released his first virtual choir, *Lux Aurumque*, a YouTube video featuring 185 singers who submitted audio-visual recordings of themselves individually singing his octavo. The mini-performances were combined by a video editor to create a world-wide musical phenomenon that allowed musicians who never met face to face to sing together asynchronously on the Internet. Whitacre's enterprise grew exponentially with his annual virtual choir projects, and in 2013, the ensemble included nearly 6,000 singers from 101 countries. Whitacre's virtual choirs have been held as an exemplar of virtual choral singing. Yet, singers have developed practices on YouTube that allow them to perform in innovative ways through multitracking, the practice of layering audio-video recordings to produce a cohesive performance, manifesting in the assemblage of large and small virtual choral presentations. Virtual vocal ensembles (VVEs) can look and sound like a cappella groups, barbershop quartets, and SATB choruses. A popular approach is to create a soloistic performance where one singer records all voice parts of a composition to create an ensemble of clones.

The purpose of this study was to explore the musical and social implications of VVEs. Traditional qualitative research methods and Internet inquiry were combined to create a multiple case study that examined three YouTube channels. Data collection included the observation of videos, text comments, and website analytics. Additionally, data was comprised of interviews with each singer-creator of the channels and the marked scores of their arrangements. A crosscase analysis was conducted to produce assertions that illuminated the implications. Each video creator developed methods to construct and publish their videos, which were limited by their musical skills, technological abilities, and the resources available. Online communities formed containing elements of fandoms, learning communities of practice, and music making spaces. The concept of ensemble and performance were expanded as singers formed identities as virtual performers and expressed themselves musically and theatrically. Development of arrangement skills, voice range expansion, and autonomous exploration of musical concepts were results of creating VVEs.

Creating VVEs required not only musical prowess, but also technological and production abilities that could be applied to choral music education practices. Additionally, video creators use social media to expand their audiences and develop communities of fans and collaborators. Choral directors may incorporate the practices of VVE creators into their instruction and help students learn skills, which might help them make music long after they leave the choral classroom.

Ann Clements (The Pennsylvania State University)

Fred Waring: "The man who taught America how to sing"

Fred Waring along with his group, the Pennsylvanians, toured the United States and the world for almost seven decades, building an impressive list of accomplishments in stage, radio, motion pictures, television, and music education. This paper focuses on his efforts in teaching singing through radio productions, in-person workshops and clinics, and through the creation of educational materials, including his well-known "tone syllables" approach. This historical research project is based on materials housed within the Fred Waring Archives at the Pennsylvania State University. Bandleader, choral conductor, glee club pioneer, music educator, entrepreneur and renaissance man, Fred Waring was a pioneer in every field of show business as well as music education. As the guiding force behind his large musical organization, he and his musicians earned accolades from listeners and critics alike throughout a career that spanned almost the entire 20th century.

The majority of research completed on Fred Waring has highlighted as a radio producer, musical artist, and, eventual television star and there has been very little work done on his role as a music educator. Music education was so important and significant to him that he attended numerous music education conferences, including state MEA conferences in Pennsylvania, Michigan, Ohio, Colorado and the national level MENC conference, where he was honored in the 1980s. He was also honored by the American Choral Directors Association and the Association of Professional Vocal Ensembles (now titled Chorus America).

In 1947, Waring organized the Fred Waring Choral Workshop at his Pennsylvania headquarters in the old Castle Inn in Delaware Water Gap, Pennsylvania, which was also the home of Shawnee Press, the music publisher which he founded. At these sessions, musicians learned to sing with precision, sensitivity, and enthusiasm. When these vocalists returned home and shared what they had learned with fellow musicians, Waring's approach to choral singing spread throughout the nation. The first Fred Waring Music Workshop in the western United States was held in June 1968 as part of the University of Nevada's Summer Session curriculum in Reno, Nevada. Waring taught and supervised these summer workshop for 37 years until he died.

Ann Clements & Val Flamini (The Pennsylvania State University)

“Why music matters”: What elderly musicians have to share with the younger generations of music makers

In this case study research project, octogenarian choir members detail why they continue participating in music making despite the challenges of aging. Their stories help us consider new models for life-long engagement which impacts the singing classroom. According to the National Association for Music Education, the mission of music education in America is “to promote the understanding and making of music by all”. As practicing music educators and/or professors of general and choral music we strive to reach this goal, however, it is easy to become bogged down in the technical and pedagogical aspects of successful teaching and to lose sight of important social, musical, and psychological attributes that contribute to lifelong music participation.

This qualitative case study provides data from 23 individual narratives by older choral musicians and details, in their own words, why they have continued to participate in music making despite the challenges of aging bodies and minds. Results from the study reveal the following constructs: Relationships, Mentoring, Student-Centered Approach, Knowledge of Craft & Content, and Increased Enjoyment and Understanding of Music with Age. By understanding their motivations to continue making music, we can better understand musical motivation as a whole and consider new models for encouraging lifelong musicianship within the singing classroom.

Katrina Cox & Amy Simmons (The University of Texas at Austin)*The nature of expertise: A case study of an acclaimed choral conductor*

The purpose of this descriptive case study was to characterize artist-level teaching in choral rehearsals using Duke and Simmons' (2006) framework of expert music teaching. Although set in the context of applied instruction, their work raises questions about the instantiation of expert teaching in other performance domains. We recorded and analyzed nine hours of intact rehearsals of the Grammy Award-winning professional choral ensemble *Conspirare*, led by acclaimed conductor Craig Hella Johnson, finding demonstrations of all 19 instructional elements described by Duke and Simmons.

Goals and Expectations. Johnson's clear auditory image of the repertoire guided rehearsal activities, and his communication of expressive goals were clear and achievable in the moment. He made intelligent choices when isolating problems in rehearsal, as evidenced by the fact that almost every passage Johnson targeted was audibly improved. We observed a few notable exceptions in which Johnson acknowledged that a particular complex passage would take more time to "settle in" and chose to proceed.

Effecting Change. Rehearsal of each piece nearly always began with a full performance. After the initial reading, the pace of rehearsal proceeded rapidly and was peppered with intuitively-timed breaks. Johnson addressed errors in a manner that we suggest is idiosyncratic to the professional ensemble setting. While errors made by individual singers did not always elicit stops and some audible section errors went unaddressed, Johnson demonstrated an intuitive sense that these singers could accurately detect problems and effectively self-correct without his intervention.

Conveying Information. Johnson was skilled at couching specific negative feedback as directives that addressed technical aspects of performance that were inhibiting the overall musical effect he was working toward, although as the concert drew near, instances of direct negative feedback increased. Specific positive feedback was infrequent and high in magnitude, whereas very brief non-specific positive statements were used frequently. He used extensive modeling; some instances were conventional and lovely, performed in juxtaposition with the ensemble's singing, whereas other instances were concurrent with the ensemble sound and more unique in nature. In those instances, vocalizations and physical motions were meant to focus ensemble attention on the desired interpretive effect they were to achieve.

We will present video excerpts that illustrate the qualitative observations described above and will discuss quantitative data regarding Johnson's rehearsal behavior that we collected using SCRIBE software. Our discussion will include how these observations may offer valuable insight into the rehearsing of choral ensembles performing at all levels.

Carolyn S. Cruse (Texas Tech University)*Choral singers' perceptions of rehearsing and performing in the Choregie genre*

Many traditional choral performances consist of choirs walking on stage, assembling on choral risers, and performing musical works listed in the program, typically with applause between each selection. Choral singers generally wear uniforms, they may or may not use music folders during the concert, and performances sometimes include choreography. During recent Regional and National ACDA performances, many choirs have incorporated creative standing arrangements, adding to the performance aesthetic for singers and audience members. Stage lighting is generally the same throughout the concert: bright and clear, but plain and simple. "Choregie" is a genre of performance that transforms the traditional choral concert experience. Pioneered by the Slovenian choral conductor-producer, Karmina Šilec, Choregie merges traditional choral repertoire with dramatic elements of opera and musical theater, including staging, costumes, and dramatic lighting. The anticipated result of this fusion is a heightened expression and greater intensity of experience and communication between choral singers and their listeners.

This in-progress case study explores choral singers' observations, reflections, and in-the-moment perceptions of preparing and performing a choral work in the Choregie genre. Initial research questions include: 1) What are the benefits and challenges to rehearsing and performing in the Choregie genre? 2) What do choral students observe about their own and the ensemble's musicianship, performance presence, and sense of self and community when rehearsing and performing with Choregie? 3) How does rehearsing and performing in the Choregie genre shape choral singers' self-perception and sense of community?

The participants, 37 undergraduate members of a Women's Chorus, spent two months rehearsing and staging a set of three choral compositions by a single composer. The researcher conductor led all music rehearsals and collaborated with an opera director to determine most of the Choregie staging. Participant-singers worked together to complete the staging process, adding collective creativity and their own dramatic ideas to the performance.

Preliminary data includes survey responses from participants and field notes taken during the staging and rehearsing process. Focus group and individual interviews will yield additional data. Most participants shared they did not know what to expect through the process of rehearsing and performing in the Choregie genre, but several stated that they prefer this type of performance experience over the traditional model of choral performances. Additional findings thus far include singers' greater connections and deeper relationships with self, fellow members of the choral ensemble, the musical works, and with the audience.

