

A MIXED METHODS INVESTIGATION INTO SINGLE-SEX CHORAL ENSEMBLES AT
THE MIDDLE-LEVEL

By

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Nathan Dame

Submitted to the graduate degree program in Music Education and Music Therapy and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Music Education.

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A Dissertation

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Abstract

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The study merged simultaneously collected data from quantitative and qualitative sources to provide a greater depth of understanding of the research problem, thus aligning with Creswell and Plano Clark's (2017) convergent mixed methods design. Quantitative data were collected through the Survey on Single-Sex Choral Offerings (SSCO), a nationally-distributed survey disseminated to members of NAFME, TMEA, and state ACDA chapters who also self-identified as middle school/junior high choral music educators. Survey data were analyzed using descriptive statistical measures. Qualitative data were acquired through interviews of four middle-level choral directors who had recently separated their choirs into single-sex ensembles. Participants were demographically diverse, representing various geographical regions, school settings, type of school, campus socioeconomic status, and teaching experience. Data were transcribed, and coded into mutually exclusive categories, allowing themes to emerge.

The findings demonstrated that organizational designs varied among programs, with mixed-voice choirs the most common voicing used by responding choral directors. Director motivations for including either single-sex or mixed-voice choirs encompassed musical, organizational, psychosocial, physiological, and behavioral influences, yet the importance of each varied among those selecting single-sex versus mixed-voice choirs. Directors reported varying ease when facilitating change to include single-sex classes, used a variety of strategies and key players to do so, and experienced similar difficulties when presenting change initiatives.

While many of the programs with mixed-voice choirs preferred such designs, responses indicated either an interest or previous attempt by some directors to separate classes into single-sex ensembles. Recommendations for future research, implications for music education, and a conceptual framework for separating choirs into single-sex choirs were discussed, based on the results and responses of participants.

Keywords: single-sex, homogeneous, choir, music, middle school, junior high, middle-level

Acknowledgments

I lift up my eyes to the mountains - where does my help come from? My help comes from the Lord, Maker of heaven and earth. (Psalm 121:1-4)

The journey to completing this degree has been filled with many meaningful moments of learning, reflection, and personal growth. For this dream to become a reality, I have relied on the wisdom and strength of many individuals. These words only begin to acknowledge my gratitude and appreciation for all of your love and encouragement.

I would first like to thank God, whose steadfast love and strength has helped me rise from the valleys of life, led me to the path up the mountain, and provided me with the foundation necessary to complete the tasks associated with this degree.

To the participants of this study, thank you for your willingness to complete surveys and interviews after long hours in the classroom. Your passion for choral music not only inspires your students, but so many around you. I pray that this document tells your stories and is as impactful as you are each day.

This document would not be possible without the mentorship and guidance of my advisor, Dr. Debra Hedden. Your leadership and insight over the years I have been your student have pushed me to be a better researcher, author, pedagogue, and person. I am forever indebted to you.

To Dr. Thomas DeLuca, Dr. Melissa Grady, Dr. Christopher Johnson, and Dr. Paul Tucker, thank you for your willingness to be a part of my committee and for the wisdom and expertise that you provided.

Throughout my time as a student, I have been shaped into the person I am today by many individuals. To my former teachers, thank you for the innumerable lessons you have taught me. Suzanne Hughes, Ann Smith, Dr. John Paul Johnson, and Dr. Vicki Baker, thank you for

inspiring me through your passion for choral music education. I strive each day to make you proud. To my middle school choral director, Mark Baker, words cannot express how lucky I was to step into your classroom in seventh grade. I will forever consider your mentorship to be one of my life's biggest blessings.

To my students, current and past, I dedicate this dissertation to you. Your passion for singing and life encouraged me daily to grow as an educator and be the best I can be for you.

I could not be where I am today without the constant love and support of my family and friends. To Barbara Brady and Jennifer and Kris Antonetti, thank you for being friends who are always there for me. To my parents, thank you for your unwavering support, no matter the miles that separated us. To Dean & Judy Bevan and Charles & Jo Ann Hays, thank you for always being just a phone call away and being my "home away from home."

Finally, to my wife Ashley: we made it up the mountain! Never does a day go by where I do not consider you my favorite choral director, biggest cheerleader, and best friend. Thank you for your love from near and afar, your reassurance that everything would be okay, and for pushing me to begin this journey. I am so proud to summit alongside you and know you will always be my partner in the many trails of life.

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CHAPTER ONE

Introduction

Choral ensembles are found throughout America in schools, communities, and churches varying in size and purpose. Over time, choral music ensembles have developed into an eclectic mix of voicings, levels, and abilities. Mixed choirs, all-female choirs, children's and youth choirs, and all-male choirs are heard in performances throughout the country on a regular basis. The history of the composition of choirs, however, has undergone changes over time.

The development of American choral ensembles began first in the church and were modeled after European musical traditions (Mark & Gary, 1999). In Colonial America, immigrants brought a passion for singing to America, thus laying the foundation for church choral ensembles and, eventually, American music education. In line with cultural norms of the time period, singing schools largely educated male students (and were also taught by male teachers), though choral ensembles slowly transitioned to include both men and boys. Eventually, females were added to create the mixed-voice choral offering common today in America (Mark & Gary, 1999).

Today the predominant voicing of school choirs at all levels is mixed-voice (e.g., Carp, 2004; Dame, 2017a, Williams, 2011), though many directors choose to include single-sex choirs in their program designs (e.g., Barham, 2001; Jorgensen & Pfeiler, 2008; McClung, 2006). Yet, as choral ensemble types have evolved over time, so has a problem within the choral community: recruiting and retaining male singers in choral ensembles, especially during adolescence. This troubling trend can be found in numerous commentaries (Ackerly, 2009; Adcock, 1987; Demorest, 2000; Eshelman, 1992; Freer, 2007; Harrison, 2004; Reed, 2004; White & White, 2001; Zemek, 2010), research studies (Lucas, 2011), dissertations and theses (Castelli, 1986;

Dame, 2011; Williams, 2011), and within choral methods textbooks (Brinson, 1996; Phillips, 1996, 2004; Roe, 1994).

Whereas mixed choirs are the most common voicing in school choirs, single-sex choirs (particularly treble choirs) are often created due to enrollment imbalances between females and males, which over time have remained relatively steady at a ratio of three females for each male singing in choir (Rodgers, 1926; NASSP, 1984, 1996; O'Toole, 1998; Williams, 2011; Dame, 2017a). While commentaries and research studies have discussed this problem for years, little progress in the area is evident. Researcher and choral music educator Patrick Freer (2007) described the numerous challenges of adolescent males in choral ensembles today: "A boy faced with choral repertoire he doesn't like, a changing voice he doesn't understand, and instruction he finds boring will become a boy who proclaims he hates school music and disengages from choral music. Forever" (p. 32). One might suggest that adolescent physiological change, teacher pedagogical decisions, and motivations to sing may appear to merge into a precarious situation at the middle-level for all stakeholders.

The middle years are the most critical time for the formation of habits that promote academic achievement for adolescents (Clewell, 2002); therefore, the music teacher's pedagogical approaches at this level may benefit from holding equal focus on musical and academic achievement. In an open letter to members of the American Choral Directors Association, Van Camp (1987) addressed the importance of exemplary instruction during the ages of critical development:

We have it all backwards in this country anyway. The finest teachers should be in the grade schools, where habits and attitudes are formed. Instead, we give the praise and attention to the professional conductor, the college conductor, and the high school

conductor, in that order...Junior high teachers are generally only at that level until they can get something at a 'higher' level. They are well aware of the 'pecking order' we have established. (p. 15)

Pedagogy during adolescence is difficult, no matter the subject. During the adolescent years, choral music educators might consider the benefits of combining the psychological and sociological challenges of adolescence with the physiological changes associated with puberty, particularly voice change. The biological, behavioral, vocal, and pedagogical needs of adolescents differ greatly by sex, though choral directors are often not trained on the needs and differences of each sex and how to instruct them in the classroom (Martino, et al., 2005; Wicks-Rudolph, 2013). "There are few differences in what girls and boys can learn," noted psychologist Leonard Sax (2017) reported, "but there are big differences in the best ways to teach them" (p. 103).

Single-Sex Education

One way that addresses instruction for adolescents is separating students into single-sex classes. Division into single-sex classes allows the teacher to instruct to the strengths of each sex (Martino, et al., 2005). During the 2014-2015 school year, 283 single-sex schools existed in America, with Florida and Texas leading the country with 29 schools each (Mitchell, 2017). Advocates for single-sex classrooms commonly discuss the challenges of reaching both sexes simultaneously in coeducational classrooms due to the numerous physiological and emotional sex differences. John Zazzaro, a practicing single-sex classroom teacher, describes the phenomenon:

Teaching young adolescents in the coed classroom is like teaching multilingual

classes—with several languages going on at once, the boy language, the girl language, and the teacher language. Everyone is thinking differently and reacting differently to information, so the benefits of separating boys and girls to cut down on the natural communication differences makes sense (Gurian, et al., 2009, p. 52).

The debate for and against single-sex instruction spans all disciplines and many of the debates found in non-music subjects mirror those within choral music education (e.g., Chadwell, 2010; Spielhagen, 2008).

Single-Sex Choral Music Education

Specific to middle school and junior high choral music is the debate on separating choirs into homogeneous ensembles to cater to specific physiological needs (Adcock, 1987; Barham, 2001; Kennedy, 2004; Zemek, 2010), improve psychosocial views of choral singing (Clements, 2002; Cox, 2002; Lucas, 2007) enhance pedagogy and performance (Barham, 2001; Bazy, 2010; Canfield, 2009; Freer, 2007; Patton, 2008; Van Camp, 1987), and increase male enrollment and retention (Barham, 2001; Carp, 2004; Dame, 2011, 2017a, 2017c). Though a preponderance of research addresses the lack of males in choral music through initiatives such as all-male choirs, choral directors must strive to use single-sex choirs to serve equal among sexes and avoid unintentional bias (O'Toole, 1998).

Choral music educators who teach single-sex choirs often split their students into all-male and all-female choirs to facilitate enrollment imbalances (Hawkins, 2015) and to encourage enrollment (Barham, 2001). Commentaries within the field go so far as to guarantee that separating students into single-sex classes will lead to enrollment increases in male students at the middle-level:

[Sex] separation in the junior high/middle school vocal music program has been

discussed for many years. Oftentimes scheduling problems interfere with the concept, but with positive requests and information to counselors and administrators, this problem can be solved. Separating the sexes is a guarantee for getting more boys into the choral program. (Cox, 2002, p. 68).

Regardless, a “delicate and interconnected ‘ecosystem’ is required for boys [and girls] to maintain engagement in their musical activities” (Collins, 2009, p. 33; Hawkins, 2015).

Review of research fails to account for choral ensemble enrollment imbalances by sex as no one-dimensional approach has been proven to level retention rates between males and females (Hawkins, 2015). Though many directors successfully include single-sex choirs at the middle-level, others face numerous challenges, including administrative resistance, scheduling difficulties, small class sizes, unequal audition expectations for females, and unintentional favoring of male singers over female singers (Nycz, 2008; O’Toole, 1998; Wilson, 2012). Others simply prefer mixed-voice sonorities and opportunities for interactions between sexes (McClung, 2006).

Need for the Study

While the benefits of single-sex choirs at the middle-level appear to be numerous and seem to meet the needs of students within multiple domains, research related to director motivations to include or reject these choirs in programs is scarce. No known study to date has comprehensively examined the frequency of single-sex choirs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. Shifting the existing educational offerings and priorities of a choral program requires a mindset for organizational change. Over the last half century, social scientists have spent a great amount of time on how organizations work, how they should work, and how

they fail (Bolman & Deal, 2008). Change of organizations, whether they be business-, education at large, or choral-focused involves the reframing of existing ideas, and the willingness to create might best be focused on improving results, which in this case, centers on the offering of single-sex choirs to better meet the needs of the students. This is accomplished through intentional leadership with an eye on accomplishing results, using change as a positive means to achieve those results, and meeting the needs of the constituents, which in this case, is the students.

The leader must be an extraordinary agent for change. In this world of rapid change and discontinuities, the leader must be out front to see the need for change, to encourage change and growth, and to show the way for bringing it out. (Neuschel, 2005, p. 7).

Educational change is common in today's schools, as leaders strive to best meet student needs and improve student performance while meeting state and national standards. Single-sex schooling is one such change initiative developed to better meet student needs; however, the change process is lengthy and includes, but is not limited to (a) developing a rationale, (b) collecting data, (c) addressing facilities and scheduling needs, (d) researching and observing existing single-sex schools, (e) understanding legal impacts, and (f) communicating change initiatives with others (Chadwell, 2010).

As an example of change, directors have repeatedly found success with single-sex choirs at the middle-level. Yet while programs throughout the nation find successes with this design, it is not the common organizational strategy by directors at this level. My successes with this organizational change have come with responsibilities, as conductors from other middle and junior high schools have reached out in hopes of embracing change and finding similar growth. After discussing the change with me, directors returned to their administrations to present the proposal, receiving mixed results. Some were quick to agree, while others rejected the idea

because of difficulties in scheduling, funding, and/or potential legal impacts. As I sought to better mentor teachers wishing to adopt this strategy, I could find little to no empirical research to assist their claim. Thus, my responsibility – and now research goals – have shifted from mentorship to pragmatic, action-driven researcher. Looking through a larger lens, the changes of the organizational design of choral programs help to create change within those who sing in them.

The benefits of choral singing are numerous, well-documented, and include improvements to the singing voice, growth of self-confidence and pride, lifelong appreciation for music, and development of leadership and teamwork skills, to name a few (e.g., Bailey & Davidson, 2002, 2005; Clift et al., 2010; Clift & Morrison, 2011; Judd & Pooley, 2014; Pearce, et al, 2015; Pérez-Aldeguer & Leganés, 2014; Stewart & Lonsdale, 2016; Teater & Baldwin, 2012). Our choral ensembles strive to reach students daily through inspiring lessons, repertoire, and real-world connections. The American Choral Directors Association (ACDA) lists its purposes for our most cherished professional organization, empowering school choral music educators to foster and promote (a) choral singing, which will provide artistic, cultural, and spiritual experiences for the participants; (b) the finest types of choral music to make these experiences possible; (c) rehearsal procedures conducive to attaining the highest possible level of musicianship and artistic performance; (d) the organization and development of choral groups of all types; (e) understanding of choral music as an important medium of contemporary artistic expression; and (f) the promotion of significant research in the field of choral music (American Choral Directors Association, n.d.).

As educators have the ability to inspire lifelong appreciation for singing through choral ensembles, as a profession, we owe it to them to investigate strategies that may be effective in increasing enrollment and achievement, particularly in the critical middle years.

Purpose of the Study

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The study used a convergent mixed methods design to ascertain (a) the frequency of single-sex choirs in middle-level choral programs, (b) director motivations to form or reject single-sex choirs, (c) perceived and observed barriers to creating single-sex choirs, and (d) action-oriented strategies for including single-sex choirs in middle-level choral program designs.

Research Questions

The following research questions guided this investigation:

1. What organizational designs (e.g., single-sex, mixed-voice, combination) exist in middle-level choral programs? Specifically, what is the reported number of single-sex and mixed choirs within school music programs?
2. What are directors' motivations for single-sex or mixed-voice choirs at the middle-level?
3. For programs with single-sex choirs, were structural designs inherited or changed to include single-sex choirs? For those successfully implementing change, how was change facilitated, what strategies were used, what players were involved in the change process, what (if any) difficulties were experienced?

4. For programs with only mixed-voice choirs, would directors adopt the single-sex environment if possible, and if so, what are the barriers to doing so?

Operable Definitions

Heterogeneous. Defined as “diverse in character or content,” this term includes mixed-sex classrooms and mixed-voice choirs containing both male and female students (American Heritage, 2018; NMSA, 2002).

Hierarchy of choirs. Defined as “any system of persons or things ranked above one another,” for the purposes of this investigation this term is defined as how choirs segue into one another from beginning level choirs to more advanced within the choral program (American Heritage, 2018).

Homogeneous. Defined as “of the same kind,” this term includes single-sex classrooms and choral ensembles, including both all-male and all-female choirs (American Heritage, 2018; NMSA, 2002).

Junior high school. Junior high schools usually consist of grades seven-through-nine, though some schools exist that include grades five-through-nine, six-through-nine, or grades eight and nine (NMSA, 2002)

Middle-level. The term middle-level was first used in the 1980s by the National Association of Secondary School Principals to include any configuration of schools that include grades five-through-nine (Clark & Clark, 1994; Valentine, et al., 1993). This term shall predominantly be used throughout the current study.

Middle school. Middle schools commonly include grades six-through-eight, but some may group grades seven and eight, five-through-eight, six and seven, or five-through seven (NMSA, 2002).

Mixed-voice. For the purpose of the current investigation, the term mixed-voice shall refer to choirs that contain both male and female singers. While mixed-voice choirs can include

ensembles of all-males (e.g., boychoirs), mixed-voice is chosen rather than mixed-sex for cultural appropriateness.

Sex and gender. The term *sex* will refer to the biological and physiological differences separating males and females while the term *gender* will address social constructs, including behaviors and tendencies considered to be “masculine” or “feminine” (Palkki, 2015).

Single-sex and single-gender. Though these terms are often used synonymously with one another, this study will use the term *single-sex* to include all-male and all-female choirs rather than *single-gender*. While social constructs indeed impact enrollment and motivation at the middle-level, students are grouped for their biological and physiological differences rather than by social definitions (Wicks-Rudolph, 2013).

Assumptions, Limitations, and Biases

This study holds the major assumption that choral directors may consider the desire to include single-sex choirs in their choral program designs. Many middle-level choral directors enjoy and find success with mixed-voice choirs and their reasons are supported through their pedagogical efficiency, performance achievements, and in some cases, invitations to perform at state, regional, and national music conferences. While success can be found in most school environments with the right administrative supports and through excellent music education, the goal of the current investigation is to examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The primary limitation of the study is the number of participants who respond to the survey and who agree to be interviewed for data gathering. In contrast, the major delimitation is the particular choral organizations utilized to disseminate the survey and to identify potential interview participants.