Craig Denison (Indiana University of Pennsylvania)*A structural model of physiological and psychosocial effects on adolescent male singing*

The influence of psychosocial factors on musical outcomes is well supported in both quantitative and qualitative research. In this study, statistical modelling identified paths and effect magnitudes of psychosocial predictors on the singing of males ages 8-18 (n = 196). Needs for this study arose from two principal concerns: First, effects of psychosocial factors on sung outcomes had not yet been statistically modeled with any population. A model with good fit to the data can describe the predictive role of psychosocial variables and the magnitude of their effect on vocal outcomes. Second, a shared and comprehensive understanding of young men's singing continued to be elusive among researchers, practitioners, and future teacher/directors, especially in light of the multiple contexts of adolescent male singing. The statistical model in this study accommodates and is applicable to the diverse approaches to young men's singing.

Participants were measured on sixteen physiological, motivational, and affective qualities. Twenty-five vocal exercises in range, registration fluency, and vocal quality were recorded and analyzed. Correlation, regression, and two-step structural equation analyses were conducted on the data to test the a priori model based on literature and experience. Six latent factors were extracted through factor analyses which were consistent with the a priori model: Vocal Quality, Range, Registration Fluency, Physical Maturity, Motivation, and Affective State. Correlations and regressed combinations confirmed and refined findings of previous studies of adolescent male singing while challenging others. Both the measurement model and structural model showed good fit with the data across several indices. The structural model showed prediction paths with moderate and strong effects on vocal outcomes.

The implications of this study are numerous and important as scholars consider future directions in choral and singing research. The study demonstrates that a predictive model of singing can be created and tested yielding paths and values that indicate strength of relationships between vocal outcomes and psychosocial predictors. It also presents a possibility of applying this method to other groupings of singers. Furthermore, it may be possible to model vocal outcomes without specificity of participant's sex or age. Conversely, this manner of statistical analysis could yield models specified for other groupings of singers with differing latent factors, paths, and effects. Perhaps more important is the question of how convergences and divergences of structured models in varying contexts might yield a richer understanding of the universal phenomenon of singing.

Megan DiSciscio & Stephen Paparo (University of Massachusetts Amherst)*Composition and music self-concept in the collegiate choral ensemble*

The purpose of this study, in progress at the time of submission, is to examine the effects of a collaborative composition project (Hopkins, 2014) on the participants' music self-concept (Randles, 2010). A voluntary sample (n=39) from a large, auditioned university chorale completed a survey prior to participating in a collaborative composition activity. The survey will be re-administered to participating students immediately after performing the collaborative compositions at the conclusion of the semester. Measurement instruments include an adapted Self-Esteem of Music Assessment (SEMA) (Schmitt, 1980; Zelenak 2011) and a researcher-devised demographic questionnaire. The study also seeks to examine the relationship between music self-concept as measured by the adapted SEMA and the following independent variables: (1) age, (2) gender identity, (3) years of private study, (4) academic major, and (5) ethnicity. Preliminary findings from pre-test data show a mean adapted SEMA score of 3.02/4 with no significant ($\alpha = 0.05$) differences among the five identified independent variables. Correlational analysis of data will be completed at the conclusion of the post-test. Analysis will examine trends in overall change between pre- and post-test adapted SEMA scores as well as any emergent trends within specified independent variables using a one-tailed t-test.

The Collaborative Composition Project. The project was designed to enhance the singers' experience of rehearsing and performing Verdi's Requiem. Singers were instructed to use either the Latin text or the translations provided in their scores to compose and arrange their own interpretations of the requiem parts. The singers were grouped according to voice part in small groups of 5-10, were encouraged to compose by ear and standard notation was not required (Hickey, 2012; Kaschub & Smith, 2013). The researcher designed the composition activity but was not present during rehearsals. All rehearsals were facilitated by the choir director. The composition assignment was required of all choir members, however participation in the survey was anonymous and voluntary. Of the 61 choir members, 40 responded to the survey and 39 consented to participate in the study.

Val Flamini (The Pennsylvania State University)

Optimal experience in the choral setting: Examining flow experience events between choral ensemble members and choral conductor

The purpose of this pilot study was to investigate in what ways ensemble directors promote the conscious state of *flow* among students in rehearsals (Csikszentmihalyi, 1990). The flow experience as a rehearsal objective positively enhances music learning by making the curriculum more accessible and meaningful to all students. Understanding how directors' encourage optimal experiences may impact future teaching practices within a curriculum that includes flow as an objective. This mixed method study uses Creswell's Sequential Explanatory model including quantitative data collected from a self-reporting instrument and qualitative data in the form of interviews, field notes, reflections and images. The study has three parts: Self-reporting instrument for both students and director; interviews with questions informed by the quantitative analysis occurred with the director and two students (one who reported a high occurrence of flow and one low); additional data including field notes, emails, images and reflections gathered by the investigator.

Research questions: I. Do moments of flow occur for both students and the conductor?; II. In what ways can the conductor of a choral ensemble facilitate flow experiences from the ensemble members?; III. Do flow events occur with more frequency for particular songs than others?; IV. Is there a relationship between the flow experiences of the conductor and those of the ensemble members?

Quantitative analysis results revealed both students and director experience flow moments during rehearsals. A mean comparison of flow moments among participants showed evidence of flow frequency based on repertoire. The relationship between the flow experiences of the conductor and those of the ensemble members was not statistically significant. Qualitative inquiry was informed by these quantitative results. Qualitative analysis can be organized into three constructs: Attention, relationships and purposeful music making.

Positive psychologist Csikszentmihalyi describes the theory of flow as an optimal experience resulting from a harmonious balance in the state of consciousness between skill and challenge (Csikszentmihalyi, 1990). When balance is not accomplished, the result is anxiety or boredom depending. He characterizes the experience as a state of being so involved in an activity that nothing else seems to matter. The activity is the reward in itself and includes feelings of exhilaration, deep enjoyment and acute awareness. Incorporating flow as an objective in choral music education pedagogy would engage students intrinsically while reducing anxiety and boredom.

**Rhonda Fuelberth (University of Nebraska-Lincoln) &
Briana Nannen (Marshall University)**

The impact of a service learning collaborative performance project on choral students' attitudes toward individuals with disabilities

Service learning is increasingly used as an appropriate means of enhancing learning in institutions of higher education. Service learning in music education through collaborative performance opportunities may provide opportunities for growth that extend beyond musicianship and artistry. Because of changes in educational policies and practices resulting from legislation that ensures free and appropriate access to educational experiences, schools, communities, and other civic organizations are increasingly adopting inclusive educational and participatory practices. Guiding principles in these legislative actions promote the inclusion of U.S. citizens with a wide variety of differences. Up to 95% of students with disabilities are now being served in the general classroom environment (NCES, 2013).

The purpose of this study was to examine the impact of a service learning collaborative performance project on choral students' attitudes toward individuals with disabilities, and to examine participant reflections of the collaborative performance for emerging themes. The research questions that guided the study were: 1. What impact does participation in a service learning collaborative performance project with an inclusive choir have on collegiate choral ensemble members' attitude toward individuals with disabilities?; 2. How do participants describe their expectations, experiences, perceptions, and beliefs following the service learning collaborative performance project?; and 3. How might the service learning collaborative performance project impact the participant's attitudes toward including individuals with disabilities in future musical experiences?

Student members of a collegiate choral ensemble participated in a service learning collaborative performance project with members of an inclusive and intergenerational choral ensemble. The collegiate choral ensemble (N=50) was a soprano/alto choir made up primarily of freshmen and non-music majors. The inclusive and intergenerational choir was a university sponsored community ensemble made up of individuals with a variety of physical, sensory, and cognitive challenges as well as family members and friends who support them. Prior to participation, collegiate participants completed a questionnaire designed to collect general demographic information as well as information regarding previous contact with individuals with disabilities. After the combined choirs' rehearsal and performance event, collegiate participants contributed an essay reflecting on their experiences. Participant reflections of the collaborative performance were analyzed for emerging themes.

**Melissa L. Grady (The University of Kansas) &
Sheri Cook-Cunningham (The University of Central Arkansas)**

Friend or foe? Using the piano during choral warm-ups

The purpose of this study was to investigate the effects of two types of vocal warm-up procedures (with piano and a cappella) on acoustic and perceptual measures of choral sound. Participants were members of an intact choir in a large Mid-western university. Choir members followed one of two videotaped warm-up sessions (with piano accompaniment or a cappella) at the beginning of a regularly scheduled choir rehearsal. Warm-up procedures and recording sessions occurred during the choir's regular rehearsal time and in the choir's regular rehearsal space during two consecutive rehearsals.

The 5-minute warm-up videos consisted of seven vocalizes ascending or descending by half steps and the vocalizes were identical on both tapes. In Video A, the vocalizes were accompanied by piano and in Video B, the vocalizes were a cappella. After participating in the warm-up procedure, we recorded the choir singing a folk song for analysis. Analyses included Long Term Average Spectra (LTAS), perceptual pitch analysis (Pitch Analyzer 2.1 software), singer perceptions, and expert listener rankings.