Organization of Document

Chapter Two reviews extant literature relevant to middle-level education, choral music education, single-sex schooling, and single-sex choral music education. The convergent mixed methodology design, procedures, participants, data collection practices, and integrative methods are identified in Chapter Three with the final two chapters presenting results organized by order of research questions; this is followed by discussion and interpretation of those results, complete with implications based on the results. Appendices include study consent forms and informational statements, the quantitative survey, and a list of qualitative interview questions.

CHAPTER TWO

Review of Literature

This chapter outlines research from the fields of middle-level education; same-sex instruction; adolescent physiology, psychology, and sociology; middle-level choral education; and same-sex choral music to review existing investigations related to the current topic. Studies are organized by topic, first through the lens of impacts within the general education setting, followed by those specific to homogeneous middle-level choral music education.

Historical Contexts

Development of middle-level education. American middle-level education developed from calls for educational reform near the turn of the twentieth century, as the one-room schoolhouse became increasingly unable to meet the demands of an ever-changing, industrial society. In 1888, the National Education Agency formed a committee of ten to study the effectiveness of schools. After meeting, the committee, led by chairman Charles Eliot, felt schools wasted too much time near the end of primary school and recommended creation of two levels of schools: one to serve elementary students (grades one-through-six) and one for secondary students (grades seven-through-twelve) (Powell, 2005). Between the time of the committee recommendation and the formation of the first junior high school, schools often were crowded and did not fully serve the entire American school-age population. From 1889 to 1909, schools enrolled approximately 80% of the overall 5- to 17-year-old population, with average class sizes approaching 35 students per teacher, and less than 10% of 17-year-olds graduating from high school (National Center for Education Statistics, 1993).

In 1909, the first junior high school was created in Columbus, Ohio in hopes of better meeting the educational needs of adolescents (McEwin & Greene, 2011). Since their creation,

junior high campuses rapidly grew in popularity to include 883 campuses in 1920. By 1940, over half of all American students attended a junior high school (NMSA, 2002). While junior high campuses became the predominant organizational structure for teaching adolescents, these schools were not exempt from the demands of World War II, as schools reduced numbers of class periods, allowed students more time to complete schoolwork during the day, and cut operating costs where possible (Mark & Gary, 1999). Following the war, districts made few changes to their junior high schools, with many maintaining limited schedules by choice, thus reducing course offerings for students. Post-World War II advancements in technology spurred discussions by educational leaders on the effectiveness of schools and curricula that could compete with an ever-changing global landscape, led primarily by technological developments by the Soviet Union (Mark & Gary, 1999).

While schools were often slow to change their operational procedures, innovations were propelled by calls for change that stemmed in part from dissatisfaction with what the junior high school educational model had become since its inception (Alexander, et al., 1969). Reformists sought change to middle-level structural designs that would embrace the needs of a performance-driven society. They recommended creation of a grades six-through-eight middle school that acknowledged the earlier onset of puberty in adolescents, had a more stable school climate, eliminated crowded conditions, provided age-appropriate programs, moved grade nine to the high school, better bridged gaps between elementary and high school, utilized new facilities, and aided in desegregation (Alexander, 1968; Powell, 2005). Their arguments appeared successful as the first middle school opened in Bay City, Michigan in 1950 (Hill, 1982).

Overviews and history of single-sex instruction. “Reform often brings the educational community full circle to organizational structures that were common in former times,” claimed

single-sex advocate and author Frances Spielhagen (2008, p. 1). In the United States, single-sex education for men was offered through the country's first colleges, including Harvard (1636), William and Mary (1693), Yale (1716), and the College of New Jersey at Princeton (1746) (Rudolph, 1962). The early 1800s brought the founding of women's seminaries and the creation of the first women's college, Georgia Female College, in 1836 (Harwarth, et al., 1997). Collegiate coeducation was spurred by the passage of the Morrill Land Grant Act and the formation of land-grant colleges, all of which were coeducational (Rudolph, 1962). By 1890, all-male colleges reached their peak of 400 campuses, but were surpassed in popularity by the country's 465 coeducational colleges; women's colleges accounted for the other 217 college institutions (Harwarth, et al., 1997; Rudolph, 1962; Solomon, 1985).

Throughout the 19th century and into the turn of the 20th century, single-sex classes were a common arrangement in secondary grades. The original purpose of single-sex classes was to provide opportunities for students, particularly those at the middle-level, to focus more on their academic learning rather than on social concerns, and to provide safe and comfortable places for learning (Blair & Sanford, 1999).

Societal changes during the Progressive Era, including claims by philosopher John Dewey for a comprehensive high school for all students, led to numerous shifts in the curricula and organizational structures in American education, including a trend toward co-educational instruction (Spielhagen, 2008). According to Ferrara and Ferrara (2008), single-sex schools were expensive to operate and schools eventually transitioned to co-educational environments. Those that kept single-sex environments were commonly private schools, who saw them as a status symbol of quality education absent in many co-educational environments. Eventually, high

operational costs, politics, and societal pressures led many private schools to abandon single-sex environments in favor of co-educational settings.

While single-sex education still existed in some schools, public schools largely remained co-educational throughout the 20th century (Spielhagen, 2008). Those looking to support new educational initiatives such as single-sex education faced numerous political and legal obstacles, particularly through the passing of Title IX in 1972, which stated: “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance” (United States Department of Labor, 2011). The passing of the educational reform initiative No Child Left Behind in 2006 helped to relax standards in hopes of improving educational outcomes and creating more opportunities for innovation within the field (Spielhagen, 2008).

In the 2014-2015 school year, there were 283 single-sex public schools in the United States (170 of which were all-male schools). Florida and Texas lead the country each with 29 single-sex schools while seven states had no single-sex schools (Mitchell, 2017). Single-sex schools are predominantly located in urban and rural areas, include students who are largely female, enroll predominantly black and Latino students, and include students who are one-and-a-half times as likely to qualify for free- or reduced-lunch (Mitchell, 2017).

American vocal/choral music participation. The changes found within American schools and educational policies appeared to mirror changes within the field of choral music education. In essence, what affected the total educational system in America was visible in music programs, specifically those in vocal and choral music in our schools.

Pre-1900. In Colonial America and into the 19th century, choral singing was dominated primarily by males, who were active in both religious and community settings. Men often led song in church worship services and congregated together to sing in formal all-male singing societies and other informal settings (Gates, 1989). As America transformed into a more industrially-driven society, males became less likely to be active singing in the church and slowly began to relinquish their religious singing responsibilities to women and children (Eaklor, 1982). Singing outside of the church, however, experienced rapid growth, especially in metropolitan areas. The first singing society formed in 1815, and other ensembles including male glee clubs and Mannerchor groups were quick to follow (Birge, 1928; Collins, 1993; Jones, 2008; Thomas, 1962).

In an effort to improve singing and boost its status within society, singing schools were developed, such as those among Boston's elite (including men, women, and children) attending these schools in hopes of improving music literacy and vocal ability (Birge, 1928). During the 19th century, some singing schools transitioned to single-sex environments, particularly with females, who began to show more interest in singing and taking music lessons as the century progressed (Campbell, 2003; Koza, 1990).

Boston's interest in singing schools served as motivation for music in the public schools. In 1836, citizens submitted two petitions to include vocal music in the school curriculum (Mark, 2008). Spearheaded by advocacy efforts by Lowell Mason, the district school board approved the community petition in 1837 and the first music instruction in American public schools occurred during the 1837-1838 school year (Mark, 2008). Music education offerings quickly expanded, both in Boston and cities across the country, including Cincinnati, Memphis, Saint Louis, Terre Haute, Cleveland, and Columbus.

Twentieth century. While vocal music education offerings in the schools continued to develop and expand into the 20th century, singing as part of American culture experienced dramatic changes during this time because of numerous political, cultural, and sociological influences, most notably World Wars I and II and the Space Race (Gates, 1989). During World War I, singing was seen as a morale booster, community builder, and was required of all military personnel by President Wilson (Campbell, 1944). Singing in mess halls, barracks, and in other informal gatherings was commonplace (Campbell, 1944; Hawkins, 2015). Within public schools and in American communities, singing was beginning to lose favor among males (Rodgers, 1926); however, several boychoirs formed near the beginning of the century in an effort to provide males with opportunities for singing outside of school (Collins, 1993).

While singing during World War I was seen as positive, during World War II, changes in the economic climate negatively impacted vocal music in the schools. Many schools reduced the number of class periods from seven or eight to five or six to save on electricity and allow students more time to complete work during the school day (Mark & Gary, 1999). After completion of the war, many districts maintained such schedules by choice, thus reducing the opportunity for students to enroll in music electives. Shifts in the global political climate, most notably the impacts from the Soviet Union, brought a sense of competition to the United States, especially in the Space Race. American leaders felt that Soviet dominance could lead to another war and pushed American education to produce students who were better equipped for a more technologically-driven society. To do so, policymakers pushed for curricular changes emphasizing science and technology, rather than the arts and humanities. (Mark & Gary, 1999). The push toward math and science initiatives appeared to negatively affect sociological perspectives on singing, notably influencing the number of choral offerings in schools, the

number of students enrolled in these ensembles, and the composition of ensembles. The emphasis on math and science, both male-dominated areas in their time, may have potentially effected enrollment, particularly with male students.

During the mid-20th century, commentaries began to highlight enrollment discrepancies within choral music. Viggiano (1941) opined males choose not to sing because society promoted it as an effeminate pursuit. His claim further strengthened existing stereotypes that would persist throughout the century and continue to affect enrollment into current-day music education (Koza, 1993; Swanson, 1984). Extant literature revealed deficiencies in male choral enrollment as early as 1932 (Swanson, 1984). Through distribution of a national survey, the National Association of Secondary School Principals (NASSP, 1984) stated the ratio of female-to-male enrollment in choral music to be five-to-two. Replication of the survey in 1996 showed little improvement as results indicated 22.5% of high school females enrolled in choral music as compared to nine percent of male students (NASSP, 1996). O'Toole (1998) reported a similar enrollment imbalance of three females to every one male enrolled in choir.

Choral music today. Disparities in enrollment continued into the 21st century, as female participation continued to outpace male participation. A 2008 national survey by the United States Department of Education revealed increases in female enrollment to include 26% of high school females participating in choir as compared to the NASSP survey of 1996 where 22.5% of females were enrolled; however male enrollment continued at nine percent (United States Department of Education, Table 126, 2008). Elpus (2015) analyzed the national male-to-female enrollment ratios of American high school choirs and found 70% of high school choirs were comprised of females in the 2009 cohort graduating class. Williams (2011) researched the male enrollment of both middle and high school choral programs and reported the average percentage

of male enrollment to be 26.85%. Though the issue has been well-researched, no one factor accounts for the imbalance in enrollment between females and males in middle-level and high school programs (Harrison, et al., 2012; Dame, 2017a; Hawkins, 2015; Williams, 2011). Elpus (2015) urged the use of research-based strategies rather than commentary to counter this “systematic, nationwide issue [extending] beyond the anecdotal evidence offered by practitioners” (p. 96). To inform future research related to choral enrollment differences by sex, an investigation of the physiological, psychological, and sociological sex differences may highlight students’ motivations for singing.

Adolescent Sex Differences

This section will address adolescent sex differences as related to physiology, psychology, and sociology. Relevant literature will be reviewed sequentially through (a) specific impacts of each area by sex, (b) impacts in general educational settings, and (c) impacts in choral music and within choral music pedagogy. Knowledge of biological and sociological differences in students may positively impact classroom success (Cable & Spradlin, 2008) while lack of awareness by teachers may have “the unintended consequence of reinforcing gender stereotypes” (Sax, 2017, p. 24).

Physiology.

Young adolescents can switch from sweet to sullen in seconds. They can be friendly one day and distant the next. They can go from being naïve nerds to party animals in the same week. They seek attention for being weird or unique, but then quickly conform to bathe in the security of peer approval. They wallow in egocentric excess – only to snap suddenly out of it. (Gerber, 1994, p. 7).

Many of the polarizing changes and hormonal shifts reported by Gerber (1994) were related to physiological changes associated with puberty. In the Western world, the average age of puberty began as early as 8-14 years for girls and 9-14 years for boys (Abitbol, et al., 1999). Adolescents experienced radical changes in physical stature, motor skills, abilities to smell and hear, development of hormones, and cognitive development. These changes impacted adolescent psychology, sociology, and pedagogy, thus having direct connections to education, and more specifically, to artistic creativity and choral music.

During late childhood, studies reported that children progressed from more dominant fundamental, transitional motor skills in order to further develop fine motor skills (Zaichkowsky & Larson, 1995). Hands and feet began to grow faster, followed by the arms, legs, trunk, and shoulders (McMahan, 2008). Change may have led to self-consciousness about appearance, especially with girls, who generally became more dissatisfied with their bodies while boys generally became more satisfied (McMahan, 2008; Sax, 2017). This tendency appeared connected to females' tendency to underestimate their abilities and see success as a result of hard work while males' tendency was to overestimate abilities and see success as a result of being smart (Chadwell, 2010). More specifically, girls often experienced earlier growth spurts than boys, surpassing them in physical and motor development until later adolescent growth spurts occurred (Zaichkowsky & Larson, 1995).

Pubertal change affected olfactory, auditory, and visual development, though impacts differed by sex. During adolescence, girls developed a higher ability for processing smell, as more cells are developed in the olfactory bulb (Sax, 2017). From an auditory standpoint, sensitivity to loudness varied as a function of biological sex and may impact education. For the average boy to hear as well as the average girl, one had to speak approximately eight decibels

louder (Sax, 2017). Girls, thus, were more likely to be distracted by loud environments than boys. Visually, boys' eyes tended to focus on the motion of objects and cool colors, while girls' eyes tended to focus on the description of the objects and warm colors. This may have connected to the males' tendency to favor activities with kinesthetic activity (Chadwell, 2010; Gurian, 1998).

Physical change was paired with numerous hormonal changes during adolescence. These changes were associated with predictable changes in cognitive strengths (Kimura, 1999). In males, development of the sex and aggression hormone testosterone contributed to tendencies of fidgeting, physicality, and competition (Chadwell, 2010; Gurian, et al., 2009; Tomlinson, 2001). Though testosterone levels were much less pronounced in females, competitive activities in the classroom positively impacted motivation of both sexes (Gurian, et al., 2009). Estrogen, the female sex hormone, also impacted aggression, but the hormone fluctuated in intensity based on seasons and hours of light. Classroom lighting appeared to positively impact instruction in all-female environments due to both estrogen and differences found in the occipital lobe, as females tended to see better in low light environments. (Gurian, et al., 2009). The development of estrogen in females affected the left hemisphere of the brain, while testosterone development in males affected the right hemisphere of the brain. This may have explained girls' tendencies to be more comfortable with detailed, sequential, and language-based factual tasks (Deak & Barker, 2002). In addition, this hormone frequently lowered aggression, competitiveness, self-assertion, and self-reliance among females (Gurian & Stevens, 2011). Other hormones that impacted adolescent pedagogy included serotonin (a mood-affecting hormone connected to stress and conflict management), dopamine (a hormone affecting motivation, pleasure, and kinesthetic activity), and oxytocin (the "tend and befriend" hormone connected to friendships and trust).

Authors reported successes in addressing each of the differences through single-sex classrooms (Chadwell, 2010; Gurian, et al., 2009).

Advocates for single-sex education cited numerous brain-based, or “hard wiring” differences by sex, and encouraged teachers and administrators to recognize the differences in how boys and girls learned in order to inform practice and pedagogy (Chadwell, 2010). Since the 1970s, studies used PET scans and MRIs to indicate differences in how males and females use different parts of the brain for accomplishing similar tasks (Sousa, 2006). Figure 1 and Table 1 indicated differences in the male and female brain, organized by part of the brain and impacts on each sex. Specific pedagogical impacts are indicated in parentheses.

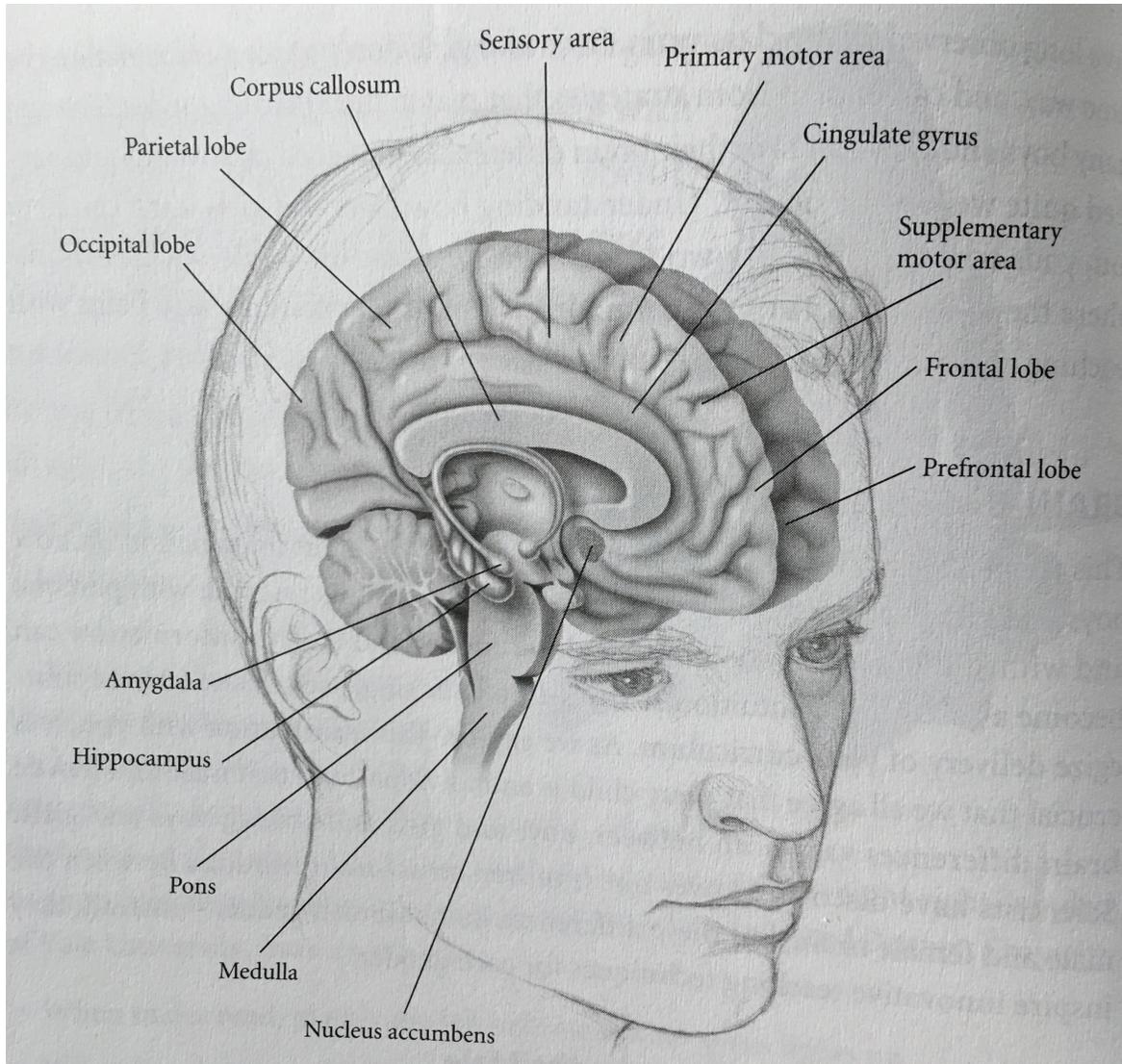


Figure 1. Selected parts of the brain relevant to brain-based sex differences

Note. Figure 1 adapted from Gurian, et al., 2009, *Successful single-sex classrooms: A practical guide to teaching boys & girls separately*, p. 24.

Table 1.

Selected Brain-Based Differences In Males and Females

Part of the Brain (function)	Impacts for Females (roles in the classroom)	Impacts for Males (roles in the classroom)
<i>Amygdala</i> (processing emotions, especially fear and anger)	More emotional and sensory detail to events (hold grudges for long time, mentoring is necessary to determine importance and overreaction)	Larger in males (may contribute to aggression)
<i>Brain stem</i> (fight or flight)	Reduced levels of spinal fluid (Less likely to respond physically when challenged; use more verbal resources; seek more assistance from adults and teachers)	Greater levels of spinal fluid (more likely to respond physically when challenged; more physical and/or verbal outbursts; engagement more dominant with this system)
<i>Cerebellum</i> (coordination, dancing, athletic development, thinking, physical activity)	Area is smaller in females than males (include more movement activities for females to stimulate brain growth)	Area larger in males than females (boys often learn better when bodies in motion; sitting may lead to frustration and behavior issues because of his response to biological needs; less impulse control)
<i>Cerebral cortex</i> (thinking, speaking, remembering, recalling, impulsivity, decision making, planning)	Area has more connections between neurons than males and increased number and speed of neural connections (faster processing and responses to information, better transitions, multitasking; access to verbal resources used during learning)	Area matures more slowly for males (boys more apt to engage in high-risk behaviors and respond impulsively; processing may occur in an either/or perspective)
<i>Corpus callosum</i> (connector of both hemispheres of brain)	Area denser and larger than in males; more crossover between left and right hemispheres (better at multitasking, reading emotions, thought and verbal processing)	Less crossover between hemispheres (more time needed for connections between words and actions; more processing time needed before response to information or articulating feelings)
<i>Frontal cortex</i> (facilitates speech, planning, organizing, setting priorities, making judgments, handling information, calming emotions)	Area matures earlier than males (less likely to be impulsive, participate in delinquent behaviors, fewer accidents, improved communication skills)	Area matures later for males (more impulsive, risky behaviors)
<i>Hippocampus</i> (converting information from short- to long-term memory)	Area larger in females (increased memory storage; source of “drama” for girls)	Smaller in males than females (males “get over it” faster, less grudges and “drama”)

Note. Adapted from D. Chadwell, 2010, *A gendered choice: Designing and implementing single-sex programs and schools*; Gurian, et al., 2009, *Successful single-sex classrooms: A practical guide to teaching boys & girls separately*; M. Gurian & K. Stevens, 2011, *Boys & girls learn differently: A guide for teachers and parents* (2nd ed.); D. Kindlon & M. Thompson, 1999, *Raising Cain: Protecting the emotional life of boys*.

Though physical change happens at different rates for each child, developmental similarities were found within each sex (Gurian & Stevens, 2011). These researchers found that in grades 4-6, male hormones began to increase around age ten, at which time students became focused on action and exploration, and were more likely to become aggressive. At this age, females were more focused on relationships and communication and possessed greater fine-motor skills and coordination. In music, they were more likely to sing in tune than males. As females transitioned to middle and junior high school, estrogen generated greater activity in the brain and the amount of hormone related directly to success at traditional female tasks. Quietness, in many cases, was connected to confidence. Males, in contrast, matured along with the development of testosterone, causing attention-seeking behaviors and aggressive tendencies. Like females, the amount of hormone related directly to success at traditional male tasks (Gurian & Stevens, 2011). These differences appeared to impact teacher attention, as attention-seeking behaviors were connected to teachers' tendencies to favor male students in the classroom (Gurian & Stevens, 2011).

Sax (2017) reported brain-based differences in the cerebral and frontal cortex, cerebellum, brain stem, and amygdala began to explain males' tendency toward physical aggression and bullying. Boys engaged in physical violence about twenty times as often as girls, who usually raised their standing in the eyes of other boys when engaging in such behaviors. Girls, on the other hand, often lowered their social standing when becoming physically aggressive (Sax, 2017). While physical aggression may negatively affect girls, bullying improved their social status, yet the same behaviors hurt boys' statuses. Girls who bullied others typically had many friends, were socially skilled, and did well in school while boys that bullied had few friends, poor social skills, and were below-average students (Sax, 2017).

Through study of brain-based differences and their bearing on learning styles, Gurian and Stevens (2011) summarized research on ten areas of brain-based differences by sex and their respective impacts on pedagogy. They reported that males, as a whole, were better at deductive reasoning and conceptualization, thought more often in abstract and philosophical terms, relied on coded language to communicate, asked for clear evidence from teachers, became bored more frequently and thus acted out more often, used more physical space when they learn, were more apt to move around in the classroom, embraced a “pecking order” (i.e., their placement within social strata), preferred symbolic texts and diagrams, and benefited from learning teams, meaning they spent less time choosing leaders and managing process than girls (Gurian & Stevens, 2011). Females, on the other hand, favored inductive thinking, performed better through concrete reasoning, produced more words, preferred conceptualization through everyday language and concrete details, were better listeners and more receptive to details, were more comfortable with less logical sequencing, and were better at cooperative learning (Gurian & Stevens, 2011; Tomlinson, 2001).

Research suggested sex differences may play a vital role in artistic creativity. Given the same visual art prompts, girls were more likely to draw flowers, trees, and pets with lots of colors while boys drew a scene of action at the moment of dynamic change and used fewer colors (Sax, 2017). This could have been attributed to the fact that females had more resources in the system that specializes in color, detail, and texture, while males specialized more in speed and direction (Sax, 2017).

Sweet (2015) described the impacts of the physiological needs of each sex and their impacts on musical instruction, behavior, and future participation in music. Though differences existed between each sex, Sweet recommended music teachers (a) strengthen neural pathways by

using multiple parts of the brain to think critically about music; (b) experiment with trial and error; (c) break musical ideas apart and put them back together again; (d) teach students to learn from mistakes; (e) customize, vary, and create challenging musical tasks; (f) revisit concepts in varied and meaningful ways; and (g) keep discussion and instructions clean, clear, and to the point.

Adolescent voice change. While both male and female hormonal and brain-based changes occurred and impacted pedagogical strategies, the physiological changes related to voice change appeared to have the most direct impact in adolescent choral music education. Spurred by the development of testosterone and estrogen, both sexes experienced growth in the larynx, cartilage, muscles, and vocal folds, though differences according to sex. During puberty, adolescent male vocal folds lengthened approximately one centimeter, and both the vocal tract and resonating chambers increased in size, and thus led to changes in vocal quality, timbre, and breath capacity (Gackle, 2011; Kennedy, 2004; Sweet, 2015; Thurman & Welch, 2000). The male larynx experienced 67% growth in size from its pre-pubescent size through formation and growth of the thyroid and laryngeal cartilages (Gackle, 2011; Thurman, 2012). Laryngeal changes affected fundamental speaking and singing frequencies as well as vocal range, which during puberty expanded downward one octave and upward six to seven pitches (Collins, 1999; Hook, 2005; Kennedy, 2004; Sweet, 2015; Thurman & Welch, 2000).

Female vocal folds also lengthened and thickened during puberty, though not to the extent of males, elongating 3-4 millimeters or 24% (Gackle, 2011; Sweet, 2015). Laryngeal development occurred mostly through height increases while development and protrusion of the thyroid cartilage occurred only slightly (Gackle, 2011). These changes altered speaking fundamental pitch downward by one-third and speaking voice lowered in pitch around a

semitone per year during puberty (Abitbol, et al., 1999; Hollien, 1978). Ranges expanded downward by approximately one-third of an octave and upward three to four pitches (Sweet, 2015).

In both sexes, vocal folds did not close completely until growth spurts were completed. The formation of the “mutational triangle” in females, an incomplete closure of the posterior part of the glottis as a result of the weakness in the interarytenoid muscles, led to phonation difficulties, huskiness, and breathiness (Vennard, 1967). Other substantial impacts of the voice change included, but were not limited to (a) lack of phonation on certain pitches or large “holes” in the singing range; (b) cracking and fuzzy voices; (c) strain and increased physical effort; (d) sluggish articulation; (e) thin or colorless vocal tone; (f) loss of flexibility, agility, and volume; (g) tessitura fluctuation; (h) inability to sing in tune; and (i) unpredictability during vocal production (Cooper, 1953; Kennedy, 2004; Sweet, 2015; Thurman & Welch, 2000).

Assessment strategies and methodologies for evaluating student ranges during voice change evolved through much research, commentary, and experimentation. The Cooksey method served as the commonly-accepted male voice testing strategy, while the Gackle method was the universally-adopted method for females (Sweet, 2015). British music educator McKenzie pioneered voice testing strategies through his alto-tenor plan and defined voice change as a gradual, sequential process where lower notes appeared in the range as upper notes disappeared, allowing for flexibility within the methodology (McKenzie, 1956). Swanson focused his research, methods, and pedagogical strategies on lower range extension and found most males developed in the lower part of the bass clef and often had a blank spot between C4 (middle C) and F4. He encouraged the resting of males during voice change and their replacement in treble choirs with other non-changed males (Swanson, 1959). Cooper (1964) expanded voice testing to

include evaluation of range, tessitura, and the shifting tonal quality of the male changing voice through his creation of the cambiata plan for changing voice.

While McKenzie, Cooper, and Swanson differed from one another, they agreed on several important characteristics of the voice change, including (a) voice change occurred at onset of puberty, and was directly related to development of primary and secondary sexual characteristics; (b) most currently published literature was inadequate to fit the range and tessitura of the male changing voice; (c) irregular growth rates in the vocal mechanism made the voice unpredictable and difficult to control, particularly if it was forced into the wrong pitch range; (d) in groups of boys, ages 12 to 15, one might have expected to find voices in many different stages of growth; (e) the rate at which voice changes occur varied with individuals; (f) individual and group voice testing was necessary; (g) teacher assistance aided students in understanding their voices during the change; and (h) the use of good singing habits during voice change was important (Cooksey, 1999). In what is now known as the universally-accepted methodology for males, John Cooksey consolidated the findings of United States empirical and scientific research and his own practical experience to create voice classification guidelines for males (Cooksey, 1977; Thurman & Welch, 2000). Guidelines included six labels of both the voice maturation and classification stages.

Cooksey, along with Beckett and Wiseman tested these guidelines through a three-year longitudinal study of 86 boys in the Orange County School District beginning in 1979. Once per month, each boy counted backwards from 20 to 1, and researchers established a temporary Average Speaking Fundamental Frequency (ASF_0) for each participant. Following establishment of the ASF_0 , boys sang an ascending scale beginning on ASF_0 and continued until it was no longer comfortable; lower ranges were established by singing descending major scales. Finally,

males sustained pitches in each of the registers to determine their ability to produce modal, head, and falsetto registers (Thurman & Welch, 2000). Research findings included the categorization of ranges and tessituras of each of the six classifications. Figure 2 includes suggested ranges and tessituras for the McKenzie, Cooper, Swanson, and Cooksey voice change methods.

Gackle (1985) developed the first guidelines for assessing female students during the voice change based on her own practical teaching experiences. Voice classification was divided into three main stages, with stages two and three each divided into two levels. Stages addressed varying characteristics of the voice, including tone quality and color, range, passaggi, and development of both the mutational chink and vibrato (Gackle, 1985). Over time, the phases changed slightly to their currently-accepted four stages of Phase 1—Prepubertal: Unchanged, Phase 2A—Pre-menarcheal: Beginning of Mutation, Phase 2B—Post-menarcheal: Pubertal High Point of Mutation, and Phase 3—Young Adult Female (Gackle, 2011). Figure 3 presents vocal range, tessitura, speaking voice, and lift points by female voice stage.

In the classroom, male and female voice capabilities appeared to, at times, negatively impact motivation to sing and enroll in choir (Castelli, 1986; Freer, 2015). Researcher Bridget Sweet, reflecting on her experiences as a middle-level choral director, summarized the difficulties between pubertal change and enrollment: “at a time when they are the most awkward, students make big choices about their future involvement in music” (2015, p. 7). Fisher (2014) researched sixth-, seventh-, and eighth-grade adolescent males’ ($N = 80$) self-efficacy toward singing as related to the voice change and found no main effect between voice-change stage and self-efficacy. A main effect was found for experience, particularly those enrolled in choir for three or more years and suggested a connection between singing in choir and motivations to continue enrollment.

Figure 2. Suggested ranges and tessituras for the McKenzie, Cooper, Swanson, Barham and Nelson, and Cooksey male voice change methods.

McKenzie Voice Change Methodology

The diagram illustrates the McKenzie Voice Change Methodology. It features a grand staff with two systems. The first system shows three vocal parts: Sop.1 (Soprano 1) on the top staff, Sop.2 (Soprano 2) on the middle staff, and Alto on the bottom staff. The second system shows three vocal parts: Tenor on the top staff, Baritone:7th on the middle staff, and Baritone:8th/9th on the bottom staff. Each part is represented by a single note on a staff, indicating the suggested range and tessitura for that voice type.

Cooper Voice Change Methodology

The diagram illustrates the Cooper Voice Change Methodology. It features a grand staff with two systems. The first system shows two vocal parts: BoySoprano on the top staff and Cambiata on the bottom staff. The second system shows one vocal part: Baritone on the bottom staff. Each part is represented by a single note on a staff, indicating the suggested range and tessitura for that voice type.

Swanson Voice Change Methodology

The diagram illustrates the Swanson Voice Change Methodology. It features a grand staff with two systems. The first system shows one vocal part: BoyAlto on the top staff. The second system shows two vocal parts: Tenor on the top staff and Bass on the bottom staff. Each part is represented by a single note on a staff, indicating the suggested range and tessitura for that voice type.

Barham & Nelson Voice Change Methodology

Musical notation for the Barham & Nelson Voice Change Methodology. The notation is presented on a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The upper staff contains four notes: a quarter note on G4, a quarter note on A4, a quarter note on B4, and a quarter rest. The lower staff contains four notes: a quarter rest, a quarter rest, a quarter note on G3, and a quarter note on F3. Labels are placed below the notes: 'Treble' under the first note, 'CambiataI' under the second note, 'CambiataII' under the third note, and 'Baritone' under the fourth note.

Cooksey Voice Change Methodology

Musical notation for the Cooksey Voice Change Methodology. The notation is presented on a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The upper staff contains four notes: a quarter note on G4, a quarter note on A4, a quarter note on B4, and a quarter rest. The lower staff contains four notes: a quarter rest, a quarter rest, a quarter note on G3, and a quarter note on F3. Labels are placed below the notes: 'Unchanged' under the first note, 'MidvoiceI' under the second note, 'MidvoiceII' under the third note, 'MidvoiceIIa' under the fourth note, 'NewBaritone' under the fifth note, and 'SettlingBaritone' under the sixth note.

Note. Adapted from T. Barham, 2001, *Strategies for teaching junior high & middle school male singers: Master teachers speak*, p. 21-22.

Figure 3. Vocal range, tessitura, speaking voice, and lift points by female voice stage.

Phase I - Prepubertal: Unchanged



Phase 2A - Pre-menarcheal: Beginning of Mutation



Phase 2B - Post-menarcheal: High Point of Mutation



Phase 3 - Young Adult Female



Note. Adapted from L. Gackle, 2011, *Finding Ophelia's voice, opening Ophelia's heart: Nurturing the adolescent female voice*, p. 21-24.

Sweet (2015) studied middle and high school girls ($N = 14$) to describe the impact of voice change on female singers, particularly within the choral setting. Results indicated

connections between voice change, vulnerability, and fear of embarrassment, thus leading to opportunities for risk assessment in the choral setting. The probable connections between singing in choral music ensembles, motivations to sing, and likelihood of engaging in risk taking behaviors found in Fisher (2014) and Sweet (2015) highlighted relationships between choral music, physiology, and psychology; thus, further review of adolescent psychology and sociology and its impacts on singing may inform current research.

Adolescent Psychology and Sociology

As previously discussed, physiological differences in the cerebral and frontal cortexes began to explain males' tendency to engage in risk taking behaviors. Yet, these behaviors appeared to be psychologically influenced. The majority of boys, according to Sax (2017), were impressed by other boys who took risks, especially if the risk taker succeeded. In many cases, boys likely raised their social status when doing so. Relationships were not only forged through risk, but also through shoulder-to-shoulder activities with shared interests. Girls, in contrast, were much less likely to be impressed by risk-taking behavior in others and often lowered their social standing when taking risks (Sax, 2017). Girls' friendships, Sax addressed, were about being all together, spending time together, talking together, and going places together, in face-to-face, conversation-essential environments. Adolescents may have been hesitant to take risks in the classroom for fear of making mistakes, however, doing so enhanced the function of the prefrontal cortex and corpus callosum (Deak & Deak, 2013). Girls were more likely than boys to notice their own mistakes and remember them, and thus emphasized the importance of the teacher addressing risk taking in the classroom. Sax (2017) recommended teachers start with something girls know they can do, let them build up a wall, and stretch abilities to their limits. To do so, Sax recommended educators establish safe classrooms based on positive instructor and

peer interactions, as well as strong personal and physical environment characteristics (Sax, 2017).