LTAS results indicated that the choir sang with more spectral energy during the a cappella warm-up than they did during the piano accompanied warm-up. Pitch analysis revealed that singers sang slightly more in tune after participating in the a cappella warm-up. Questionnaire results indicated that singer participants listened more to the choir during the a cappella warm-up, possibly resulting in improved intonation and tone. Expert listeners ranked the two recordings according to auditory sort-and-rank procedures created by Confredo, Geringer, Flowers, Brittin, and Parisi (2018). Listeners expressed a preference for the excerpt sung after the a cappella warm-up.

**Alan J. Gumm & Ashley D. Allen (Central Michigan University), &
Katheryn L. Evans (Towson University)**

Conducting functions of an early and a late career choral director: A mixed-methods analysis

The purpose of the present study was to compare two university-level choral conductors, one in early career and one in late career, through a mix of quantitative and qualitative measures of a six-function theory of conducting. A previous line of research factored conducting gestures into mechanical precision, expressive, motivational, psychosocial, physical technique, and unrestrained tone functions, and, in list order, identified the first two as music-oriented, the latter four as *musician-oriented*, odd numbered functions as control-oriented, and even numbered functions as *release-oriented*. A previous mixed-measures comparison of one university's conductors demonstrated distinct priorities logical to the nature of the ensemble, especially the relatively higher priority toward precision in orchestra and greater gesture adaptations to physical technique in band and choir. The present study replicated the mixed-measures design, finding the same as in previous regional and national survey studies that both choral conductors focused on mechanical precision more than expression, yet with experience focused more on releasing tension and control. Comparing concurrent summative measures, average ensemble *Conducting Priorities Survey* (CPS) scores (N=24) correlated strongest with conductor CPS scores and researcher-observed functions for the early-career conductor, and conductor CPS scores correlated strongest with ensemble (N=35) and researcher measures for the late-career conductor. Conductors differed significantly across 5-minute rehearsal excerpts on all observed conducting functions and Pysound3 analyses of choral sound, multiple regression revealing the early-career conductor's weaker effects on a choral sound that was louder, brighter, and noisier, and the late-career conductor's stronger and broader effects on a more spacious and refined choral sound. Triangulation of mixed measures revealed how the early-career conductor was more unconsciously, reactively, and persistently controlling and the late-career conductor was more consciously and proactively releasing of control. Despite differences in initial awareness of conducting functions, all participants grew more conscious and descriptive across ladder stages of interviews when prompted to examine higher-order and then specific functions. The present study adds to previous corroborations of the discriminant, concurrent, and predictive validity of the six-function theory, the validity and reliability of the CPS as a quick measure for research and educational use, and the comparable validity and value of measuring conducting functions from multiple perspectives. Broad implications are that a strict tradition of music-related conducting needs to be updated and expanded to include controlling and releasing musician-related functions, and that the definition of acceptable conducting practices needs to adapt to specific vocal or instrumental techniques and ensemble types.

Julie K. Hagen (University of Hartford's The Hartt School)*Evolving pedagogies: Teaching transgender students in a high school choral program*

Collegiate choral methods courses cover a wide variety of traditional topics but have not typically prepared pre-service teachers to work with transgender students in the high school choral setting. Given that our society is seemingly at a “tipping point” (Palkki, 2016) regarding transgender issues and further, that research about transgender singers in choral music education is scarce, our field is in need of meaningful information and education so that choral music educators can foster inclusive and safe classrooms for their students.

Many choral music educators may very well desire a richer and deeper understanding of transgender issues but do not know where to find quality and trustworthy information. Paradoxically, one only has to peruse comments in online conversations (e.g., Facebook, choralnet) specific to transgender choral singers to realize the lack of compassion and empathy regarding this issue. Palkki (2016) posits that “educators who have never considered trans issues before may feel threatened or intimidated to mentor students with whom they share little or no common ground” (p. 6). This purpose of this study is to better understand the impact that transgender singers participating in a high school choral program have on one teacher’s philosophical and pedagogical choices.

This study, currently in progress, is investigating a high school choral program in which four known transgender students participate. The guiding problems are, 1.) What pedagogical changes (if any) has the high school choral teacher made to support the transgender students participating in her program?, 2.) What type of feedback and/or support has the teacher received from the administration, fellow teachers, and/or the peer group of the transgender students as the program evolves?, and 3.) Has the teacher’s philosophy of how choral music education can serve students changed or evolved as a result of having transgender students enrolled in the program?

Initial findings indicate that both the philosophical and pedagogical choices of the teacher in this study have evolved given the transgender students in her program, including the approach she takes with individual voicing and the voicing of her ensembles. The perspectives of the students in the program will also be shared in the hope that we can learn, grow, and in short, remain relevant in our approach to choral music making in the 21st century.

Sandy P. Hinkley (Sam Houston State University)*Effects of vibrato and pitch-varied vocal models on high school and undergraduate singers' intonation, intensity and use of vibrato*

The purpose of this study was to investigate the effects of vibrato and pitch-varied vocal models on acoustic measures of high school and undergraduate singers' vocal performance. Participants' perception of vocal models was also examined to explore a possible relationship between perception and production.

Participants (N = 76) were undergraduates (n = 40) participating in a choral ensemble at a large southeastern university or high school students (n = 36) enrolled in a nearby choral program. Participants responded to 12 same gender vocal models that were varied in melody, vibrato, and intonation conditions. Vocal models consisted of a pitch pattern and familiar song excerpt performed on the neutral syllable "tah." Model melodies were sung in vibrato and minimal vibrato conditions, with each model having a specific 3rd and 5th scale degree presented as in tune, sharp, or flat (mistuned pitches ± 25 cents relative to ET). After responding to vocal models, participants were asked via written questionnaire if they perceived differences between vocal models.

Participants' recorded responses were analyzed acoustically, with the specific 3rd and 5th scale degrees in each model analyzed for the dependent measures of intonation (cents), vibrato rate (Hz), vibrato extent (cents) and intensity (dB). Repeated measures analyses were conducted on all acoustic measures ($\alpha = .01$). Questionnaire responses were analyzed for frequency of keyword use.

Significant differences in intonation were found, with responses to minimal vibrato models performed more flat than responses to vibrato models. Responses to pitch varied models all tended towards flat intonation, with flat models producing the greatest deviation. Main effects were also found for gender, with male participants showing more flatness than females. Significant differences in vibrato rate and extent were observed, with responses to vibrato models producing faster vibrato rate and wider extent. No vibrato differences were found in response to pitch-varied models. Undergraduates responded with higher intensity to vibrato models, however pitch varied models produced no differences with either group. Main effects for scale degree were observed, with 5th scale degrees performed with higher intensity than 3rd scale degrees. Analysis of questionnaires showed 93% participants perceived differences in models, with vibrato/straight tone (51%), timbre/tone quality (17%) and intonation/pitch (15%) being the most frequently used keywords.

Perception, experience, vocal development, and production were thought to have contributed to results of this study. More research is needed to explore how vocal modeling can consistently be used as an effective teaching strategy.

Jamey Kelley (University of North Texas)*The musical life story of an imprecise singer: A narrative study*

The purpose of this narrative study was to examine the musical experiences of one imprecise or “out of tune” singer over the course of his life. The subject of this study is Frederick, a seventy-two years old man who is challenged by matching pitch. Data were collected in multiple interview sessions and accumulated over ten hours of recorded material. Interviews were semi-structured to allow the researcher to explore different avenues for exploration. Throughout the entire study, Frederick has been a collaborative member of the project; he has examined copies of the transcript and will review future materials to ensure the trustworthiness of the data.

Through the re-storying of Frederick’s life narrative, seminal moments of his musical identity are recounted including his musical tuition in early childhood, his experiences in a middle school glee club, singing to children as a parent, establishing status as a non-singer as an adult (with the exception of congregational singing), and his decision to join a senior adult choir in his seventies. Concurrently within the narrative, the external messages about his singing ability from others are also reflected upon. While data collection and analysis are still ongoing, emerging themes will likely include the struggle to meet cultural expectations of singing (e.g. church, school) despite having difficulties with singing accuracy, external vs. internal feedback on the singing voice, and motivations to participate in singing activities. The presentation will conclude with considerations about future research on the experiences of “out of tune” singers as well as implications for classroom and rehearsal settings.

Janice N. Killian & Andrew K. Kagumba (Texas Tech University)

What remains to be investigated? A review of research involving the voice change among adolescent males and females

Our purpose was to critically examine the state of extant data-based information regarding both the male and the female adolescent voice change with special emphasis on data available from 2012-2018. A particular focus of this review of literature was to identify areas of research involving adolescent voices that remain to be explored. Categories under examination using research prior to 2012 as exemplars, included female Gackle, 2010, 2011) and male (Ashley, 2009; Cooksey, 1976, 1992) vocal physiological development, psychological effects of changing voices for both males (Killian, 1997) and females (Gackle, 2011), timing of onset of voice change (Ashley, 2010; Killian, 1999; Killian & Wayman, 2010), effect of training on voice change (Ashley 2010; Freer, 2010; Leck, 2009), effect of ethnicity or culture on voice change (Fisher, 2010), effect of voice change on adolescent image and social identity (Mills, 2010), and the variety of voice change measurement strategies used.