The impact of teachers on adolescent psychology appeared far-reaching. Girls were more concerned than boys with pleasing the teacher and were more likely to follow the teacher's example. Positive relationships with teachers often enhanced females' social status, yet lowered status among males, who showed that the value of peer relationships was greater than relationships with teachers (Sax, 2017). Males tended only to ask teachers as a last resort but were less motivated to study unless they found the material to be intrinsically motivating (Sax, 2017).

Countless research studies examined the psychological benefits of singing, some of which included enhancements to quality of life, emotional and psychological wellbeing, mood, improvements in mental health, and reduced stress levels (Clift et al., 2010; Judd & Pooley, 2014; Pérez-Aldeguer & Leganés, 2014; Stewart & Lonsdale, 2016). Sociologically, group singing was found to enable social bonding faster than other group activities (Pearce, et al., 2015), and enhance social supports and reduce isolation (Bailey & Davidson, 2002, 2005; Clift & Morrison, 2011; Pérez-Aldeguer & Leganés, 2014; Teater & Baldwin, 2012).

Researchers studied adolescents' motivations toward singing in hopes of uncovering reasons for singing and addressing low enrollments in choral music, particularly with male students. While a majority of studies focused on male students due to their imbalance in enrollment as compared to females, several parallels existed between the sexes. Throughout much of the research, motivations to sing connected to the psychological needs and sociological pressures found during adolescence. Freer (2010) used the construct of "possible selves" to study males' motivations to sing and further understand connections to psychology. In his research,

Freer described adolescent males' desire to be connected to other male role models, as well as develop an understanding of who he might become, would like to become, or feared becoming. Knowledge of this principle, Freer argued, informed and assisted choral directors in achieving higher participation rates by males, as they need to feel successful and competent and whatever they choose.

From an individual perspective, adolescents were motivated to sing when they held positive musical self-concepts (Clements, 2002; Lucas, 2007; Lucas, 2011) and enjoyed music and singing (Clements, 2002; Demorest, et al., 2017; Freer, 2015; Haire, 2015; Kennedy, 2002; Lucas, 2007; Sweet, 2003). Singing in choral music ensembles developed independent skills (Freer, 2015; Kennedy, 2002) and positively impacted psychology through sense of pride, self-confidence, trust, self-worth, and self-satisfaction (Kennedy, 2002). Lucas (2007) found enjoyment of singing to be of greater importance than sociological influences; however, several studies stressed the importance of these influences on motivation and enrollment. In addition to their psychological benefits, the choral music ensemble served sociological roles, through creation of opportunities for socialization and development of friendships (Freer, 2015; Kennedy, 2002; Haire, 2015).

The influences of and acceptance by family, peers, and other non-music teachers (particularly athletic coaches) as well as positive early experiences of music emerged as motivators for singing in choral music (Castelli, 1986; Demorest, et al. 2017; Harrison, 2007; Lucas, 2011; Sweet, 2003). In an exploration of how musical self-concept, attitude, and other related variables predicted junior high students' decisions to participate in choral music, Demorest, et al. (2017) determined self-concept, family music participation and positive attitudes toward music to predict with 74% accuracy which students continued to participate in elective

music courses. To be expected, choral directors had large-scale impacts on adolescents' motivations to sing in choir. Research review revealed students participated in choral music when they liked the choral director (Kennedy, 2002; Sweet, 2003), his/her teaching style, use of humor, expectations in the classroom (Kennedy, 2002), and when students were able to connect to selected repertoire (Freer, 2015; Sweet, 2003). Recent research by Nannen (2017) indicated progress in closing the gap between males' and females' singing interest. Nannen reported no significant difference between sex and singing interest among adolescents, though females were reported to have higher participation rates than males.

As evidenced by enrollment data and extant research (e.g., Elpus, 2015; Mizener, 1993; Williams, 2011), male motivations to enroll in choir trailed those of females and were possibly connected to large-scale sociological views of singing. In many environments, singing was viewed as an effeminate activity (Freer, 2015; Hall, 2005; Harrison, 2007; Lucas, 2007) and many male students who choose to sing were subject to homophobic labels (Castelli, 1986; Lucas, 2007). Stereotypes such as "guys are physical," "girls are feminine," "guys don't sing," and "choir is for girls" (Nannen, 2017) may have stemmed from lack of cultural acceptance and other long-embedded socio-cultural values that were difficult to change (Demorest, 2000; Hall, 2005; Hawkins, 2015). These negative influences may have only compounded existing enrollment issues, as males were reticent to sing when programs lacked sufficient numbers of male peers (Freer, 2015). To counter these, Harrison (2010) recommended counter-stereotyping, which presented both a problem and solution, "[a]chieving greater numbers of male involvement with boys who [were] popular, well-liked, and enjoy[ed] high status [assisted directors] in overcoming the negative aspect of stereotyping" (pp. 49-50). Further analysis revealed acceptance of singing as an accepted pursuit was possible. Examples of this exist in several

cultures, including those in South Africa, Iceland, and the Pacific Islands in which singing as viewed an acceptable activity for males (Demorest, 2000).

Administrative and Schooling Impacts on Adolescents

At the middle-level, other elective courses, athletics, school and district funding, scheduling, and administrative support served as constraints to enrollment in choir. Scheduling difficulties emerged as deterrents to student participation in choir in several studies. Lucas (2007) reported 17.7% of junior high males ($N = 101$) listed school schedules to be a barrier to their participation in choir. Through study of Northwestern United States music educators and administrators, Falconer (2012) found 30% of music directors and 25% of administrators chose competing electives and options as the most significant factor effecting student participation in choir. For both populations, their choices were the most common of all possible answers in the open-ended questionnaire. Other commentaries reported similar difficulties in student enrollment as related to school schedules, reporting lack of time in the schedule, school scheduling choices, and allure of other elective choices as barriers to enrollment (Adcock, 1987; Freer, 2007; Van Camp, 1987).

Unfortunately, these hurdles did not appear to be recent trends. Rodgers (1926) described the crisis facing scheduling junior high music, stating:

Junior high school music needs help, and what is done or left undone will finally affect music education as a whole throughout the country...with the hour period, it is not possible to elect a variety of subjects, which is essential to the ideal junior high school. With a large number of daily periods scheduled, a student may take his academic subjects and still have periods left to elect music, art, oral expression, shop, household arts, etc. With a curriculum that offers fewer daily periods, and a limited opportunity for a wide

choice of subjects (as does a sixty-minute period), the arts will suffer, because academic subjects receive first consideration. A sympathetic and understanding principal who believes in the value of music education and so builds his program that music is made possible of election and given an amount of time that will insure musical results and development of musical power (pp. 21-23).

Beyond the typical enrollment challenges imposed by class scheduling in schools, there are other factors that may influence students' choices in terms of their "being." They may select choirs as a means of "fitting in," feeling comfortable, and allowing themselves to engage without reservation. While some student motivations for singing in choral music ensembles were reported to be similar throughout varying research studies, no one motivation can be used to encompass all student motivations, particularly those that fall outside of traditional roles.

Non-Traditional Roles of Students

Though a large majority of males and females possessed different physiological, psychological, and sociological needs that relate to singing, not all adolescents fell into traditional male and female roles, ultimately affecting enrollment in choral ensembles. Anomalous students (also known as bridge brains) and transgender students also enrolled in choral music courses. An understanding of these students' unique needs may positively impact ensembles and enrollment.

Anomalous students. Though most brains align with gender expectations, not all students fall within the traditional expectation. Non-aligning students were referred to as anomalous students, or bridge brains, and are those in the center of the brain continuum (Gurian & Stevens, 2011; Sax, 2017). These included males who processed information more in the female spectrum and females who processed information more in the male spectrum. Examples

included overly sensitive male students or aggressive female students (Gurian & Stevens, 2011). Anomalous males tended to be loners with few close friends, enjoyed sports but preferred noncontact activities, and had narrow social horizons (Sax, 2017). Anomalous females often were fearless, independent, competitive, held broader social horizons than peers, and had advantages in school and life (Sax, 2017). While no specific research was completed on bridge brains in choral music, general education perspectives provided transfers for music educators. Gurian and Stevens (2011) recommended use of visual media to help lead non-bridge brain students to better understand how culture is trying to create gender uniformity and then lead students to see uniformity through individuality.

Transgender students. Though the pedagogy of transgender students continued well beyond the scope of the current investigation, it was important to address the needs of this increasing population, particularly in choral music settings. Through in-depth study of three high school transgender students in choral music, Palkki (2016) found the policies of students' school districts, high schools, administration, choral programs, and outside music organizations shaped and influenced how transgender students navigated their identity within a high school choral context. To meet the needs of these students, Palkki (2015) urged choral directors to be prepared to work with transgender youth in a respectful matter, including using their chosen names and pronouns and engaging them in a dialogue about which voice part they should sing and what concert attire they should wear. Transgender students, along with students who are gay, lesbian, queer, or bisexual, could be better served by choral directors' modeling of masculinities and femininities through repertoire selection, structure of choral programs, choice of recruitment tools, and through chosen words and actions (Palkki, 2015).

Pedagogical Approaches in Adolescent Choral Music

As stated by Palkki (2015), directors' pedagogical choices impacted student learning in choral music settings. While a choice could empower or motivate singers, it also could harm. Ineffective teaching, poor teacher training, lack of collaboration, recruitment and retention issues, limited choral repertoire options, difficulties choosing appropriate teaching strategies, and choral organizational design decisions appeared to negatively impact student participation (Beery, 2009; Dame, 2011; Harrison, 2007). Survey, observation, and study of exemplary middle-level programs highlighted possible effective pedagogical strategies that improved motivation and thus enhanced enrollment. Fiocca (1986) used video evaluation of junior high/middle school choral directors by university professors to find effective teaching strategies. He reduced the strategies into eight critical areas, including director manner, vocal pedagogy, non-verbal behaviors, verbal behaviors, conducting rehearsal, classroom management, sight-reading and dictation skills, and keyboard skills. This study served as a framework of the review of literature for effective teaching strategies at the middle-level.

Director's manner. In Fiocca (1986), thorough preparation, varied speech inflection, and appropriate rehearsal atmosphere were all rated to by university professors to be exemplary rehearsal techniques at the middle-level. While this category was exclusive in the Fiocca study, many forthcoming techniques were inspired first by director manner, including vocal pedagogy knowledge, non-verbal and verbal behaviors, rehearsal strategies, classroom management techniques, and musical skill set.

Vocal pedagogy. Incorporation of warm-ups in the rehearsal, healthy vocal usage, and use of quality vocal/choral literature were found to be most consistent in exemplary middle-level programs in Fiocca (1986). Other research studies and commentaries stressed the importance of

understanding the changing voice (Cooksey, 1999; Dilworth, 2012), frequently assessing student voices (Barham, 2001; Cooksey, 1999; Dilworth, 2012), correctly placing students in appropriate voice parts (Dilworth, 2012), and guiding vocal production and development (Dilworth, 2012). Development of appropriate warm-ups for rehearsals and changing voices (Barham, 2001; Cooksey, 1999; Dilworth, 2012) and choice of quality vocal/choral literature (Canfield, 2009) affirmed the previous research of Fiocca (1986).

Non-verbal and verbal behaviors. Fiocca (1986) deemed a serious, businesslike rehearsal environment to be an agreement area of effective pedagogy by researchers. Other notable behaviors included positive communications, use of piano in rehearsal, proximity to the choir, and time usage.

Conducting rehearsal. Most conductor-teacher decisions occurred during the choral rehearsal. In Fiocca (1986), students possessing copies of music and directors playing parts and/or accompaniment were rated as affirmative pedagogical practices; however, other practices, including assessment of student learning, marking music, and understanding of rehearsal goals were also highly rated among university professors. In Dilworth's (2012) commentary of effective pedagogical strategies, he recommended adjusting pitches and vocal lines within the score, incorporating analogy and movement in the rehearsal, and maintaining a healthy, yet productive rehearsal environment. Freer (2011) described the use of analogy in his article describing the connections between choral singing and athletics, emphasizing how weight training can better inform the choral rehearsal, and thus, motivate male singers. Cooksey (1999) and Leck and Stenson (2012) also stressed the use of kinesthetic movement in the choral rehearsal. Leck and Stenson (2012) went on to describe the difficulties of males in traditional choral settings as:

Boys are often placed in classroom and rehearsal situations counterproductive to natural learning traits. Using physical movement aids boys in creating and interpreting artistic expression while building vocal technique. Used in performance, these ‘shaping’ gestures assist the male performer and inspire listeners for a truly memorable musical experience (p. 5).

Not surprisingly, the choral rehearsal environments of exemplary middle-level choral programs in Fiocca (1986) had few student behavior problems. A survey of the rehearsal practices of exemplary middle-level choral directors in Barham (2001) affirmed this through emphasis of an inviting rehearsal environment that both established and maintained interest by all students. Sweet (2015) encouraged the use of student-centered, democratic music classrooms as compared to the traditional music classrooms of dictatorship and authoritarianism to accomplish a more collaborative classroom environment (p. 45).

Sight-reading, dictation, and keyboard skills. Director keyboard skills, more specifically the ability to play parts and accompaniments, were rated highest within Fiocca (1986). Interestingly, no agreement was found within sight-reading or dictation skills, though several directors incorporated many of these skills successfully in middle-level choral classrooms. Additionally, McClung’s (2006) reported ease in teaching sight-reading and music literacy through single-sex choirs.

Impacts of pedagogy on recruitment. Survey responses of successful middle school/junior high choral directors in Barham (2001) mirrored many of the aforementioned strategies of Fiocca (1986) and other studies. To recruit students, particularly males, directors responding to Barham’s (2001) survey reported numerous successes not only in addressing pedagogical needs, but also embracing the needs of students psychosocially. These included (a)

creating an inviting rehearsal environment, (b) using current male students to recruit new male students to choir, (c) personally contacting males about choral music, (d) singing for feeder schools or organizing joint concerts, (e) promoting successes of the choral program, (f) organizing choir trips, and (g) spreading information by “word of mouth.”

Single-sex choral ensembles. Several directors in Barham (2001) recommended formation of single-sex choral ensembles, as such ensembles ease selection of quality literature, expand choral sound possibilities through inclusion of TTBB literature, build traditions of male singing, and allow for combination of all boys in various choirs for performances. As responding director Nancy Cox rather directly urged, “you and your girls should go after guys with a vengeance” (Barham, 2001, p. 29).

In what is the most current large-scale study of exemplary middle-level choral directors, McClung (2006) examined the organizational and pedagogical strategies of directors through survey. A large majority of participants, 83%, believed that single-sex choral music classes offered teachers more opportunities to attend to student needs than mixed-sex classes; however, most participants believed that the mixed chorus experience should remain somewhere within the program. Participants’ reasons for single-sex classes mirrored extant research on adolescent physiology, psychology, sociology, and pedagogy including (a) encouragement of social camaraderie and team-like identity; (b) increased recruitment and retention rates based on popularity of all-male choirs; (c) use of gender-specific teaching strategies; (d) decreased classroom management issues; (e) elimination of the distractions associated with the opposite sex; (f) ability for all-female classes to be more socially relaxed; (g) creation of a safer rehearsal environment for risk-taking, experimentation, and dealing with unique needs of each sex; (h)

encouragement of student leadership skills; and (i) ability to tailor repertoire to meet the interests, skill levels, and ranges of each sex.

Though exemplary choral directors overwhelmingly supported single-sex choirs in McClung (2006), the implementation of these at the middle-level was not a commonly accepted practice. More specifically, Dame (2017a) surveyed the organizational designs of middle-level programs nationally, finding only nine percent of programs ($N = 316$) included all-male choirs.

Success in choral music at the middle-level cannot be attributed to one particular voicing, evidenced by choirs of all voice types that have been featured at regional and national conventions of the American Choral Directors Association (Dame, 2017b). Historical analysis of middle school/junior high programs selected to perform nationally at ACDA conventions revealed similar tendencies toward creating mixed-sex choirs, though single-sex choirs were indeed prevalent. From 1959 to 2017, 26 middle-level choirs were selected. Seventeen choirs were mixed, six were all-female, and three were all-male (Dame, 2017b).

Further review of single-sex literature in the general education setting revealed numerous hurdles in achieving classroom division by sex. To look further into these problems, the review will first address support for single-sex classrooms and schools, followed by support for single-sex classrooms in choral music programs, and finally by identifying barriers to single-sex education in both the general and choral settings.

Building a Case for Single-Sex Classrooms and Schools

While often seen as controversial due to legal battles, single-sex classrooms have been touted as solutions to declining academic achievement, reducing classroom discipline, creating positive self-concepts among students, and meeting educational and social needs with administrators, teachers, parents, and students. These individuals described the benefits of single-

sex groupings within schools and in classrooms. Possibilities of these classrooms included, but were not limited to the use of pedagogical techniques catered to the needs of each sex; similar groupings of students with regard to physical, mental, and emotional development; elimination of distractions, improvement of self-esteem, creation of a safe learning environment, teambuilding, enhanced risk-taking opportunities, and more attention for female students (Gurian, et al., 2009). Though numerous benefits existed, the National Association for Single-Sex Public Education (2006) suggested “simply putting girls in one room, and boys in another, is no guarantee of anything good happening” (p. 9). Sax (2017) insisted in purposeful strategies that involve both an understanding and breaking down of stereotypes to aid separation:

If you want to engage girls and boys specifically in areas that the contemporary culture deems gender-atypical...then you would consider offering those programs in gender-specific formats. If you want to break down gender stereotypes, you have to begin by understanding gender differences and working with those differences rather than ignoring them or pretending they don't exist (p. 304-305).