Our process included reviewing available literature using Music Research Nexus and Google Scholar, and further examining references cited in studies thus identified. We omitted articles related solely on how to teach adolescent voices, and instead searched for articles focusing on empirical evidence, resulting in 96 manuscripts published between 2012-2018. We explored the topics of each manuscript, ultimately resulting in nine categories.

Topics published 2012-2018 included male changing voice (age of onset and retention of males: Ashley, 2013; Fisher, 2014; Freer 2016; 2018), female changing voice (physiological and psychological characteristics: Gackle, 2014; Sweet, 2015; 2018), increased emphasis on identity (Harrison 2016; Parker, 2014), measurement types including categorical and physiological measures, increased use of interviews, increased research related to transgender (Beale, 2016; Manternach et al, 2017), and voices of adolescent pop singers (Demaio, 2016). Manuscript types included more dissertations, self-published manuscripts, reviews of literature, and book chapters than previously.

What remains to be researched? Replication is vital; longitudinal studies are essential. Research is central to the effect of prior singing experience on ease of transition between child and adult voice, social identity, adolescent self-image, effect of ethnicity on voice change; voice changes beyond US and UK (Africa, Asia & South America generally missing; non-western music missing). Existent international research is generally descriptive of programs rather than of individuals and their voices. We included a call for exploration of varied dependent measures, especially related to technology.

Hanna Lee (Texas Tech University)

The effects of four specified kinesthetic movements on perceptual and acoustic measures of choral resonance

The attempt to define characteristics of quality choral tone has been studied by both researchers (Grant & Norris, 1998; Jenkins & Sims, 2005) and practitioners (Cottrell, 2007; Quist, 2008). One of the desirable characteristics of choral tone is resonance, resulting in part from unified vowels (Daugherty & Brunkan, 2013; Hunt, 1970).

Researchers have examined the effect of using kinesthetic movements in choral rehearsal; capturing singers' attention (Atkins & Duke, 2013; Hibbard, 1994), enhancing rehearsal efficiency (Daugherty & Brunkan, 2013) and increasing the understanding of visual and kinesthetic learners (Hibbard, 1994). Practitioners have also agreed on the positive effects of movement and recommended specific uses of movements for unifying different vowels (Meredith, 1995). However, few researchers have examined the relationship between specified kinesthetic movements and the perception of choral resonance from singers and expert listeners.

The purpose of this study was to examine the potential effects of four specified kinesthetic movements on selected perceptual and acoustic measures of choral resonance with the [u] vowel sound. Because prior study (Lee, 2016) revealed that male and female singers responded differently to kinesthetic movements, this study was limited to male university choir singers (n = 27). Judges consisted of a panel of university professors (n = 7) and experienced choral teachers (n = 8).

Data were collected from male choir members at a large southwestern university. As a choir, the men sang [u] vowel with four specified kinesthetic movements on F # below middle C. Two of these kinesthetic movements involved inactive stationary motions. Two other kinesthetic movements involved active motions. In addition to inactive (1,2) and active (3,4) motions, using both hands (2, 3) and only one hand (1,4) was imbedded in the four movements. After singing the [u] vowel with each movement, each male choir member rated each movement on a 1-10 Likert scale according to quality of resonance. The choir was audio-recorded during each motion, and expert listeners rated the randomized audio files, rating each on quality of resonance. In addition, LTAS and a pitch analysis software were used to measure the choral acoustic. Results were compiled in terms of the relationship between perceptual and acoustic (LTAS and a pitch analysis) measurements of resonance.

Andrea Maas (Crane School of Music, SUNY Potsdam)*Musical expression: Making meaning in choral settings*

Musical expression is a critical component to musical experiences but musicians often disagree about the role it should play and how it should be addressed in various settings (Gordon, 1965; Woody, 2000 & 2006). Singers have additional, unique considerations regarding the ways we conceptualize and practice musical expression in choral settings such as lyrics, facial expressions and vocal timbres (Bacharowski & Owren, 1995; Planlap, 1998; Woody, 2000). This phenomenological study used video/audio stimulated recall interviews and observations to explore the ways high school choral directors and singers conceptualized and practiced musical expression. The study was framed by three research questions: How do choral directors and singers conceptualize musical expression? How do choral directors and singers practice musical expression? How might a single ensemble expression be created out of many individual expressions?

Findings of this study are presented with emphasis on specific considerations and approaches toward musical expression for the choral ensemble. The choral directors and singers of this study conceptualized musical expression as a means of conveying and understanding ideas and emotions through a musical text using a synthesis of mechanical, cognitive and affective approaches. They described a meaning-making process requiring teachers and students to draw on previous experiences, assimilating and associating musical stimuli with how they understand themselves and the world. As members of choral ensembles, these singers and directors honored individuality, developed new ways of listening, increased their awareness of others and encouraged group discourse for collaboratively constructing musical meanings.

Implications for how choral directors might approach musical expression with their choirs will be discussed such as: organization of rehearsal and performance spaces, repertoire selection, building relationships, and presenting, reading and interpreting scores. Directors revealed that their approaches to musical expression are heavily influenced by their personal experiences, training, core values and beliefs. The resulting “enculturation” of singers through these expressive practices sheds light on the significant role choral directors play while challenging us to facilitate rather than dictate in an effort to provide ideal environments for musically expressive practices with our singers.

Patrice Madura (Indiana University Jacobs School of Music)*Grief and choral settings of the psalms of lament: Recommendations for high school level choirs*

Choral music educators often try to engage marginalized students through contemporary and entertaining approaches to music-making, but the trauma that many have experienced might draw them to music that helps them express their grief. A body of choral music with a long musical tradition that may serve to meet this emotional need in youth is that based on the psalms of lament. Lament is fundamental to the human experience of loss, and thus, by singing the lament psalms, “the grief experience is made bearable and...meaningful” (Brueggemann, 1995, p. 86). The purpose of this study was to identify choral settings of the lament psalms that are accessible for high school level choirs through a content analysis of major choral resources. Of the 150 psalms, at least 60 have been documented to be lament psalms. A search of secondary sources revealed 666 choral titles in the following four categories: Community Lament Psalms ($n = 80$), Individual Lament Psalms ($n = 400$), Special Penitential Psalms ($n = 147$), and Special Imprecatory Psalms ($n = 39$). The lament psalm texts that have been set most frequently as choral music are Psalms 42 (“As a deer longs for flowing streams, so my soul longs for you...”), 51 (“Create in me a clean heart...”) and 130 (“Out of the depths I cry to you...”). Of the 666 choral titles identified, 109 were available from the following sources: CPDL ($n = 40$), J.W. Pepper ($n = 38$), and the Indiana University Jacobs School of Music Library ($n = 31$). I examined all 109 choral scores, and deemed 88 accessible in terms of difficulty, appropriateness, and ease of purchase or download for high school-age choirs. I delimited my content analysis to those in English, particularly because understanding the text is important to the rationale for conducting this study. Other delimitations I deemed suitable for teenage choirs included a maximum of 6 vocal parts and either a cappella or 1-3 accompaniment instruments. The pervasive reference to “God” and “Lord” is essential to the psalms, but no particular religious denomination is emphasized, making them potentially relevant to many singers; however, their historical importance would need to be emphasized in public school settings so as to avoid any implications of religious coercion.

**Marci L. Major (West Chester University of Pennsylvania) &
Elizabeth Cassidy Parker (Temple University)**

A choral world without hierarchy: A case study of Eisenhower High School

In United States school music programs, hierarchies develop within and among all levels of choral ensembles. While these hierarchies may strengthen self and social identities, they also may engender competition and challenge an individual's growth. The purpose of this case study was to investigate one choral educator's hierarchy-free choral program. The following questions guided our research: (a) What is the meaning of participation for singers, administrators, and the choral educator in a hierarchy-free choral program? (b) What are perceived benefits and limitations or challenges of hierarchy-free choral programs? (c) What are the perceptions of choral hierarchies that students, administrators, and educators have observed?

We purposefully selected Eisenhower High School as an information rich setting that was both unique and common. A high school with approximately 1500 students, Dwight Eisenhower is a northeastern four-year, co-educational school. During his 17-year tenure, Mr. A developed a hierarchy-free program with two non-auditioned curricular ensembles dividing students by age. He also began an extracurricular student-run acappella program. Over a four month period, we collected and analyzed document, interview, field note, and focus group data from 43 student participants, the choral music educator, and two administrators.

Our data analysis uncovered three themes (1) evolving educator philosophy, (2) experiencing tensions, and (3) maintaining quality and resolving challenges. First, Mr. A said, "it's not really about the choir, it's about growing as individuals through a four year experience." To help develop skills like building confidence, learning to speak in front of others, and succeeding in something students could not do at first, Mr. A focused on individual growth through lessons, leadership development, sight-singing curriculum and extra-curricular acappella choirs. Our second theme, "experiencing tensions" became visible through teacher choices, competition among curricular and extra-curricular student leadership, and the presence of unavoidable hierarchies. Third, "maintaining quality and resolving challenges" emerged as participants described challenges stemming from "blurred lines" between curricular and extracurricular choirs, meeting the needs of all students, and the extended benefits of the district's open enrollment policy.

Our findings revealed that while student-created hierarchies existed, especially among leadership positions intended to democratize the choral experience, students expressed musical and personal benefits. While our study cannot be generalized for numerous reasons, exploring the case study of Eisenhower High may benefit educators as they strive to open high school ensemble programs to all students.

Jeremy N. Manternach, Chad Clark, & Chris M. Marple (University of Iowa)

Effects of multiple semi-occluded vocal tract exercises on acoustic and perceptual measures of an SATB Chorus

Choral directors frequently use semi-occluded vocal tract exercises (SOVTEs) during choral warmups. These varied exercises all involve narrowing or lengthening the vocal tract to increase pharyngeal pressure, which has been shown to increase acoustic output while reducing the breath pressure necessary to initiate voicing (“vocal economy”). In a series of pretest-posttest choral investigations, vocalizing through a small stirring straw has corresponded with consistent or increased choral acoustic output. Most choristers surveyed perceived improved choral sound and decreased singing effort after the straw voicing protocols. None of these investigations, however, have explored the effects of multiple SOVTEs with varied occlusions in the same choir. The purpose of this investigation was to measure the effect of multiple SOVTEs on acoustic and perceptual changes of choral sound.

An SATB choir ($N = 14$ choristers) performed a portion of “Weep O Mine Eyes” by John Bennet. They then performed the selection in one of four experimental conditions, the order of which had been randomly pre-determined. They then sang the excerpt a third time. In four consecutive meetings, the choir completed these protocols using one experimental condition per day in the following sequence – (a) large straw, (b) small straw, (c) audiation without singing, and (d) lip trill. Following each session, participants completed a questionnaire regarding their perceptions of the choir’s sound, their own sound, and how much the exercise aided vocal warmup. Nineteen days later, these choristers assessed randomly-ordered audio excerpts of the selection, noting which excerpt had the most pleasing choral sound. Long-term average spectrum analyses provided acoustic data across the entire spectrum (0-10 kHz) and in the area where the human ear is most sensitive (2-4 kHz), which is often associated with more “soloistic” singing (“singer’s formant cluster”).

Among primary results: (a) the small straw condition resulted in very small, statistically significant decreases in the overall spectrum; (b) large straw and audiation conditions resulted in small, statistically significant decreases in the overall spectrum, and lip trill resulted in a more robust increase; (c) large straw and audiation conditions resulted in small, statistically significant decreases in the 2-4 kHz range and lip trill resulted in a more robust increase; (d) singers reported similar levels of improvement in their own singing from the lip trill, small straw, and large straw and reported the least improvement with audiation; and (e) listeners most often perceived improvement from pretest to posttest audio recordings during the small straw condition.

**Nicholas McBride (The College of New Jersey) &
Joshua Palkki (California State University, Long Beach)**

Big boys don't cry (or sing)... still? A modern exploration of gender, misogyny, and homophobia in college choral methods texts

Contemporary research in music education has examined issues relating to gender and sexual identity in choral music spaces (e.g., Freer, 2009a, 2009b, 2010; McBride, 2016; Palkki, 2015). Much of this scholarship is informed by pioneering work by gender scholars in music education (e.g., Koza, 1993a, 1993b, O'Toole, 1998). Especially influential to this canon of scholarship is the work of Koza (1993a), whose analysis of choral music methods texts from 1982-1992 examined gender in school choral programs within a social feminist theoretical context. Her work advanced new understandings of how discourses of gender reinforce and limit notions of acceptable masculine and feminine behavior and how these matters are reflected in texts disseminated to future choral music educators.

This replication of Koza's (1993a) study explored choral methods materials from 2008-2018. Much has changed since 1993, and despite a growing body of research focusing on gender and sexual identity in choral music education (e.g., Aguirre, 2018; Bergonzi, 2009; McBride, 2016; Palkki, 2017; Sauerland, 2018; Southerland, 2018), and a cultural shift in society's acceptance and recognition of LGBTQ and gender non-conforming persons (e.g., Henig, 2017), little is known about how gender and gender-related issues are discussed in choral methods resources used today.

Using Koza's (1993a) content analysis as a framework, the researchers examined how gender is discussed in modern texts assigned by choral music teacher educators and read by preservice teachers. Have modern discourses surrounding gender in society and education influenced the authors of choral methods texts? If so, how?

The researchers uncovered three broad themes in exploring modern choral methods materials: (1) replication of old tropes through citation and repetition, (2) a divide in speaking openly about issues of gender and sexuality vs. coded language, and (3) a recent divide in types of discourse. Several texts repeated many of the same misogynistic and homophobic content cited in Koza's (1993a) study (e.g., Beery, 2009). Some texts, however, have dealt with gender and sexuality issues head on while others employ coded language (e.g., "cute" as possible code for feminine as in Collins, 2012). The researchers noticed a recent shift in discourse in the choral music education community, causing them to wonder whether: (1) we are at a "tipping point" in terms of how we talk about gender and sexuality in choral music education, and (2) if this divide will remain in future publications and more broadly, in choral music education discourse.

Briana Nannen (Marshall University)

“Choir is for girls”: Intersectional mixed methods perspectives on adolescent gender identity, singing interest, and choral music participation

As students progress through adolescence, researchers have observed a lack of male participation in choral music activities. This male to female imbalance is often attributed to a perception that singing is a feminine activity, which often results in a lack of balance in choral music ensembles (Hall, 2005; Harrison, 2004, 2007; Kennedy, 2002; Sweet, 2010; Warzecha, 2013). Although there is a growing body of research on deterrents that keep men from singing (Demorest, 2000; Freer, 2007, 2009, 2010; Harrison, 2007; Kennedy, 2002), little research is done with boys who do not sing. This research study fulfills a gap in the literature by investigating what deterrents keep boys from singing, and to seek that information from boys who do not sing (Freer, 2006; Lucas, 2011).

The purpose of this mixed methods study was to explore adolescent gender identity as it relates to singing interest and choral music participation. An explanatory sequential mixed methods design was used, in which quantitative data were collected and analyzed followed by in-depth qualitative interviews. A group of 9th grade students ($n = 174$) completed the Children’s Sex Role Inventory and the Singing Interest Inventory to gauge their self-perceived levels of masculinity and femininity as well as their level of singing interest. Information from the quantitative portion of this study indicated that girls had both a higher interest in singing and a higher rate of participation in choral music ensembles than their male peers. A significant contribution of this study was that although singing is often perceived as feminine, no significant differences were found between categorized gender groups and singing interest.

Qualitative interviews were conducted with two groups of male students who were not enrolled in choir: low singing interest scores ($n = 4$) and high singing interest scores ($n = 4$). Transcribed and coded interviews resulted in the following themes: low singing interest, Guys are physical, Girls are feminine, Shared perceptions, Guys don’t sing, and Calling them names; high singing interest, Men want muscles, Girls are expressive, Shared perceptions, Choir is for girls, Get made fun of, and No labels. The common theme Shared perceptions suggests that participant perceptions are the same as their parents and friends. The theme No labels was unique to the high singing interest group. Participants in that group demonstrated a higher level of acceptance for atypical gender behavior. This research study offers important and timely insights on adolescent perceptions of singing and choral music programs.

Jessica Nápoles & Kari Adams (University of North Texas), D. Gregory Springer (Florida State University), & Brian A. Silvey (University of Missouri)

Effects of pitch source on pitch-matching and intonation accuracy of collegiate singers

The purpose of this study was to examine the effects of multiple reference pitch sources (tuning fork, pitch pipe, piano, and vocal hum) on collegiate singers' accuracy in pitch matching and intonation tasks. A secondary purpose was to investigate which reference pitch source participants would prefer and for what reason. Participants ($N = 99$) sang a 2-measure excerpt of *Joseph Dearest, Joseph Mine* after listening to the starting pitch of A on a pitch pipe, the piano, a vocal hum, or a tuning fork in two conditions. For one tuning fork condition, participants' starting pitch was an A, the same pitch as the tuning fork. For the other tuning fork condition, their starting pitch was a G, requiring them to transpose by a whole step. We selected two pitches for analysis, the first note of each measure, each corresponding to the first syllable of the word "Joseph." We then analyzed pitch deviation of the two target notes (in cents) from the reference pitch in each condition. Participants were most accurate in response to the piano and least accurate in response to the tuning fork when their starting pitch was a G. Participants expressed preference for the piano (37.12%) as their pitch source, followed closely by the pitch pipe (33.33%).