In support of single-sex classrooms, Gurian and Stevens (2011) urged respect of the brain's natural tendencies not by forcing single-sex innovations on a community, instead, by pointing out their advantages and asking the community to test whether these advantages appeared in particular situations. To build their case, the authors addressed the logic of single-sex classrooms in middle school, citing hormonal changes, cognitive and physical development, shifts in cultural norms, and historical expectations of males and females to provide multidimensional support for such classroom environments. They noted that in tribal cultures, education of males and females was separated to accommodate for the natural transformations for each sex, creating safe environments for learning how to live, communicate, and interact with

each other and the opposite sex. Looking back even two generations, Gurian and Stevens (2011) argued gender expectations were drastically different for each sex. Today, "males and females are thrown together in large groups with little supervision and expected to figure out nearly everything" (p. 210). "Because we toss children into free-flowing existence before their very nature as developing beings is ready, too many of them [experience psychological, personal, and social difficulties]" (Gurian & Stevens, 2011, pp. 211-212). Instead, the authors recommended a coeducational approach where students are taught in single-sex environments within schools and culture, parents, families, and churches are taught about life outside of school, thus allowing children the best of both worlds.

Academic achievement. Gender differences in graduation rates and test performance were prevalent nationally within the United States, with males lagging behind females in both areas (Chadwell, 2010) and with most students in America attending schools in coeducational environments (Mitchell, 2017). While single-sex classroom organization was in the minority within the United States, it remained more common overseas. Analysis of Korean and English test scores among Korean students randomly assigned to attend single-sex schools was significantly associated with higher-than-average scores on college entrance exams (Park, Behrman, & Choi, 2013).

Researchers at Stetson University examined the performance of students on the Florida Comprehensive Assessment Test (FCAT) in both single-sex and coeducational environments over a ten-year period. They found large gaps in test performance based on educational grouping. Thirty-seven percent of male students in coeducational classes scored proficient on FCAT exams as compared to females' 59% proficient rate. When examined using students in single-sex classes, 86% of males scored proficient while 75% of females scored proficient (Garrison, 2013).

It should be noted, however, that student achievement cannot solely be attributed to single-sex grouping, as there were many variables that may have affected performance. Additionally, academic benefits related to single-sex instruction have been reported in science (Hannover & Kessels, 2008, Brooks, 2011), physical education (Whitlock, 2006), and mathematics (Davis, 2005).

Discipline. Though countless educators and administrators described the impacts of single-sex environments on discipline and classroom management, few empirical data were available. One example of positive changes on behavior through the restructuring of classes to include single-sex classes at the middle school level occurred in one rural school district in New York. Comparative analysis showed an overall 22% decrease in discipline infractions, though the largest decrease occurred in the sixth-grade at a 74% decrease (Spielhagen, 2008). Within the school, positive outcomes were reported through decreases in truancy (80%), skipping detention (71%), bus referrals (67%), tardiness (64%), and incomplete assignments (63%). Overall, behavior problems in male students decreased by 22% and in females by 35% (Spielhagen, 2008).

Self-concept. Brain-based research revealed changes occurring during adolescence that may explain drops in self-esteem. Rapid physical growth, cognitive and emotional development, societal and technological overstimulation, and the desire to establish independence may have negatively affected self-concept (Gurian & Stevens, 2011). This further underscored the importance of students finding trusted, caring teachers with whom they can bond and attach (Gurian & Stevens, 2011). Taylor (2002) examined peer and parent relations, physical appearance, and self-concept of high school students, and found boys who were in single-sex classrooms outscored students in coeducational environments in both academic and non-

academic self-concept. Self-concept also was developed through student leadership opportunities. Fox (1993) determined that female students enrolled in single-sex classes volunteered for and assumed more leadership roles than those in mixed-sex environments.

Student preference. Review of student interviews and surveys revealed preferences of middle-level students for single-sex educational environments. Forest Valley Middle School in rural New York administered surveys to students ($N = 600$) to gather student opinions on single-sex and coeducational teaching. Fifty percent of all students felt they could improve concentration in single-sex classes (Spielhagen, 2008). Girls reported better concentration levels in single-sex classes than boys. Eighty-four percent of sixth-grade and 70% of eighth-grade girls (compared to an overall sixth-grade level of 60% and eighth-grade of 50%) felt their concentration levels were higher in single-sex classrooms than in coeducational classrooms (Spielhagen, 2008). In addition, students felt more apt to take risks, thought classes were quieter, felt they could act more like themselves, and spent more time with friends in single-sex classes.

On a larger scale, the South Carolina Department of Education (2008) administered surveys to approximately 2,200 single-sex-enrolled students across the state. Overall, more than two-thirds of students agreed single-sex education improved academic performance; nearly three-fourths of students believed courses improved desire to succeed, participate in class, and also improved self-determination levels (South Carolina Department of Education, 2008). Disaggregation by sex and ethnicity mirrored most survey results.

Teacher preference. Forest Valley Middle School Teachers ($N = 28$) echoed students' preference for single-sex classes, as 79% reported both sexes seemed comfortable with single-sex classes and such grouping allowed them to address the specific needs of each sex. Most (64%) felt that single-sex classes should continue to be an option for students, though 54%

voiced a need for more in-service opportunities catered to single-sex instruction (Spielhagen, 2008). In the 2008 South Carolina Department of Education survey, more than 80% of teachers agreed that single-sex instruction was a factor in improving academic performance. Results were similar across all grade levels of instruction.

Parent preference. Spielhagen (2008) reported results of parent surveys of single-sex opportunities and their impacts on students to be mixed. Approximately half of parents felt single-sex classes helped improve students' learning but were unsure as to their social benefits. Sixty-one percent of parents felt mixed-sex classes created more social opportunities for students. If given the option, 46% would choose to enroll their child in single-sex classes while 59% believed single-sex classes should continue at the middle school level (Spielhagen, 2008). Three-quarters of South Carolina parents (South Carolina Department of Education, 2008) surveyed agreed that single-sex classes improved their child's performance, particularly in the areas of self-esteem, independence, and self-confidence. Parents of male students affirmed the benefits of single-sex classrooms at higher rates (75-85%) than parents of female students (65-75%) (South Carolina Department of Education, 2008).

Single-Sex Pedagogical Approaches

Informal surveys of and commentaries from single-sex classroom teachers by Gurian, et al. (2009) and Gurian and Stevens (2011) revealed several effective pedagogical strategies for the same-sex classroom. Review of techniques were disaggregated by sex.

Males. The authors recommended thorough understanding of males' diversity, their particular needs, emotions, sense of humor, and energy levels; authors urged tolerance of greater noise levels, boy behaviors, and permission to wrestle with feelings of anger management. In the classroom setting, teachers were encouraged to hold high expectations for academics and social

maturity, establish and facilitate implementation of discipline systems, use positive feedback, not take things personally, and be fair and patient. Pedagogical strategies listed as effective included sharing life experiences, creating learning opportunities that included kinesthetic activities, de-emphasizing talking by the teacher, teaching problem solving skills, explaining directions more than once and in more than one way, and creating opportunities for collaborative learning (Gurian, et al., 2009; Gurian & Stevens, 2011).

Teachers of males in single-sex classrooms increased achievement through quick pacing, breaking lessons into small chunks, using active learning strategies, including challenge and competition, establishing short-term goals, and helping boys transition between activities (Gurian, et al., 2009). To advance achievement in male students, Gurian, et al. (2009) urged teachers to eliminate stereotypes that limit growth and stifle creativity, explore new possibilities, and include character education and adult mentorship.

Furthermore, connections between arts participation and single-sex grouping of classes developed in male students. Boys who attended single-sex schools were more than twice as likely to pursue interests in art, music, drama, and foreign languages compared with boys of comparable ability who attended coeducational schools (Norfleet James & Richards, 2003).

Females. Like male students, Gurian, et al. (2009) and Gurian and Stevens (2011) recommended teachers understand the needs of females and recommended teaching girls to take pride in their work, evaluate and judge the media messages they receive, feel pride in their femininity, gain self-respect and happiness for what they believe, recognize that mistakes happen, and recognize that value can be derived from mistakes. Female students, according to the authors, should participate without fear of put-downs, be mindful of their own needs, channel anger appropriately, and analyze information carefully. To do this effectively, teachers were

encouraged to call on females equally, be fair, hold students to high expectations, connect to females in meaningful ways to enrich relationships, reconfigure group pairings to lessen cliques, and seek further training to understand how issues affect girls and how to help them to be authentic.

Specific strategies for teaching all-female classes included the incorporation of field trips, physical movement, multisensory strategies, and use of technology. Further, inclusion of hands-on strategies, encouragement of risk-taking behaviors, creation of meaningful learning opportunities, provision of collaborative and competitive learning opportunities, explanation of spatial and mechanical information, and allowance for independent learning were recommended. Surveys of teachers of students in single-sex environments revealed recommendations for teachers that included providing opportunities for students to share concerns and receive feedback, teaching alternative solutions to problems, incorporating character education and adult mentors, and cultivating leadership through connections to female leaders and community initiatives (Gurian, et al., 2009; Gurian & Stevens, 2011).

Building a Case for Single-Sex Choral Music Education

While single-sex choral ensembles were a popular option in many middle schools, junior high schools, and high schools, their concerted inclusion in the organizational design of choral programs was commonly suggested by researchers through empirical results, implications, discussions, and commentaries. Single-sex choirs were encouraged by authors for students at the upper elementary level (Bazzy, 2010; Killian, 1999), middle school/junior high level (Barham, 2001; Beery, 2009; Brinson, 1996; Collins, 1999; Demorest, 2000; Freer, 2007; Giddings, 1930; Kennedy, 2004; Nycz, 2008; Patton, 2008; Roe, 1983, 1994; Skoog & Niederbrach, 1983; Swanson, 1960, 1961, 1984; Sweet, 2010; White & White, 2001; Wisenall, 1930; Zemek, 2010)

and the high school level (Barham, 2001; Brinson, 1996; Carp, 2004; Demorest, 2000; Miller, 1988; Roe, 1983, 1994; Skoog & Niederbrach, 1983; Swanson, 1960, 1961, 1984; Wisenall, 1930).

Single-sex choirs were found to improve motivation levels by males at the elementary level (Bazzy, 2010) and at the middle school level (Sweet, 2010). Additionally, directors at both the middle school/junior high and high school levels reported enrollment increases after dividing choirs into single-sex ensembles (e.g., Barham, 2001, Jorgensen & Pfeiler, 2008). These ensembles helped directors to vary choral offerings for students in the choral program (Skoog & Niederbrach, 1983) and aided in developing a sense of team and camaraderie through singing (Giddings, 1930; Sweet, 2010). Homogeneous ensembles, particularly all-male choirs, positively impacted psychosocial issues related to the culture and popularity of singing (Demorest, 2000).

Single-sex ensembles allowed directors to choose more appropriate literature for their students (Beery, 2009; Giddings, 1930) and cater pedagogy to meet students' physiological and psychosocial needs, particularly those associated with voice change (Barham, 2001; Beery, 2009; Collins, 1999; Freer, 2007; Kennedy, 2004; Killian, 1999; Patton, 2008; Skoog & Niederbrach, 1983; Swanson, 1960; White & White, 2001).

Carp (2004) studied Southern California ($N = 101$) high school choral directors to assess the practices and attitudes related to the behavior and teaching techniques in single-sex ensembles. Participants reported improvements to student behavior in the single-sex environment and stronger opportunities for tailoring vocal pedagogy to specific sex, all based on their instruction of both mixed and single-sex choirs.

Specific to middle school/junior high, Nycz (2008) described a single-sex choral program in Ohio, collecting written data from students and conducting interviews with choral directors

and administrators to identify the advantages and disadvantages of single-sex programs at the middle-level. Directors and administrators explained the benefits of single-sex instruction in middle-level programs due to their developmental appropriateness for learners, environment for positive social interactions, improved classroom management, and positive impacts on enrollment. Students spoke favorably of single-sex choirs, reporting benefits related to classroom environment, catered vocal pedagogy, and repertoire. Female students, however, preferred the sonority of mixed choirs over all-female choirs (Nycz, 2008).

Groupings of students into single-sex courses appeared to positively impact enrollment in choral ensembles. Dame (2011) surveyed middle school choral directors in Texas ($N = 63$) using cluster random sampling and found schools with all-male sixth-grade choirs had higher male enrollments ($M = 62.9$ males) than schools with only mixed-voice choirs ($M = 43.7$ males). Results also indicated greater male retention rates from sixth- to seventh-grade among schools with all-male sixth-grade choirs (70%) than among schools with only mixed-voice choirs (58%).

Kotara (2013) surveyed Texas middle school choir directors ($N = 42$) to study choral program structures including sixth-grade choirs. Results indicated enrollment imbalances between females and males, with more females enrolled in sixth-grade choir than males. Sixth grade mixed-voice choirs were more common than same-sex choirs with a mean class load of 1.9 mixed-voice choirs, .4 all-male choirs, and .5 all-female sixth-grade choirs. Participants voiced numerous pedagogical and social concerns with mixed-voice choirs, including (a) lack of singing confidence amongst male singers, (b) difficulties addressing voice change, and (c) classroom management difficulties, all of which echoed the results found in non-music classrooms with both sexes.

Hawkins (2015) used collaborative research strategies to study male choral participation in two middle-level choral programs, finding increased enrollment in programs after separating classes into single-sex ensembles. After reorganization, the choral program at one school, which switched from mixed-sex to single-sex choirs, grew from a total program enrollment of 97 students to 155 five years later, including an increase in men's choir enrollment from 3 to 39 students (Hawkins, 2015).

In addition to enrollment increases, specific pedagogical approaches in choral music appeared to align with the strategies presented in general education settings. Ashley (2010) stressed addressing same-sex issues in the classroom and providing same-sex-appropriate strategies for effective and motivational teaching. Without purposeful instruction, according to Freer (2011), adolescents who experienced frustration in singing began to gravitate instead to athletic activities. Freer stressed teachers must frame the skills of singing toward by taking advantage of the archetypical need of adolescents for autonomy and personal satisfaction (Freer, 2015).

Action-Oriented Strategies in Single-Sex and Choral Classrooms

Jorgensen and Pfeiler (2008) described the impacts of single-sex choirs in their own Wisconsin high school choral program, which transitioned from all mixed-voice choirs to include single-sex choirs. Factors impacting the change included voice change, student focus, classroom management, varying singer experience, choral repertoire limitations, and negative sociological views of male singing. Like Carp (2004), directors reported improvements related to catered vocal pedagogy and classroom management, as well as more options for choral literature. The authors reported numerous benefits to students, noting (a) enhanced self-discipline, attitude, pride, and work ethic; (b) improved energy and motivation; (c) increased expectations and

leadership opportunities for female students; (d) higher involvement in private voice lessons; and (e) enrollment growth, especially with male singers, which had tripled since the inception of the program (Jorgensen & Pfeiler, 2008).

Though some studies have reported positive impacts of including single-sex choirs in the choral organizational design of middle-level programs, only two studies have detailed the change process to include single-sex choirs at the middle-level and included action-oriented strategies to advocate for and/or change programs to include single-sex ensembles. Dame (2017c) investigated the change process of a Texas middle school in which the choral program transitioned from offering mixed-voice choral classes to single-sex choral classes. He utilized qualitative research techniques to (a) ascertain the influences that informed the decision to shift from mixed-voice to single-sex choral ensembles, (b) identify key players involved in the process, and (c) describe the procedures used to inform and carry out change. He reported positive previous teaching experiences with single-sex choirs may serve as a foundation for restructuring a middle school choral program and that structuring a quality choral music program required support from both campus and district personnel. Additionally, collaboration with administrators, counselors, colleagues, parents, and students were keys to effective change. The change process included a multi-step process that included pre- and post-change student assessment, parent feedback, concert performance, and contest results. Discussions related to change were held with multiple key players, including administrators, colleagues, students, and parents. Dame reported that pedagogical strategies must be targeted, purposeful, and inspirational in order to motivate students in the middle school choral classroom.

Hawkins (2015) used a collaborative inquiry group of five practicing choral directors, with the goal of using research results as action-oriented strategies to encourage male

participation in choir. Results suggested creation of single-sex choirs, recruitment and retention activities, and same-sex mentoring could be used to counter physiological, psychosocial, and administrative barriers related to male choral singing. Two participants from the study engaged in the change process to include single-sex choirs, reporting large increases in male and female enrollment, and describing the decision to include single-sex choirs as “the greatest move we have made in the last 17 years” (p. 84). Specific action-based strategies implemented by participants in the study included embracing unique traits of adolescent males and females, using sectionals during mixed choirs to create single-sex opportunities, addressing the choral environment through physiological and psychosocial lenses, and creating a “Real Men Sing” tour to showcase males at feeder campuses and among the community. The inquiry group described how single-sex choirs enhanced classroom management, rehearsal and social environments, better catered vocal pedagogy, aided literature selection, increased student leadership, improved enrollment and retention, and eased pedagogical delivery. Though the group felt the middle-level was the optimal time for single-sex choirs, one director reported similar benefits at the high school level, including easing the transition from eighth- to ninth-grade. Continued growth opportunities for choral programs were discussed and recommended further division of classes by grade and/or ability level (Hawkins, 2015).

A greater body of research related to action-based strategies was available in the field of single-sex non-music classrooms. Creation of such classrooms in the general education setting required numerous foundations, some of which included research, planning, communication, parental buy-in, logistical discussions related to master schedule, teacher buy-in, and adjustment of curriculum when necessary (Marks & Burns, 2008). After the initial research and planning stages, Chadwell (2010) recommended unveiling information on the single-sex initiative to

administrators, teachers, parents, students, and school board members at a reasonable pace. Table 2 presented the recommended sequence for communicating change with each stakeholder.

Table 2.