Bryan E. Nichols (The Pennsylvania State University)

The relationship between interval identification, error detection and stimulus timbre by choral and instrumental music education majors

The purpose of this study was to examine the relationship between interval identification skill and error detection skill in music education majors. A unique contribution of this research was response time measurement for both interval identification and error detection. In addition, the research examined if the teacher candidate's primary performance area (instrument or voice) interacted with presentation mode (instrument or voice). The interval identification test was comprised of 33 items which spanned from C2 to B5. Intervals were presented in melodic ascending, melodic descending, and harmonic formats. Based on previous research, the duration of each pitch was 750ms (quarter note = 80bpm). For error detection items, one of the researchers composed 15 items using parameters established in previous research. Each item was a monophonic melody, two measures long, in common time, and included one pitch error. All test items were created in Finale. Participants completed all four tests in one individual study session.

University students majoring in music education from two schools ($N = 50$) completed a background questionnaire regarding courses and lessons taken. Participants included instrumental ($n = 27$) and choral majors ($n = 23$), and they ranged from freshmen to seniors ($M_{age} = 20.44$ yrs; $SD = 1.28$ yrs). Instrumentalists had completed significantly more courses in theory/aural skills than vocalists $t(48) = -2.767$, $p = .008$, so this factor was used as a covariate in ANCOVAs. A multiple linear regression was calculated to predict error detection performance based on interval identification performance and number of semesters enrolled, $F(2, 43) = 32.629$, $p < .001$, $R^2 = .629$. Both interval identification and number of semesters enrolled were significant predictors of error detection. Response times for piano intervals were significantly shorter for correct responses than incorrect responses ($p < .05$). No main effects or interactions were found between primary performance area and timbre of test item ($p > .05$). Given that aural skills classes emphasize interval identification, this work suggests an important relationship to other important skills not normally taught in the course such as error detection.

Joshua Palkki (California State University, Long Beach)*“My voice speaks for itself”: The experiences of three transgender students in secondary school choral programs*

Recent publications suggest that the U.S. may be at a “trans(gender) tipping point” (Steinmetz, 2014) or a “gender revolution” (Henig, 2017) while research suggests that teachers may be unprepared to honor transgender students in their classes (Luecke, 2011; Nichols, 2013; Payne & Smith, 2014). This session will present data from a multiple narrative case study exploring the musical lives and lived experiences of trans students in high school choral music programs. The two grand tour problems of the study were: (1) to describe how transgender students enrolled in secondary school choral music programs navigated their gender identity in the choral context, and (2) to describe if/how transgender students in secondary school choral programs were supported by groups including their choral teachers, choral peers, and school administrators.

The emergent research design employed narrative inquiry and ethnographic techniques to honor and highlight voices of the three participants. The stories of these three students revealed the importance of context and geography in shaping the experiences of trans youth at school. The data suggest that more and more P-12 teacher will have transgender students in their classes—a claim supported by the broader research literature (Beemyn & Rankin, 2011; Grossman & D’augelli, 2006; Palkki & Caldwell, 2017). Additionally, the connection or lack thereof between voice and gender identity was different for each of the participants—a finding with significant implications for preservice choral music teachers. Unlike suggestions from Miller (2016) and Silveira and Goff (2016), these data suggest a nuanced and personalized approach to voice part assignments is necessary, taking into account the level of connection between a trans student’s voice and gender identity. The policies of the students’ school districts, high schools (administrators), choral programs, and music organizations shaped and influenced how the participants navigated their trans identity within the high school choral context. Well thought-out policies related to gender identity and expression are important as they “can affirm or disavow students’ identities” (Catalano, 2015, p. 425).

The data in this study indicate that mentors and important others helped these students as they traversed their individual gender journeys. It is vital that choral music teachers understand the terminology, struggles, and experiences of transgender students before they enter the P-12 classroom. Teacher training programs, secondary schools, and choral programs can make policy changes, both large and small, in order to better serve trans youth.

Stephen A. Paparo (University of Massachusetts Amherst)*Meanings of participation in Eric Whitacre's virtual choirs*

This study examined self-reported data from singers (N=351) who participated in one or more of Eric Whitacre's virtual choirs. The virtual choir is a mosaic of individually-recorded audio-video performances that are compiled through multitracking to emulate a traditional, in-person choir. It is a relatively new phenomenon and exemplifies principles of online participatory culture (Jenkins, 2009) in a postperformance world (Thibeault, 2012). The research questions, pertaining to the nature and meanings of participation in a virtual choir, were as follows: (1) Who participates? (2) How did participants prepare and record their video submissions, and are there differences based on training? (3) What do participants perceive as the meaning of their participation? (4) Are there underlying dimensions in the meaning construct? (5) Are there differences in meanings of participation based on training and gender? An anonymous, researcher-designed online survey yielded demographic information, Likert-scale responses to 24 item statements, which began with the phrase "I chose to participate in a virtual choir . . .", and open-ended responses to additional survey questions. More than two-thirds of respondents were female, amateur singers from the US who currently sang in a choir and had more than 10 years of choral experience. They reported using a variety of strategies to learn and practice their parts and to record their performance. A Kruskal Wallis test revealed significant differences in hours of preparation and recording between amateurs and professionals. A factor analysis with Varimax rotation revealed six underlying factors, which were labeled Whitacre, musical, inspirational, self, recognition, and communal. These factors suggest that meanings of participation in a virtual choir are multidimensional, which is consistent with prior research (Hylton, 1981; Seago, 1993; Kwan, 2002; Sugden, 2005). Significant differences also existed in meanings based on training and gender. The present study extends prior research on choral music participation and contributes to a growing body of research that has investigated the nature of online musical engagement. Suggestions for pedagogical tools to enhance and extend music learning in and out of the classroom will be discussed.

**Elizabeth Cassidy Parker (Temple University) &
Bridget M. Sweet (University of Illinois at Urbana-Champaign)**

A multiple case study of two inclusive choirs

Safe space stretches beyond classrooms as places of physical safety into where students feel psychologically and emotionally free to take risks, express viewpoints, share knowledge, be themselves, and openly participate (Boostrom, 1998). Though the idea of safe space is familiar within the social sciences, examinations of safe space are scant within music education (Carter, 2011; Hendricks, Smith, & Stanuch, 2014), especially with regard to individuals with disabilities (Haywood, 2006; Lapka, 2016). Researchers who studied music education experiences of individuals with disabilities highlighted that inclusive environments heightened social interaction and empathy (Adamek & Darrow, 2005; Laird, 2016), music served as a unique form of communication (Corke, 2002), and adaptation and varied methods of instruction aided students (Haywood, 2006; Lapka, 2005; VanWeelden, 2001).

The purpose of this multiple case study was to examine meanings of safe space for participants in two inclusive community choral programs. We asked what it was like for participants to participate in inclusive choirs, what strategies they used to engage in safe spaces, and barriers they articulated in sustaining safe spaces. With this study, we sought to address the deficiency on safe space scholarship and support critically needed research with individuals with disabilities.

We chose multiple case study to address complex settings, seeking to understand what was particular and common in two inclusive choral contexts (Stake, 2005; Yin, 2009). Following Creswell and Poth (2018), we limited to two purposive heterogeneous cases to provide a rich data set. Located in a suburb of a large Northeastern city and affiliated with a not-for-profit children's choir program, Choir #1 enrolled youth with disabilities under the age of 18 and volunteer mentors. Located in a small midwestern city and affiliated with a large university, Choir #2 enrolled intergenerational youth and adults with disabilities and team members. Each choir employed a director and accompanist and engaged approximately 40-50 singers at weekly rehearsals.

We interviewed singers, volunteer mentors or team members, and directors, 56 participants in total. We also observed multiple choir rehearsals and collected artifacts. Our data analysis included two levels of coding, and thematic development for each case (Hatch, 2002). Meanings of "safe space" for both cases revealed participants freely expressing joy through music, thriving in spaces without labels, and belonging to a community of friends. In the full paper, we include thick description of case profiles (Geertz, 1973), individual themes derived from data analysis, and focused discussion of cross-case comparisons.

Hernán E. Pineda (Pinellas County Schools)

Gender, choral membership, and ethnicity as factors in students' attitudes toward singing and choral participation in the urban context

Due to recent demographic changes to the student populations in the U.S., urban schools have experienced an increase in their proportion of culturally diverse students (Emmanuel, 2006; Robinson, 2006) prompting music education researchers to address issues specific to urban schools. Yet, there still remains a paucity of research on urban music education, particularly in the field of singing and choral participation in the urban setting at the upper-elementary level (ages 9-11). The purpose of this study was to examine the influence of gender, choral membership, and ethnicity on students' attitudes toward singing, choral participation, and future choral enrollment in urban, upper elementary schools in a school district in the southeastern U.S. Participants came from a convenience sample of four urban elementary schools having culturally diverse populations of at least 50% economically disadvantaged students. I surveyed fourth-and fifth-grade students, both chorus and non-chorus members ($N= 561$). A researcher-modified version of Mizener's (1990) questionnaire on singing interest and choral participation was employed. Through a Cronbach's alpha reliability analysis, the survey yielded satisfactory alpha coefficients (George & Mallery, 2010); attitudes toward singing ($\alpha = .82$), and attitudes toward choral participation ($\alpha = .75$). To ensure that my survey was a valid measure, I employed items from Mizener's questionnaire with the same participant age group (elementary-school students).