Recommended Sequence For Communicating Change Organized By Stakeholder

Administrators	Teachers	Parents	Students	School Board Members
<ul style="list-style-type: none"> • Rationale • Need (Data) 	<ul style="list-style-type: none"> • Rationale • Need (Data) • Definition 	<ul style="list-style-type: none"> • Rationale • Definition • Benefits • Choice Option 	<ul style="list-style-type: none"> • Rationale • Definition • Benefits 	<ul style="list-style-type: none"> • Rationale • Need (Data)
<ul style="list-style-type: none"> • Schedule Options 	<ul style="list-style-type: none"> • Research on Sex Differences 	<ul style="list-style-type: none"> • Research on Sex Differences • Students' Experiences in the Classrooms 	<ul style="list-style-type: none"> • Schedule • Learning Options • Students' Experiences in the Classrooms 	<ul style="list-style-type: none"> • Structure • Policies
<ul style="list-style-type: none"> • Feedback • Anecdotal Information 	<ul style="list-style-type: none"> • Opportunities for Single-Sex Education • Schedule Ideas 	<ul style="list-style-type: none"> • Structure • Selection Process • Choice • Policies 	<ul style="list-style-type: none"> • Question and Answer 	POST <ul style="list-style-type: none"> • Anecdotal Information
<ul style="list-style-type: none"> • Data Based on Rationale 	<ul style="list-style-type: none"> • Question and Answer • Feedback • Reflection on Practice 	<ul style="list-style-type: none"> • Question and Answer 	POST <ul style="list-style-type: none"> • Feedback 	POST <ul style="list-style-type: none"> • Data Based on Rationale • Future Plans
	POST <ul style="list-style-type: none"> • Feedback • Future Plans 	POST <ul style="list-style-type: none"> • Feedback • Future Plans 	POST <ul style="list-style-type: none"> • Future Plans 	

Note. Adapted from D. Chadwell, 2010, *A gendered choice: Designing and implementing single-sex programs and schools*, p. 93-94. POST identified information to be disseminated after implementation.

Based on experiences facilitating transitions to single-sex classes, Chadwell (2010) and Gurian, et al., (2009) summarized frequently asked questions by parents, students, teachers, media, and administrators related to single-sex classes. Concerns related to (a) the purposes, perceived benefits, and costs of single-sex instruction; (b) potential impacts on student socialization; (c) enrollment and selection procedures, including which classes and grades will be used and how many students can be facilitated; (d) how to address opposition to the project; (e)

effects on school logistics, scheduling, facilities, class size, and teacher assignment; (f) professional development related to single-sex instruction; and (g) the timeline of the initiative.

Review of logistical procedures appeared to provide answers to most of the aforementioned concerns. Through his action-based chapter “Rationale and Structure,” Chadwell (2010) presented a sequential plan for implementing single-sex programs. First, leaders should create an exploratory group to involve key stakeholders in the planning and implementation processes. Next, Chadwell recommended key players learn together about single-sex education, including information on sex differences, classroom impacts, legal obligations, and research into other successful single-sex programs. Third, the committee was suggested to align the program with the school’s mission statement. Doing so, according to Chadwell, created a stronger, more persuasive argument presentation for parents, school board members, and faculty members. The penultimate step was to develop a rationale through review of school data to give the program substance and avoid the perception that this program is jumping on a bandwagon or following the latest educational fad (Chadwell, 2010). Finally, the committee was advised to decide on a structure, some of which included implementation as a whole school, a school within a school, in specific grade levels, through specific subjects, on teams, using individual teachers, or in specialized areas (e.g., breakfast, lunch, after school).

A successful single-sex program required the support of and buy-in from teachers (Chadwell, 2010; Gurian, et al., 2009; Gurian & Stevens, 2011). One opportunity to create buy-in with teachers was through building community. Effective strategies included integration of single-sex programs into school culture, creating an identity for single-sex program, providing specific locations for classes, developing a program creed, creating an effective public relations

plan, hiring or appointing a coordinator of the single-sex program, and facilitating team-building activities for staff and students (Chadwell, 2010).

The choral music education research of Hawkins (2015), Dame (2017c), Nycz (2008), Jorgensen and Pfeiler (2008), and Carp (2004) all reported advocacy and collaboration with administrators as a successful action-based strategy for change. Van Camp (1987) described the importance of educating administrators on the importance of choral music:

While there are some administrators with bad attitudes, there are probably more with a lack of information. They do not find music to be important because we have not shown them it is important. If they see music only as a public relations frill in their scheme of things, it may be because we have done too little to show that music is a vital part of our culture and of our life. We have, perhaps, been a little too concerned with what our fellow conductors would think of our work and not concerned enough about what the people for whom we work or for whom our future teachers will work feel about our work (p. 17).

Barriers to Single-Sex Education

Though the benefits of single-sex classrooms were numerous, implementation of such programs were often marred by legal implications, logistical challenges, scheduling difficulties, unexpected or excessive costs, lengthy timelines, and lack of administrative support. Review of extant literature focused on barriers related to single-sex education in the general setting, followed by impacts specific to choral music.

Legal implications. Commonly cited by opponents of single-sex education was Title IX (1972), which was created to ensure equality of educational programs, courses, services, and facilities for both sexes (United States Department of Labor, 2011). Under Federal Statute 34

CFR 106.34, assignment to single-sex classrooms or schools must be completely voluntary.

Specifically, a recipient:

...shall not provide any course or otherwise carry out any of its education program or activity separately on the basis of sex, or require or refuse participation therein by any of its students on such basis, including health, physical education, industrial, business, vocational, technical, home economics, music, and adult education courses (p. 396).

This statute allowed some classroom subjects to remain segregated, including choir (Cable & Spradlin, 2008; United States Department of Labor, 2011). Specifically, choruses may “make requirements based on vocal range or quality that may result in a chorus or choruses of one or predominantly one sex” (Federal Statute 34 CFR 106.34, p. 397).

In 1996, the admission policies of the Virginia Military Institute, a longtime male-only college, were challenged by the case *U.S. vs. Virginia*, which struck down the male-only admission policies and allowed women to enroll in the school. This landmark finding appeared to empower opponents to single-sex education. Datnow, et al. (2001) described those seeking to include single-sex education often abandoned their initiative due to conflicts between policy makers and educators over ideology, resources, and concerns about equity (Salomone, 2003).

The transition back to single-sex courses was championed by Senators Hillary Clinton and Kay Bailey Hutchison, who first proposed legislation supporting single-sex education at a Democratic fundraiser in 2001 (Ferrara & Ferrara in Spielhagen, 2008). Clinton described her motivations for the proposal:

There should not be any obstacle to providing single-gender choice with the public school system. We should develop and implement quality single-gender educational opportunities as part of providing diversity of public school choices to students and

parents. Our long-term goal has to be to make single-sex education available as an option for all children, not just for children of parents wealthy enough to afford private schools. Though Hutchison and Clinton's proposal eventually became law through the passing of the educational reform act "No Child Left Behind" (NCLB) in 2001, which created more opportunities and flexibility for new educational initiatives (Spielhagen, 2008), revisions were added in 2006 related to single-sex education. Specific provisions in sections 5131(a)(23) and 5131(c) were included by the United States Office of Civil Rights (OCR) to legalize single-sex education in public schools, given that the schools (a) provide a rationale for offering a single-gender class in that subject, (b) provide a coeducational class in the same subject at a geographically accessible location, and (c) conduct a review every two years to determine whether single-sex classes are still necessary to remedy whatever inequity prompted the school to offer the single-sex class in the first place (No Child Left Behind, 2001).

As schools added single-sex courses and districts created single-sex schools, political opposition mounted through claims that the educational grouping was unconstitutional, and even, a form of segregation. In a landmark case between the Americans for Civil Liberties Union (ACLU) and the Breckinridge County Board of Education (2011), the United States Western District Court of Kentucky ruled "no legal authority [supported] the conclusion that optional single-sex programs in public schools [were] ipso facto injurious to the schools' students. Unlike the separation of public students by race, the separation of students by sex [did] not give rise to a finding of constitutional injury as a matter of law" (ACLU v. Breckinridge County Public Schools, 2011, p. 6).

Questions regarding the legality of single-sex education occurred throughout much of the beginning of the 21st century, prompting the United States Department of Education in 2014 to

issue clarifications to the requirements for single-sex classes. To offer single-sex classes or extracurricular activities, schools must (a) identify an important objective that they seek to achieve by offering a single-sex class; (b) demonstrate that the single-sex nature of the class is substantially related to achieving that objective; (c) ensure that enrollment in the single-sex class is completely voluntary; (d) offer a substantially equal coeducational class in the same subject; (e) offer single-sex classes evenhandedly to male and female students; (f) conduct periodic evaluations at least every two years to ensure that the classes continue to comply with Title IX; (g) avoid relying on gender stereotypes; (h) provide equitable access to single-sex classes to students with disabilities and English language learners and, (i) avoid discriminating against faculty members based on gender when assigning educators to single-sex classrooms (United States Department of Education, 2014).

Logistics and scheduling. Difficulties in creating school master schedules appeared challenging for school administrators according to Chadwell (2010). Factors such as program format and number of teachers involved in the program may have affected overall schedule design. Chadwell (2010) provided an example of such through the case of a pre-algebra course with one section before the single-sex split. After the program, two sections became required, one for girls and one for boys. Often, departmentalized teams caused complications to the master schedule. Chadwell (2010) reported more difficulties as the number of honors courses and levels increased in secondary schools because every course needed to be taught three times, once for boys, once for girls, and once for coeducational opportunities. Often, schools did not have enough teachers to teach all the levels offered in the coeducational schedule. To illustrate his point, Chadwell (2010) offered five effective schedule options specific to the middle-level, with varying options for number of teachers, teams, course groupings, and teaching assignments.

Costs. In many cases, single-sex programs could be implemented essentially without funding, though costs increased based on the options the school chooses to include. Financial obligations included staffing costs, communication and informational materials, postage, professional development, hiring substitute teachers or consultants, purchasing teaching resources, designating building facilities, providing student transportation, and/or hiring a coordinator for single-sex programs (Chadwell, 2010). Low-cost options included teacher reassignment of courses to include single-sex classes, communicating with parents through mailings and informational materials. Moderate-cost options comprised the low-cost options as well as offering professional development, purchasing of teaching materials, and hiring a consultant or substitute teachers for training purposes. High-cost options expanded on the low- and moderate-cost options, but could also include new facilities, the creation of new staff positions, and student transportation costs (Chadwell, 2010). Regardless of the options chosen, costs appeared to impact the decision to include single-sex initiatives.

Timelines for Implementation. Through his step-by-step text, Chadwell (2010) listed timelines and strategies for implementation of single-sex programs. Often troublesome for leaders was the timeline for implementation of single-sex programs, which ranged anywhere between three months to a year or more to prepare students, teachers, and the community for such a change. Teachers and administrators prepared for changes through hiring of consultants for training purposes, distributing information to key stakeholders, providing and acquiring materials for teacher study, and purchasing texts for pedagogical development. As the implementation timeline expanded, items such as completing book studies, visiting schools, attending training, practicing single-sex strategies in the current classroom, analyzing school data, and using differentiated instruction proved effective (Chadwell, 2010).

Once implementation of the program occurred, Chadwell (2010) recommended creation of lesson plans, providing time for team planning, holding focus group discussions, reviewing data, and presenting or hosting conferences to be beneficial in supporting and further expanding the single-sex program. Sustaining the program beyond initial implementation required strong leadership, potential institutionalization of the program, mentorship of new staff, continued professional development, and embracement of change when necessary (Chadwell, 2010).

Barriers to Creating Single-Sex Choral Music Programs

Few studies have examined the barriers to single-sex choral ensembles, particularly at the middle-level. Commentaries and discussions within research studies highlighted the need for single-sex choirs (e.g., Dame, 2011; Hawkins, 2015; McClung, 2006), though most failed to provide action-based strategies for implementation. In his analysis of the change process from mixed-voice to single-sex choirs in a middle school choral program, Dame (2017c) reported complications to the master schedule, inadequate staffing, difficulties in locating classrooms, and ineffective collaboration with other fine arts staff as hurdles to the change process.

The research of Abril and Bannerman (2015) suggested that the impact of micro-level factors (those within the school) had a substantial impact on music programs, with schedule, budget, funding, and administrative support emerging as the most critical to improving music programs as reported by music educators. These results began to provide more credibility to the results of Dame (2017c) and commentaries found within single-sex choral music articles and studies.

Middle school choral directors in Hawkins (2015) reported that changes in administration, school scheduling, class and graduation requirements, and elective choices were difficult to control and essentially were beyond the responsibility of choral practitioners. Group

members reported barriers to single-sex choirs as (a) the belief that single-sex choirs eliminated the mixed choir experience for students, (b) the number of males in choir limited creation of such groups, (c) legal impacts discouraged creation of single-sex choirs, (d) a lack of funding and/or staffing existed, and (e) students preferred the sonority of mixed choirs and/or deem them to be more prestigious than all-female or all-male choirs. In contrast to what was reported in other studies (e.g., Dame, 2017c, Hawkins, 2015), directors leading mixed-sex choirs reported musical and psychosocial improvements through these ensembles. Through national survey of exemplary middle-level choral directors, McClung (2006) reported the preference of mixed choirs by participants, as mixed choirs simplified scheduling, eliminated psychosocial gender issues, fostered understanding of different vocal timbres, encouraged teamwork, improved male behavior, addressed tuning, and offered a wider variety of choral repertoire.

As referenced in Hawkins (2015), no one factor explained barriers to single-sex choirs or director preference for mixed choirs. Previous research revealed multiple factors accounted for the imbalance of males and females in choral music (Hawkins, 2015; Lucas, 2007; Williams, 2011), and therefore no one-dimensional approach was likely to succeed in leveling enrollment rates, including creation of single-sex choirs. Nycz (2008) emphasized that low male enrollments may discourage administrators from creating all-male choral ensembles at the middle-level. In fact, unintended consequences or biases were reported in research addressing single-sex choral ensembles (O'Toole, 1998; Wilson, 2012) as choral directors unintentionally favored male singers over females simply because of enrollment imbalances.

While single-sex educational environments offered numerous physiological, psychosocial, and pedagogical benefits, they were often paired with numerous barriers and opposition related to their creation. Single-sex choral ensembles appeared well designed to meet

the needs of students on multiple levels, yet the practice of including such groups at the middle-level appeared limited, at best. While the number of programs that offered all-male or all-female choirs at the middle-level were limited, the motivations for or against including these ensembles and the obstacles that prevented their inclusion were largely overlooked by researchers.

Summary

This chapter reviewed extant literature relevant to middle-level education, choral music education, single-sex schooling, and single-sex choral music. Because no particular study mirrors the present investigation, efforts have been made to address deficiencies in the body of research found in the review of literature that relate to the current research topic in order to provide practical research to the field of music education.

The purpose of this study was to examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The researcher used a convergent mixed methods design to ascertain (a) the frequency of single-sex choirs in middle-level choral programs, (b) director motivations to form or reject single-sex choirs, (c) perceived and observed barriers to creating single-sex choirs, and (d) action-oriented strategies for including single-sex choirs in middle-level choral program designs. The following research questions guided this study:

1. What organizational designs exist in middle-level choral programs? Specifically, what is the reported number of single-sex and mixed choirs within school music programs?
2. What are directors' motivations for single-sex or mixed-voice choirs at the middle-level?

3. For programs with single-sex choirs, were structural designs inherited or changed to include single-sex choirs? For those successfully implementing change, how was change facilitated, particularly what strategies were used, what players were involved in the change process, what (if any) difficulties were experienced, and how were students impacted?
4. For programs with only mixed-voice choirs, would directors adopt the single-sex environment if possible, and if so, what are the barriers to doing so?

CHAPTER THREE

Method

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The study used a convergent mixed methods design to ascertain (a) the frequency of single-sex choirs in middle-level choral programs, (b) director motivations to form or reject single-sex choirs, (c) perceived and observed barriers to creating single-sex choirs, and (d) action-oriented strategies for including single-sex choirs in middle-level choral program designs.

This chapter describes the research design, role of the researcher, procedures, participants, data collection, and analysis related to the study. Methodology related to procedures and data collection are analyzed through both quantitative and qualitative strands.

Research Design

Mixed-method research methodologies have become increasingly popular in music education (West, 2014). Premier research journals in the field, particularly the *Journal of Music Education*, have encouraged authorship and submission of projects using progressive methodologies (Sims, 2012) such as this. Mixed methods research uses both qualitative and quantitative data to provide greater breadth and depth of understanding of research questions and allows for study of research problems from multiple perspectives (Creswell & Plano Clark, 2011, 2017). The limitations of one method can be offset by the strengths of another, thus the combination of qualitative and quantitative data provides a more complete understanding of the research problem than does a single methodology (Creswell, 2017).

Most common in mixed methods research is the concurrent research design, which collects and integrates data at the same time for the investigator to gain a better understanding and interpret the study's results. As the purpose of current study includes both qualitative and quantitative elements through the simultaneous collection of data, this method was used.

Specific mixed-method research designs initially focused on the "timing" of quantitative and qualitative methods of a mixed methods study, yet Creswell and Plano Clark (2017) argued timing is a difficult standard to apply in practice because both databases may be collected at roughly the same time (p. 60). In their most recent edition of *Designing and Conducting Mixed Methods Research*, Creswell and Plano Clark described their changing typology of mixed methods research, most particularly with the description of concurrent triangulation, which they now title convergent design. They state, "instead of focusing on the triangulation of data sources, we now emphasize what the researcher does with the data sources within the intent of the study (e.g., to *converge* the results) for enhanced understanding" (p. 60). The current study merges simultaneously collected data from quantitative surveys and qualitative interviews in order to examine the frequency of, motivations for, strategies for the implementation of, and obstacles preventing single-sex choirs at the middle-level; thus, a convergent mixed methods design was deemed most appropriate.

In the current study, the quantitative survey is designed to answer all four research questions; however, while qualitative interviews are focused on all research questions, there is an emphasis on research question three, which addresses the change process from mixed-voice to single-sex choirs and the provision of pragmatic, action-oriented strategies for those seeking change. This unequal priority between the two strands, also known as the data-transformation

variant to convergent design, will be implemented in the current study (Creswell & Plano Clark, 2017).

Procedures and Instruments

Approval of the research design of both strands was requested and approved by the University of Kansas Institutional Review Board (IRB) and Human Services Committee Lawrence (HSCL).

Quantitative strand. After a database review of the *Mental Measurements Yearbook, with Tests in Print* (Carlson et al., 2017), no particular instrument was identified that would adequately serve this study; therefore, a survey was designed and titled Survey on Single-Sex Choral Offerings (SSCO). Based on extant literature, recommendations for future research, and my own experience teaching single-sex choirs at the middle-level, I developed an online version of the SSCO for review.

Five music educators reviewed the survey for face validity, including one music education professor, a university choral director, one high school director, and two middle-level choral directors, one teaching at a middle school and the other at a junior high school. Minor adjustments for clarity were completed and resulted in the final survey, which was divided into four sections. The first section acquired teacher and choral program demographic information. Teacher demographic information included the age-level taught, which provided an option for disqualification if the respondent answered that he/she only teaches high school or does not teach either middle school/junior high or high school. Program demographic information included program enrollments by sex and a logic-based question centered on choral program organizational design. Director participants responding that curricular choirs were single-sex advanced to section two, which focused exclusively on single-sex choirs at the middle-level.

Participants answering that their choirs consisted of mixed-voice ensembles were directed to section three, which addressed mixed-voice choirs at the middle-level. Those with a combination of both single-sex and mixed-voice choirs were sent to section four, which questioned participants on the hierarchy of their choral program design. The final version of the SSCO consisted of ten close-ended questions and two questions with open-ended response options (see Appendix C).

A pilot study was administered to five middle-level choral directors ($M = 12$ years teaching experience, $SD = 3.16$ years) for reliability, content validity, and clarity. Test-retest reliability was calculated at .96 for the results of the pilot study. The launch of the study occurred with a qualifying informational statement that preceded the survey (Appendix A). Participation was optional and consent was given by completion of the survey. Qualitative interview subjects signed an electronically distributed consent form prior to participation (Appendix B).

Participants. Survey invitations were sent to three populations in an effort to best represent American middle-level choral directors. Populations were set based on extant literature (Dame, 2017a) in an effort to capture a large data set and included (a) members of the National Association for Music Education (NAfME) that self-identified middle school/junior high choral music as a part of the participant's teaching area ($N = 10,419$), (b) the state membership of the Texas Music Educators Association (TMEA) ($N = 1,409$) who currently teach middle or junior high school, and (c) middle school/junior high teachers who are members of state ACDA chapters. TMEA was used as a substitute due to larger membership than Texas NAfME which purports fewer than 70 members. To determine a state ACDA chapter's interest, I sent invitational emails to each ACDA State President and, if available, each state's Middle School/Junior High Repertoire and Resources State Chair. Participating ACDA state chapters (N

= 24) included Alabama, California, Colorado, Connecticut, Florida, Hawaii, Idaho, Illinois, Louisiana, Maine, Massachusetts, Michigan, New Hampshire, North Dakota, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin, and Wyoming.

Invitations to participate were sent to the NAFME membership by a third-party company for a fee. TMEA participant invitations also incurred a fee, but were sent and paid for by the researcher. State ACDA Presidents and Repertoire and Resources Chairs distributed survey invitations based on their state's infrastructures, sending either a blanket email to middle-level choral directors or a public listserv invitation. Participants were invited to complete the survey using Google Forms within 10 days. After the initial invitation, a follow-up e-mail was sent to all populations after five days had elapsed. Following the end of the ten-day response period, data were analyzed using IBM SPSS 28.0 for descriptive statistical analysis. After survey completion, traditional content analysis procedures were used to organize and analyze open-ended responses found within the quantitative strand into exhaustive and mutually exclusive categories. A second person duplicated the analysis as a reliability check with inter-rater reliability calculated at .98 (Krippendorff, 1980). Return rates could not be accurately calculated due to unknown number of members reached by the distribution policies of each ACDA state chapter. Survey distribution was limited by the policies of national and state organizations; however, the researcher exhausted all avenues for survey distribution and results present the most accurate snapshot possible given the present organizational policies.

Surveys were completed by 1,002 participants. As NAFME, TMEA, and ACDA state databases may have inaccurate information due to job change and/or the ability to select interest areas, question two of the SSCQ was designed as a screening question to ensure each participant

was currently teaching middle-level choral music. In all, 81 responses were disqualified.

Seventy-five participants did not currently teach middle-level choral music, and six contained response errors. Usable surveys ($N = 921$) represented every state except Alaska and Hawaii.

Table 3 presents the number of survey responses organized by state.

Table 3.

SSCO Responses Organized by State

State	<i>n</i>	State	<i>n</i>
Alabama	14	Nevada	9
Arizona	11	New Hampshire	3
Arkansas	4	New Jersey	17
California	35	New Mexico	3
Colorado	13	New York	25
Connecticut	10	North Carolina	17
Delaware	2	North Dakota	4
Florida	10	Ohio	57
Georgia	21	Oklahoma	12
Idaho	5	Oregon	14
Iowa	3	Pennsylvania	18
Kansas	25	Rhode Island	2
Kentucky	16	South Carolina	3
Louisiana	9	South Dakota	3
Maine	5	Tennessee	14
Maryland	7	Texas	298
Massachusetts	15	Utah	10
Michigan	4	Vermont	2
Minnesota	9	Virginia	27
Mississippi	4	Washington	26
Missouri	32	West Virginia	5
Montana	4	Wisconsin	23
Nebraska	23	Wyoming	2

Note. $N = 921$.

Slightly over 70% of respondents taught only middle or junior high school ($n = 652$), while nearly 30% taught both middle/junior high school and high school ($n = 269$).

Qualitative strand. Because no known interview instrument was identified that accurately addressed this study, interview questions were written based on the review of literature to address research questions and to help uncover action-based strategies for those beginning the change process to include single-sex choirs. Questions were founded through extant literature and its recommendations for future research, particularly the studies of Jorgensen and Pfeiler (2008) and Dame (2017c). Questions were formulated to explain the timeline in terms of change to include single-sex choirs, further explicate director motivations for including single-sex choirs, describe organizational change, and provide a more comprehensive portrait of the change process from beginning to end than was possible through a quantitative survey. While the interview questions focused on all research questions, there was a concerted emphasis on addressing research question three. A list of the interview questions can be found in Appendix D.

Participants. The qualitative strand employed stratified purposeful sampling (Miles & Huberman, 1994) to best highlight exemplary middle-level teachers that separated their programs into single-sex choirs. I contacted each state's ACDA President and Middle School/Junior High Repertoire and Resources Chair to screen potential interview participants, as their knowledge of their state's choral directors would likely lead to a more informed choice and, thus, may lead to more in-depth interviews. Additional efforts to locate participants were found through the American Choral Directors Facebook page. Potential interview participants were screened by the researcher and by ACDA State Presidents and Middle School/Junior High Repertoire and Resources Chairs. Initial contact was made with each participant through email to gauge his/her interest in participating in the research study. After receiving an informal written acceptance, a formal consent letter was sent via email. Participants ($N = 4$) were demographically diverse.

Table 4 presents each participant's pseudonym, geographical region, school setting, type of school, campus socioeconomic status (SES), and years of experience at the campus.

Table 4.

Demographics of Interview Participants

Pseudonym	Region	Setting	Type of School	Campus SES	Yrs at School
Derek	Midwest	Suburban	Large Public	Middle	7
Tricia	South	Suburban	Medium Public	High	10
Nancy	Northeast	Urban	Small Private	High	26
Mark	West	Rural	Small Public	Low	4

Each interview participant responded to questions in two 45-minute distance interviews using FaceTime that were each held in locations most convenient for the participant. For reliability and credibility purposes, at least two weeks elapsed between each interview for each participant. Sessions were audio and video recorded in addition to written notes that were kept during each interview.

I transcribed interviews with an external reviewer employed to look at 20% of the videos to corroborate authenticity against the transcripts. All transcripts and videos were kept in a password-protected folder for confidentiality purposes. Participants provided additional documents, including teaching schedules, school administrative documents, and e-mails pertinent to the change process.

Data Analysis

For the quantitative strand, I captured data through Google Forms, moved it into an SPSS file, and analyzed data using descriptive statistics. Qualitative data analysis followed Creswell

and Plano Clark's (2017) recommended procedures for mixed methods studies that (a) prepare the data for analysis, (b) explore the data, (c) analyze the data, (d) represent the data analysis, and (e) interpret the results. To prevent distortion and bias within qualitative data, triangulation was used through extant literature and connection of responses into mutually exclusive categories and themes that emerged from the research (Creswell, 2003; Patton, 2014). Interview responses were organized using content analysis strategies with a second person serving to check reliability (Krippendorff, 1980).

I transcribed qualitative data from the interviews and e-mailed participants for member checks for accuracy purposes. Data were logged manually into a database and coded into mutually exclusive fixed categories that directly connected to research questions to establish themes that related to research questions (Creswell & Plano Clark, 2017). Categories, themes, and patterns (Patton, 2014) were utilized to report data regarding single-sex choirs, director motivations to form single-sex choirs, perceived and/or observed barriers to creating single-sex choirs, and action-oriented strategies for forming single-sex choirs.

Integration. After collecting and interpreting all data, comparisons of quantitative and qualitative data were made through a joint display table and corresponding discussion (Creswell & Plano Clark, 2017). I merged results in an effort to make comparisons, validate results, and provide a more comprehensive understanding of single-sex choirs at the middle-level. Findings were assessed on how the information addressed the research questions through the development of inferences and meta-inferences drawn from the quantitative and qualitative data (Teddlie & Tashakkori, 2009).

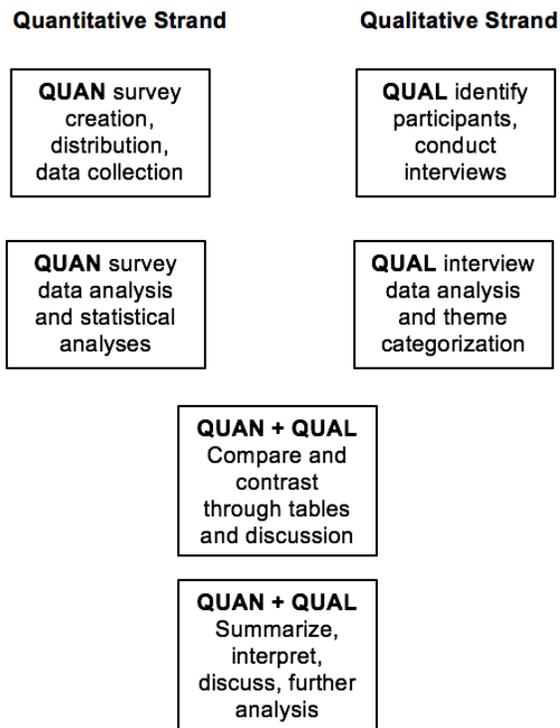
Role of the Researcher

As a practicing middle-level choral music educator for 12 years, I attempted to remain unbiased throughout the research process, although many of my own choral program designs have included single-sex choirs at this level. While these experiences help to better inform the design of the survey, gain credibility and validity during qualitative interviews by serving as insider and outsider (Marshall & Rossman, 2006) and embrace both naturalistic and constructivist approaches (Hatch, 2002), potential biases and possible distorted data exist. Efforts to eliminate biases were taken in the methodological development and data analysis in an effort to provide the most accurate portrait of single-sex choirs in middle and junior high schools.

Summary

This study analyzed the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level through a convergent mixed methods research design. Figure 4 presents a diagram of the research design and procedures used in the current study. Quantitative and qualitative strands were converged to provide further insight into the research problem.

Figure 4. Diagram of research design and procedures used in the current study.



Note. Adapted from J. W. Creswell & V. L. Plano Clark, 2017, *Designing and conducting mixed methods research* (3rd ed.) and K. R. Fitzpatrick, 2008, A mixed methods portrait of urban instrumental music teaching.

CHAPTER FOUR

Results

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. This chapter presents the results in the order of the research questions. Results are organized into quantitative and qualitative elements and are then converged to provide further insight into the research problem.

Research Question One: Organizational Design and Frequency

Research question one studied the organizational designs of middle-level choral programs, particularly with regard to the frequency of single-sex and mixed-voice choirs within school music programs.

Quantitative analysis.

The first research question investigated the organizational designs of middle-level choral programs and the frequency of single-sex and mixed choirs within middle and junior high schools. The results demonstrated a mean choral enrollment of 130 students. When disaggregated by sex, results revealed a 2:1 ratio of female-to-male singers ($M = 87.2$ female students, $SD = 65.11$ female students; $M = 42.8$ male students, $SD = 54.8$ male students). Participants teaching only at the middle-level taught almost twice as many students ($M = 151.8$, $SD = 67.62$) as those teaching at the middle and high school levels ($M = 77$, $SD = 44.93$). Enrollment analysis by sex of these participants' programs revealed similar imbalances ($M = 51.6$ female students, $SD = 51.38$ female students; $M = 25.4$ male students, $SD = 32.46$ male students).

Mixed-voice choirs were the most common voicing available in the middle-level choral programs of those responding to the SSCO ($M = 1.47$ ensembles, $SD = 1.18$ ensembles). Single-sex choirs were prevalent in middle-level choral programs, though were not as popular among participants. All-female ($M = 1.14$ ensembles, $SD = 1.39$ ensembles) and all-male ensembles ($M = 0.73$ ensembles, $SD = 0.99$ ensembles) comprised the other possible voicing combinations within participants' choral programs. Table 5 presents the frequency and percent of sample of the available middle-level choral ensemble voicings.

Table 5.

Frequency and Percent of Sample of Available Middle-Level Choral Ensemble Voicings

Number of Ensembles	All-Male	All-Female	Mixed-Voice
0	523 (56.8%)	469 (50.9%)	212 (23.0%)
1	193 (21.0%)	113 (12.3%)	292 (31.7%)
2	133 (14.4%)	127 (13.8%)	174 (18.9%)
3	63 (6.8%)	118 (12.8%)	155 (16.8%)
4	6 (0.7%)	76 (8.3%)	46 (5.0%)
5 or more	3 (0.3%)	18 (2.0%)	42 (4.6%)

Note. $N = 921$.

Over three-fourths of participants offered at least one mixed-voice choir within their choral program designs. Additionally, mixed-voice choirs were more frequently offered at multiple times within the program's organizational design than all-male and all-female choirs. Single-sex choirs were found at lower rates than mixed-voice choirs. All-female choirs were offered in just under one-half of programs and all-male choirs were a part of less than half of participants' programs.

SSCO participants varied in the organizational designs of their choral music programs. Table 6 presents the frequency of organizational design within middle-level choral programs.

Nearly one-half of participants' choral programs only offered mixed-voice choirs within their choral program design. Over one-fourth of programs employed only single-sex choirs, while just under one-fourth of programs utilized a combination of both single-sex and mixed-voice choirs.

Table 6.

Frequency of Organizational Design of Middle-Level Choral Programs

Organizational Design	<i>n</i>	Percent of Sample
A combination of both single sex and mixed-voice choirs.	213	23.13
Mixed-voice, (e.g., SAB/SATB, separated by grade/ability, etc.)	460	49.95
Single-sex (e.g., all-male or all-female)	248	26.93

Note. *N* = 921.

The hierarchy of the choral programs (i.e., how choirs “feed” or train students for more advanced levels) among participants of the SSCO mirrored the diversity found in the organizational program designs. Table 7 presents the frequency of organizational hierarchy of middle-level choral programs with both single-sex and mixed-voice choirs.

Table 7.

Frequency of Organizational Hierarchy of Middle-Level Choral Programs with Both Single-Sex and Mixed-Voice Choirs

Organizational Hierarchy	<i>n</i>	Percent of Sample
Mixed-voice choirs serve as training choirs to mixed-voice choirs.	14	7.69
Mixed-voice choirs serve as training choirs to single-sex choirs.	72	39.56
Single-sex choirs serve as training choirs to mixed-voice choirs.	83	45.60
Single-sex choirs serve as training choirs to single-sex and/or mixed-voice choirs.	11	6.04
Mixed-voice and/or same-sex choirs serve as training choirs to single-sex and/or mixed-voice choirs.	2	1.10

Note. *N* = 182.

*“Training” was used as a term for beginning choirs that feed into more advanced choirs.

Of participants reporting both single-sex and mixed-voice choirs as part of their choral program organizational design, the hierarchy of choirs within programs varied. Single-sex choirs most commonly led to mixed-voice choirs, though some programs continued single-sex choirs to more advanced levels. Of programs with both voicings of choirs, mixed-voice choirs (typically sixth-grade mixed-sex) most commonly led to single-sex choirs at intermediate and/or advanced levels, yet some programs sustained mixed voicing into more advanced levels.

As noted in Table 5, many participants' programs had more than one single-sex choirs of the same sex. In these situations, participants opted for ability-based choirs (entry by audition), grade-level split ensembles, or in some situations, sections of courses were determined by schedule availability and/or convenience. Table 8 presents student placement methods when more than one single-sex choir exists.

Table 8.

Methods for Student Placement in Programs With Multiple Single-Sex Ensembles

Student Placement Method	<i>n</i>	Percent of Sample
Ability-based (auditioned choirs)	147	63.91
Split by grade level	60	26.09
Schedule availability/convenience (e.g., two class periods of seventh-grade all-female choirs, two class periods of eighth-grade all-male choirs)	23	10.00

Note. $N = 230$.