Data were analyzed using a three-way multivariate analysis of variance, which indicated that gender and choral membership and their interaction terms accounted for significant differences in the set of dependent variables. Moreover, the Pearson Product-Moment Correlation coefficient revealed positive associations among the three outcome measures ($p \leq .025$). Although the results did not identify ethnicity as a factor accounting for statistically significant differences in the dependent variables, ancillary analyses pointed to tentative evidence that ethnicity impacted attitudes toward choral participation among chorus students. African American students tended to have less favorable attitudes toward choral participation than students of other ethnicities. Yet, Hispanics was the ethnic group with the lowest choral participation rate among surveyed students (37.4%; $n=52$ of 139 surveyed).

Implications for music education practice include teachers' acknowledgement of the role of gender and the implementation of strategies to disrupt gender stereotypes, a redefinition of singing as a socially and culturally constructed behavior, acknowledgement of students' musical interests and practices and, thus, implementation of culturally relevant pedagogy.

Philip Silvey (Eastman School of Music, University of Rochester)*How juniors and seniors in one high school value a musical composition*

Apart from the music they learn in school ensembles, adolescents value musical compositions (primarily popular songs) in their everyday lives (Regelski, 2002). Dewey maintains that instruction begins "...with the experience learners already have" (1938, p. 74). In this descriptive phenomenological study (Polkinghorne, 1989; Finley, 2011), I sought to understand the nature of how high school juniors and seniors value a musical composition.

Some experimental researchers have reduced this complex phenomenon to a matter of preference based on one-time hearings of song excerpts (Baumann, 1960; Ginnochio, 2009; Hargreaves, North, & Tarrant, 2016). Others have examined identity and the role popular music plays in everyday lives of youth (Boyle, Hosterman & Ramsey, 1981; Krause & Hargreaves, 2012; Lamont & Webb, 2010; North, Hargreaves & O'Neill, 2000; Randall & Rickard, 2017; ter Bogt, Vieno, Doornwaard, Pastore & van den Eijnden, 2017). In two studies, researchers analyzed written descriptions to better understand how students valued music in general (Campbell, Connell & Beegle, 2007) or how they valued specific musical compositions (Richards, 1999).

To account for three primary components of a listening situation (person, music, and context), I gathered demographics of participants, invited them to choose one musical composition, and asked them to describe the ways in which they encountered and engaged with the composition (Hargreaves, North & Tarrant, 2016). Through written protocols, participants had time to formulate "retrospective descriptions" of how they valued a specific musical composition (Finley, 2011, p. 97). By remaining anonymous, participants could avoid risks inherent in sharing musical tastes (Richards, 1999). I collected 25 essays from juniors and seniors (4 male and 21 female) who participated in school music ensembles (mostly choral) at a large suburban high school (87% white). Each wrote a 500-word essay in response to the prompt "Choose one composition that you return to because it has particular significance to you. Tell the story of how you came to know this piece and all the reasons you think it is significant to you."

In-depth analysis of essays confirmed experiences that reflected strong emotional ties to one musical composition. Often relationships with significant others (friends or family) and/or memorable events correlated highly with these ties. Participants favored songs with lyrics (84%) and valued these compositions based on interpreted meaning and personal application of text.

Choral music educators could foster similar values toward musical compositions in ensemble contexts by 1) building relationships with students that allow for shared experiences and understandings tied to a musical composition, 2) choosing song texts that allow for individualized interpretation and personal relevance to learners, and 3) allowing a means for exploring text interpretation and its potential significance.

Margaret Marie Stohlmann (University of Washington)

“A brotherhood with one sister,” a collective case study: Women conductors of collegiate men’s choirs

Despite efforts to create gender equity in the work place, there is evidence that gender type-casting and stereotyping is still an issue in the modern work force. In choral music, there are a multitude of female elementary, middle and high school directors working with choirs of all types, gender specific and mixed. However, the numbers change dramatically at the collegiate level. Statistics show men outnumber of women conductors in positions of leadership, despite doctoral programs consistently producing more female than male graduates. Collegiate men’s choirs have unique and storied traditions dating back to the Civil War era and the founding of many prominent colleges in the United States. The culture of these ensembles is founded around the concepts of fraternity, brotherhood, and a few drinking songs.

As our culture shifts toward acceptance of more fluid gender expressions, it is imperative that our choral culture evolves to better serve the needs of our singers and communities. This gender fluidity should include an expectation that women can conduct any ensemble as effectively as men. The purpose of this study was to explore the experiences of female conductors working with college men’s choirs. Three conductors working at various types of institutions across the United States in the beginning, middle and toward the twilight of their careers were identified. I spent a week at each school observing rehearsals and interviewing the conductors and members of their ensembles.

This research was guided by the following questions: How do women choral conductor describe their motivations for working with a college men’s choirs? How do these conductors describe the rehearsal environment in their college men’s choir? And finally, how do these conductors define the challenges of working with male singers? The following areas provided focus for themes that emerged from the conductor interviews: motivation, rehearsal environment, and challenges associated with opportunity and quality literature. These areas were also explored in the student interviews and used to provide additional context and perspective to each conductor’s case. Additionally, the findings of this research shares the stories of these trailblazing women and the communities of brotherhood that they help cultivate and inspire with their singers.

**Christina L. Svec (Iowa State University) &
Bryan Nichols (The Pennsylvania State University)**

Singing voice development and accuracy of children ages 4-18: A meta-analysis

Singing ability has been determined to be developmental, not innate (Atterbury, 1984; Goetze, Cooper, & Brown, 1990; Welch, 1979, 2015). The quantity, types, and variations of singing instruction can be observed through the various pedagogical methods of instruction and empirical research studies on the topic. Three meta-analyses have been conducted regarding the effects of instruction on the singing voice development and singing accuracy of children. Each meta-analysis broadened in scope of research design and age, thus enabling the inclusion of a larger body of data. This fourth and final meta-analysis on the topic will include, and statistically stratify, previously excluded data from previous meta-analyses.

Several characteristics will differentiate the current meta-analyses from previous analyses. The treatment period will include cross-sectional research as well as all treatment periods. Between group and pretest-posttest differences will be expressed with Cohen's d and interval level comparisons will be expressed with Pearson r .

The most laborious step in a meta-analysis is literature search. Thus far, over 100 studies have been considered appropriate for the current analysis regarding the pre-established inclusion/exclusion criteria. Researchers have been contacted to provide additional data, should any exist.

Overall effect sizes within the three previous meta-analyses ranged from small ($g = 0.43$; $d = 0.37$) to medium ($d = 0.53$). The overall effect size of the current meta-analysis is predicted to be comparable. In addition to reporting the overall effect size, effects and confidence intervals will be reported for each study as well as between group and pretest/posttest effect sizes.

Theoretically driven moderator variables have been selected a priori. Data will be coded for primary moderator variables including teaching condition, gender, age, singing task, and measurement instrument. Secondary moderator variables will include publication source, publication year, population, research design, and treatment period.

Previous overall effects have suggested that singing interaction and intervention is a more effective means of developing the singing voice than singing without guided instruction (Svec, 2017). Results from the current meta-analysis are predicted to support and build upon previous findings. Important areas of discussion that have been previously neglected will include singing task across the developmental span, the interaction of age and gender, and implications for current and future measurement instruments.

**Christina L. Svec (Iowa State University) &
Graham Welch (University College London)**

Sing Up: A meta-analysis

The *Sing Up* National Singing Programme was implemented in England for the purpose of providing all children, “with opportunities for singing under high quality vocal leadership both within their school curriculum and outside of school on a regular basis” (Welch et al., 2011, p. 83). Baseline and mid-intervention data was gathered for 12,926 participants from 2007-2011. The purpose of the current study was to apply meta-analytic techniques to this large data-set, thus exposing accessible and generalizable information with practical significance.

For the current meta-analysis, each of the 10 researchers who collected data served as a separate case or study. All other variables served as moderators. Individual and normalized singing scores were collected from participants ($N = 12,926$) using two singing assessments: Rutkowski’s (1997) Singing Voice Development Measure and Welch’s (1998) measure of Vocal Pitch-matching Development. Other variables included age, gender, ethnicity, grade level, singing range, *Sing Up* school type, and research year.

Of the 12,926 participants, 147 included baseline and mid-intervention data. Initial analyses yielded an overall large effect size (Cohen’s $d = 0.86$). Large effects were also found for females pre-posttest ($d = 0.86$). Moderate pre-posttest effect sizes were found for males ($d = 0.79$), children ages six ($d = 0.7$), seven ($d = 0.69$), and 11 ($d = 0.69$). Small pre-posttest effect sizes were found for children ages eight ($d = 0.47$), nine ($d = 0.47$), and 10 ($d = 0.47$).

Initial results are consistent with previous analyses on the data that indicated singing intervention tended to encourage singing voice development overall. The proposed paper presentation will include methodological considerations, effect sizes with confidence intervals for cross-sectional data by study, and moderator variable analyses. Implications will be made regarding the importance of singing interventions with young children.

Allison L. Thorp (Western Carolina University)

Testify, heal, empower: A phenomenological investigation of socially-identified community choirs

Reflecting a conceptual shift in the understanding of music as diverse human practice, researchers have increasingly explored the meaning of music-making as perceived by participants in a variety of settings. In choral music, studies have largely focused on secondary and collegiate students (Adderly, Kennedy & Berz, 2003; Bartolome, 2013; Conway & Borst, 2001; Hylton, 1981; Kennedy, 2002; McCrary, 2001; Parker, 2010, 2011, 2014; Sichivitsa, 2003). Studies of adult community choral ensembles have consisted primarily of white, middle class participants performing western style music (Rensink-Hoff, 2009; Willingham, 2001) or of choirs within severely marginalized populations of the imprisoned and the homeless (Bailey & Davidson, 2003; Cohen, 2009). While researchers have found meaning to be multidimensional including musical-artistic, psychological, and sociocultural domains, such studies have lacked the voices of adults who participate in choirs affiliated with a social identity, a phenomenon increasingly prevalent throughout the United States (GALA Choruses, 2018; Zamir Choral Foundation, 2018; How Sweet the Sound, 2018).

In this qualitative study, I used phenomenological methodology to explore adult choral participation in socially identified community choirs: independent choral organizations (a) unaffiliated with a formal institution such as a church or school and (b) self-identified as being representative of at least one specific social or cultural identity such as gender, race, religion or sexual orientation. Specifically, I gathered demographic, contextual, and perceptual data to elucidate the meaning of choral participation as experienced by singers in a self-identified African American women's gospel chorus, gay men's chorus, and Jewish chorale in a northeastern city of the United States. The 12-week study included interviews with four members from each choir, collection of artifacts, and field observations of rehearsals, performances, and organizational meetings. Analysis followed phenomenological procedures (Moustakas, 1994) and first and second cycle coding methods (Saldaña, 2013). To ensure quality, I used goodness criteria for qualitative studies (Lincoln & Guba, 1985), phenomenology (Crewell, 2015), and phenomenological interpretation (Polkinghorne, 1984).

Across the ensembles, choral singing was found to function as a form of activism. Specifically, members of the choirs used musicking to testify to the social identity community's existence, countering a perceived invisibility among mainstream American culture. Second, singers used musicking to heal from feelings of isolation and oppression related to the social identity. Third, choir members used musicking to empower singers to develop confidence and pride. Findings inform choral directors through a broadened understanding of people's participation in choral music throughout their lives, particularly among a growing type of ensemble involving populations currently underrepresented in the literature.

John Wayman (University of Texas at Arlington)

Content analysis of literature performed by successful urban middle school tenor/bass choirs and pedagogical implications

Students learn in a variety of ways, but some unified conclusions can be drawn from different variables such as geography. Research supports students in urban and suburban areas respond and learn differently (Planas & Gorgorio, 2004). Research also supports selecting appropriate literature for young male choirs experiencing the onset of vocal maturation can be challenging (Chapman, 1991; Reames, 2001). Accompanied by the knowledge that urban students learn differently, identifying successful literature for the middle school adolescent male choirs could be even more challenging than usual (Anderson & Denson, 2015). This study presents a content analysis of the literature of successful middle school tenor/bass choirs from urban areas spanning a ten-year period.

Contest records of successful 6th, 7th and 8th grade tenor/bass choirs in seven urban school districts in the Southwestern region of the United States were examined. Success was defined as receiving an overall contest rating of superior or excellent. Titles were tracked and identified by grade level 1, 2 or 3 (predetermined levels of difficulty) and as accompanied or a cappella. A content analysis was conducted on the most successfully performed selections identifying: key, voicing, range, tessitura, melodic contour, meter, tempo, rhythm patterns, genre, style, language, length and subject matter. Results yielded a compiled list of the most successful literature and categorization of the musical components related to that literature. Implications are discussed in relation to pedagogical approaches for choral teaching in urban areas and music teacher preparation resulting in the success of urban tenor/bass choirs.

Results indicated the most popular songs performed at contests and the most successful songs performed, overall, were not the same. Characteristics of most successful songs for beginning middle school Tenor/Bass groups were: English, under two minutes in length, in cut-time, two parts (tessituras: Tenor- A3-C4 & Bass- D3-G3), binary in form, homophonic, melody consist of step-wise motion with leaps of thirds in the tonic key, limited dissonance, limited dynamics, and repetitive rhythm patterns. As the difficulty level of songs increased, noticeable areas of change were: expansion quickly into three and four-part singing, greater use of repetitive syncopated rhythms, expansion of dynamics, and additional use of Italian and Latin languages. Implications continue to support the need for more training in literature selection for greater success with Tenor/Bass choirs.

Adam G. White (Northwestern University)

“I’m a teacher, what’s your superpower?” The narrative of Christy, a secondary choral music

teacher with congenital hearing loss

Teaching music is a hearing profession. Yet, there are professionals among us who have lived with hearing loss and continue to teach. Many might consider the loss of one’s hearing to be a career ending occurrence. Christy’s story demonstrates how an individual with hearing loss can survive and thrive as a secondary choral music teacher despite congenital hearing loss. Important social issues surrounding hearing loss and hearing health will be addressed. Narrative inquiry is an approach to qualitative research where the important aspects of an individual’s life are told. “Narrative inquiry is a way of understanding experience. It is a collaboration between research and participants, over time, in a place or series of places, and in social interaction with milieus” (Clandinin & Connelly, 2001, p. 20). The unique nature of this

study, both in time-frame and focus, make this study an oral history. I gathered Christy’s personal stories about events and her meanings of those events. Among the data I collected were four hours of one-on-one interviews, in person and by Skype and 20 hours of direct classroom observation and interactions with peers. Other data included field notes, and material culture in the form of documents, recordings, and photos. I transcribed the interviews and coded them through an open and closed coding process (Creswell, 2013).

Christy started singing when she was a child. Her first professional gig, she jokes, was singing “I’m a Little Teapot,” for the local Lyons club in her midsized, Midwestern home town. She was five years old when her mother discovered there was a problem. Standing on the family carport and calling to Christy, who was looking the other way and not responding. Finally screaming to get her attention Christy’s mother said, “I’m taking you to the doctor and you’d better hope your deaf.” Unfortunately, she was, at least under the legal definition. Despite her hearing loss, music has been a constant in Christy’s life. Despite struggles with hearing loss, Christy has learned to find success leading a choral classroom.

Christy’s story is discussed in terms of implications for present or future music teachers. Her unique story offers perspective on hearing loss and brings to light relevant issues surrounding the stigma of hearing loss and the importance of hearing preservation efforts among musicians. It is our hope, that telling Christy’s story will bring about positive change for musicians with and without hearing loss.

Hyesoo Yoo (Virginia Tech)

A motivational sequence model of high school choral students' intentions to continue participating in music and choral ensembles

The primary aim of this study was to test an extended version of Vallerand's motivational sequence (Social-Contextual Factors → Psychological Needs → Motivation → Consequences → Intention to Persist) in a high school choir setting. A secondary purpose of this study was to determine whether the extended motivational sequence provides different results between male and female students.

Drawing on the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM) (Deci & Ryan, 1985, 1991), Vallerand (1997) proposed the following motivational sequence: "Social-Contextual Factors → Psychological Needs (autonomy, competence, relatedness) → Motivation → Consequences." In this study, the researcher expanded on Vallerand's motivational sequence by adding a variable, "Intention to Persist," to the end of the motivational sequence as the last step. The researcher used this extended model to explain the conditions under which high school choir students formulate their intentions to continue participating in music. Based on previous studies within the HMIEM, four social-contextual factors that are related to motivation were adopted in this study: (a) autonomy support (e.g., involve students in decision making), (b) structure (e.g., set clear rules, provide optimal challenges, and offer informative feedback), (c) interpersonal involvement (e.g., the interpersonal relationship among individuals), and (d) promotion of mastery orientation (e.g., emphasize individual effort and progress).

Three hundred and twenty high school choir students from southeastern United States participated in this study. After providing informed consent, participants completed a multiform questionnaire that included The Perceived Environmental Supportiveness Scale (Stornes, et al, 2008), Psychological Needs Scale (Evans, et al, 2013), Learning Self-Regulation Scale (Deci and Ryan, 1985), Consequence Scale (cognitive: Ntoumanis, 2003; affective: Ebbeck & Weiss, 1988; behavior: Ames & Archer, 1998), and Music Intention Scale (Sichivitsa, 2003).

Results revealed that students experienced greater need satisfaction (autonomy, competence, and readiness) if they perceived their teachers as being supportive of their decisions, as providing clear feedback and rules, as engaging with them in an empathetic manner, and as emphasizing individual student improvement. Need satisfaction, in turn, enhanced intrinsic motivation, which led to ensemble-related outcomes for students, such as more concentration, positive affect, and preference for challenging tasks. Subsequently, these outcomes positively predicted students' intentions to continue with their musical activities. The multistep invariance analysis also revealed the model to be invariant for males and females. The findings offer us a better understanding of the psychological process involved in high school choir students' motivations and intentions to continue with their musical activities.