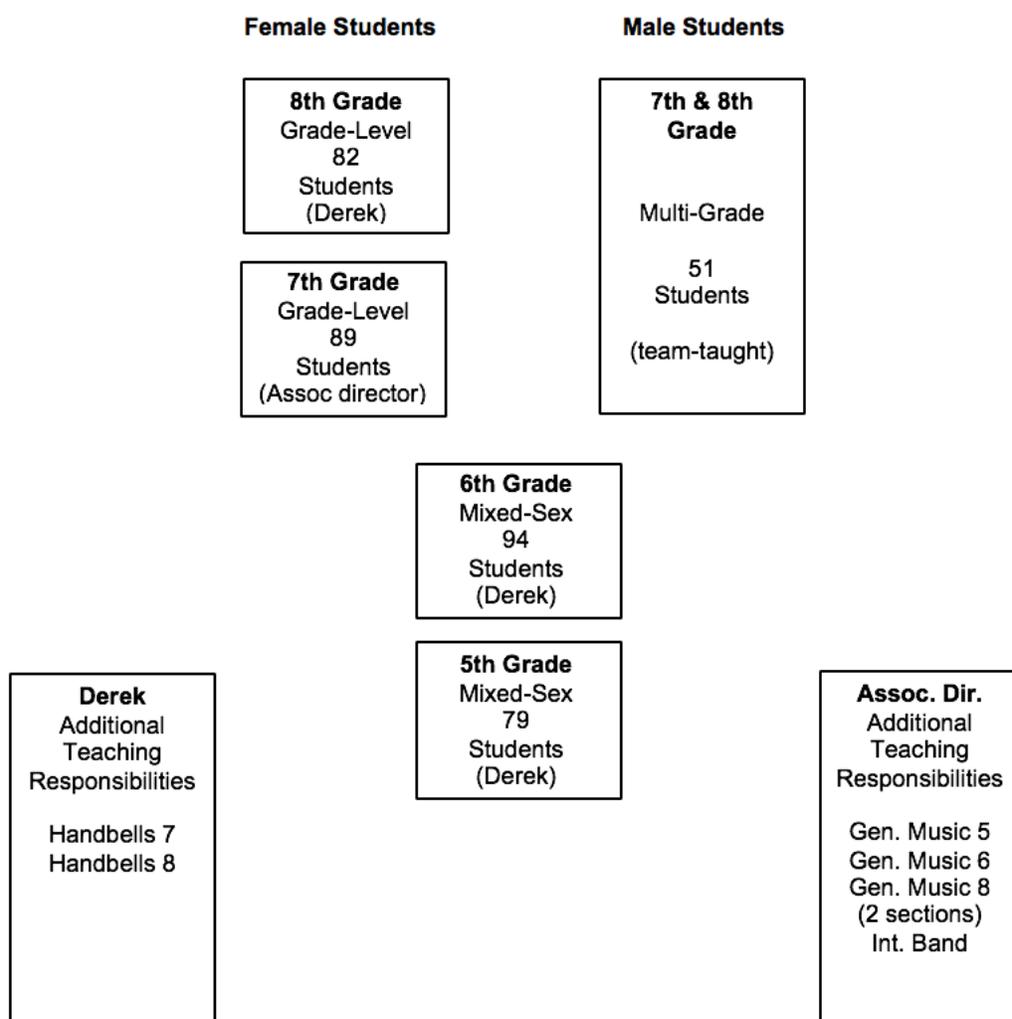
Qualitative analysis.

Interview participants ($N = 4$) all led programs with multiple choral ensembles (Range: 2 – 7 choirs).

Derek.

Of the interview participants, Derek had the largest choral program enrollment, with 395 total students in grades five through eight. Students were divided into five choral classes of mixed-sex, grade-level only, and multi-grade combinations. Figure 5 presents the organizational design of Derek's choral program.

Figure 5. Organizational design of Derek's choral program.



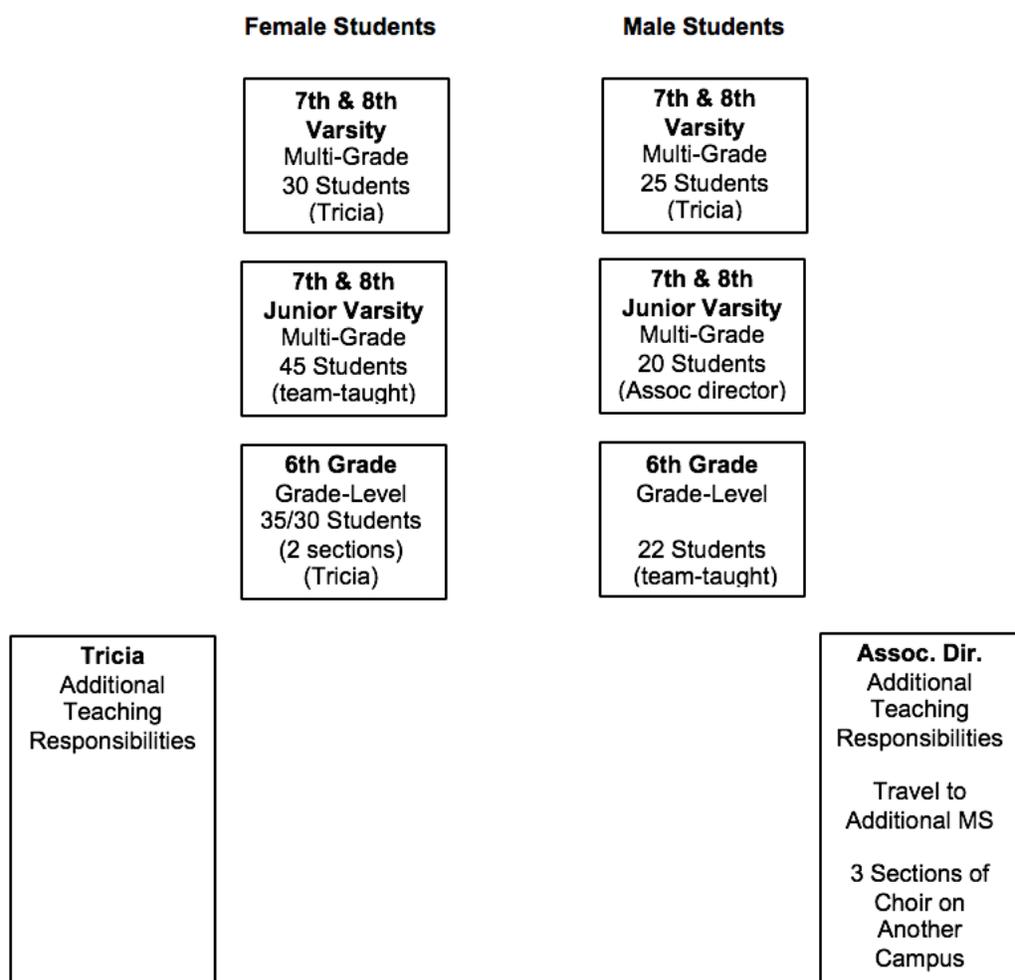
As noted in the figure, courses had to be scheduled around other teaching duties and staff members. In addition to teaching choir, Derek led two sections of handbell choirs while an

associate choral director held split duties teaching choir, intermediate-level band, and four sections of grade-level general music.

Tricia.

Tricia's choral program enrolled a total of 207 students, spread over seven choirs, the largest number of sections of the four participants. Two of the courses were co-taught with an associate director, two occurred simultaneously, and the other three were taught alone. Figure 6 presents the organizational design of Tricia's choral program, showing six single-sex choirs.

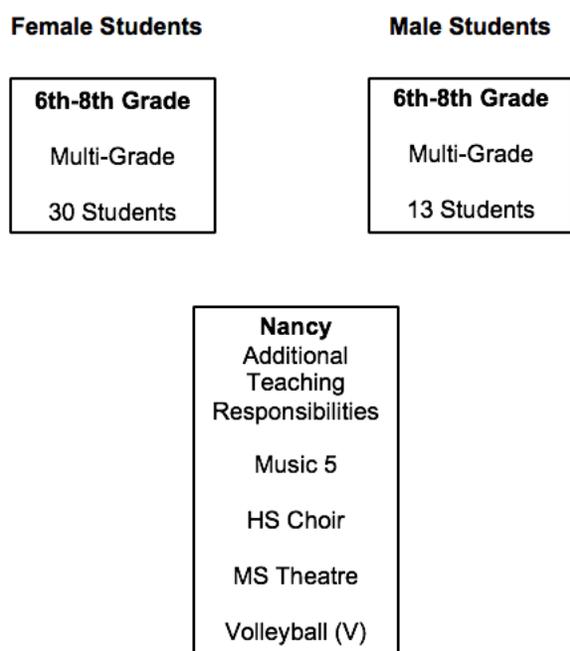
Figure 6. Organizational design of Tricia's choral program.



Nancy.

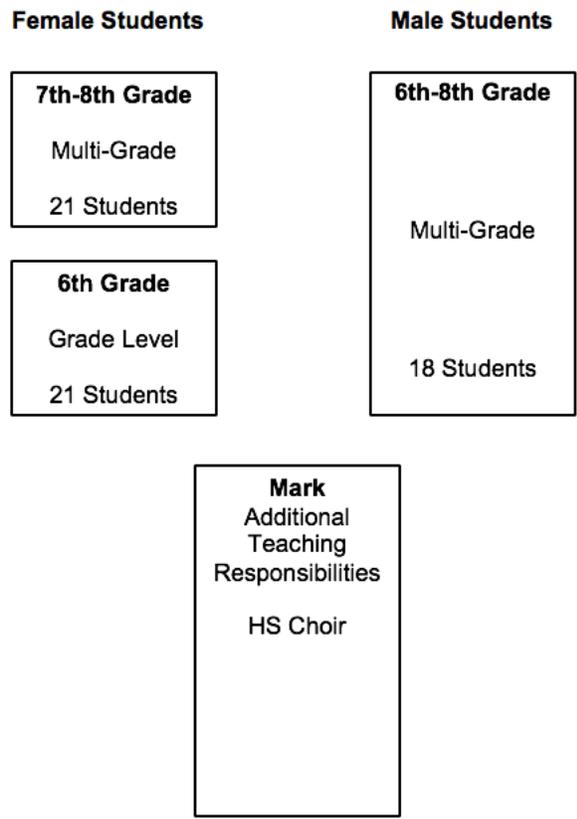
Choral enrollment at Nancy's private school campus totaled 43 students, divided into two sixth-through-eighth-grade single-sex classes. Enrollment was limited by the number of the students accepted into the private school. Figure 7 presents the organizational design of Nancy's choral program.

Figure 7. Organizational design of Nancy's choral program.

***Mark.***

Mark's choral organizational design consisted of three choirs, including one sixth-through-eighth-grade all-male choir and two all-female choirs, one of sixth-graders and the other a combined section of seventh- and eighth-grade students. Enrollment totaled 60 students. Figure 8 presents the organizational design of Mark's choral program.

Figure 8. Organizational design of Mark’s choral program.



Cross-case themes.

Of the four participants, choirs offered included both grade-level single-sex and mixed-sex choirs, ability-based ensembles, and multi-grade single-sex ensembles. Table 9 presents the grade combinations, ensemble voicings, and enrollment range of the four interview participants’ choral programs.

Table 9.

*Grade Combinations, Ensemble Voicings, and Enrollment Range of Interview Participants'**Choral Programs*

<u>Grade Combination and Ensemble Voicing</u>	<u><i>n</i></u>	<u>Enrollment Range</u>
Mixed-sex (fifth-grade)	1	79
Mixed-sex (sixth-grade)	1	94
All-male (sixth-grade)	1	22
All-male (sixth-through-eighth grade)	2	13-18
All-male (seventh- and eighth-grade)	1	51
All-male (seventh- and eighth-grade, ability-based, beginning)	1	20
All-male (seventh- and eighth-grade, ability-based, advanced)	1	25
All-female (sixth-grade)	3	21-35
All-female (seventh-grade)	1	89
All-female (eighth-grade)	1	82
All-female (sixth-through-eighth grade)	1	30
All-female (seventh- and eighth-grade)	1	21
All-female (seventh- and eighth-grade, ability-based, beginning)	1	45
All-female (seventh- and eighth-grade, ability-based, advanced)	1	30

Note. $N = 17$.

Enrollments of ensembles revealed imbalances in male and female enrollment, as class sizes were larger in all-female and mixed-sex classes than in all-male classes. Interview participants implemented 15 different organizational choices of classes, with sixth-through-eighth grade combined all-male classes ($n = 2$) and sixth-grade all-female classes ($n = 3$) the only configurations that were repeated by more than one participant. Mean class size of interview participants was 41.4 students (Range: 13 – 94 students).

Convergent analysis.

Convergence of the results from the SSCO and interview participants revealed enrollment imbalances between female and male students. Mean female-to-male ratio of SSCO participants was 2:1, while the mean ratio of females to males in programs of interview participants was 2.35:1. Similar to the results found in the analysis of the SSCO, interview participants ($n = 2$)

who split between their middle schools and the high schools taught fewer students than those staffed only for middle school. Of the two participants who were housed solely at the middle school, one also taught other courses outside of choral music and both were impacted by split-teaching responsibilities with associate choral directors.

Though the research design used the qualitative strand to specifically investigate single-sex directors, mixed-sex choirs were still evident for one participant at the fifth- and sixth-grade levels, similar to the results found in Table 6. Survey results revealed inequalities in the number of all-female and all-male choirs offered at the middle-level. These inequalities were less prevalent in programs of interview participants, yet one participant (Derek) had an inequity in the number of all-female ($n = 2$) versus all-male choirs ($n = 1$). In contrast to the results of the SSCO, the hierarchy of choral ensembles was consistent among interview participants, as all sustained single-sex ensembles once established in the choral program rather than adopting the mixed-voice model most common of SSCO participants (see Table 7).

Summary

Enrollment imbalances between female and male students, inequities in the number of all-male and all-female choirs offered, and varying organizational design and hierarchical decisions were evident in both strands of the current research study. Though commonalities were found among survey and interview participants, programs with more students enrolled in choir were generally able to offer more opportunities for students than those with smaller enrollments.

Research Question Two: Motivations for Ensemble Voicing Selection

Research question two investigated the motivations of middle-level choral directors to include single-sex and/or mixed-voice choirs within their choral program design. Results are

presented first through separate quantitative and qualitative strands and are then converged to provide further insight into the results.

Quantitative analysis.

Mixed-voice.

Participants leading mixed-voice choirs at the middle-level identified several influences for combining male and female singers in choral ensembles with the primary reason being musical aspects. Table 10 presents SSCO participants' motivations for including mixed-voice choirs in the middle-level choral program.

Table 10.

Motivations for Including Mixed-Voice Choirs in Middle-Level Choral Programs

<u>Motivation</u>	<u><i>n</i></u>	<u>Percent of Sample</u>
Musical: Work with all timbres, easier to tune SATB, more repertoire choices, better meets student needs	77	30.68
Organizational: Can structure classes by ability level, fits with school or program master schedule	74	29.48
Psychosocial: Eliminate the gender issue, encourage students to work together across gender	62	24.70
Behavioral: Females improve male behavior, assists in classroom management	24	9.56
Other outside influences/people	14	5.58

Note. $N = 251$.

Responses indicated nearly half of participating choral directors led only mixed-voice choirs at their middle school/junior high. Motivations ($N = 251$) for including these choir types at the middle-level included behavioral, musical, psychosocial, organizational, and other outside influences.

Mixed-voice and single-sex choirs.

Motivations for mixed-voice choirs along with single-sex choirs at the middle school/junior high level ($N = 706$) varied among SSCO participants who taught both types of ensembles as part of their choral organizational design. These included foci on the students, the director, and the program. Table 11 presents SSCO participants' motivations for including mixed-voice choirs along with their single-sex choirs in the middle-level choral program.

Table 11.

Motivations for Including Mixed-Voice Choirs with Single-Sex Choirs in Middle-Level Choral

Programs

Motivation	<i>n</i>	Percent of Sample
Provides students opportunities to sing greater variety of music	112	15.86
Encourages students to work across sex/gender	101	14.31
Fits well in program hierarchy of choral ensembles	98	13.88
Aligns with high school choral program design	84	11.90
Improves tuning and ear training	82	11.61
Improves classroom culture/environment	76	10.76
More choral repertoire options	69	9.77
Schedule convenience and/or requirements	34	4.82
Director preference for mixed choirs	31	4.39
Boys' voices have not changed by sixth-grade	12	1.70
Lack of male enrollment/must meet minimum class size	7	0.99

Note. $N = 706$.

Responses varied among participants, yet focused predominantly on musical, psychosocial, musical-organizational motivations. Organizational, physiological, and other director-centered reasons also were present, though were not as common. Responses of participants (both those with and without single-sex choirs) indicated musical benefits to students through the mixed-voice choir, including the ability to sing a greater variety of music and effectively address tuning and ear training. Comments benefiting students musically while also meeting organizational needs included the mixed-voice choir's place within the overall choral

program hierarchy and vertical alignment with mixed-voice choirs at the high school level. A small number of responses focused on male physiological development, answering that mixed-voice choirs can be used to effectively teach male students at the sixth-grade level, as participants believed most students had not entered voice change by this age. Survey participants highlighted the psychosocial benefits of mixed-voice choirs, including the ability to work across sexes, better meet student needs, assist in classroom management, and improve both classroom culture and interpersonal relations. Other responses pointed to organizational reasons for keeping choirs mixed-voice, including the ability to easily structure classes by ability, need to meet class minimum sizes, lack of male enrollment to form a single-sex class, and best meeting the needs of the campus master schedule and expected teacher class load.

Single-sex.

Participants of the SSCO that led only single-sex choirs at the middle-level reported a wide variety of motivations ($N = 162$) for separating their choral programs and choirs by sex, primarily focused on the students. Table 12 presents these participants' motivations for including single-sex choirs in middle-level choral programs.

Table 12.

Motivations for Including Single-Sex Choirs in Middle-Level Choral Programs

Motivation	<i>n</i>	Percent of Sample
Easier to address changing voice issues	31	19.14
Differentiated curriculum/catered vocal development/ individualized instruction/more student-centered	30	18.52
More appropriate ranges in literature/mixed-voice music not always appropriate (range/text) for changing voice	25	15.43
Students hesitant to sing in mixed settings/social discomfort/ insecurity toward singing	22	13.58
Students learn at different rates/respond to different stimuli	15	9.26
Emotional and psychological differences between the sexes/ lack of maturity, only most advanced students ready for mixed	10	6.17
Physiological differences between the two sexes	8	4.94
Increases enrollment/encourages participation in choir	6	3.70
Gives greater sense of ownership/team dynamic/better rehearsal atmosphere/culture/camaraderie	6	3.70
Behavior is improved/distractions minimized/better focus and attention span	5	3.09
Can still teach mixed music effectively through single-sex classes	2	1.23
Historic precedent for single-sex choirs (choirs of men and boys)	1	0.62
Students thrive in both single-sex and mixed environments and need and deserve both kinds	1	0.62

Note. $N = 162$.

Responses addressed physiological, psychosocial, musical, and organizational motivations. Some responses (e.g., easier to address changing voice issues, students learn at different rates/respond to different stimuli) could be considered as part of multiple categories; however, for the sake of the current investigation, have been categorized for their primary benefits, which were both physiological.

Physiological motivations of single-sex choral directors included student learning rates and response to differing stimuli, as well as greater ease of addressing voice change issues by the choral director. Many of the comments related to psychosocial motivations focused on the learning environment, particularly students' hesitance to sing in mixed-sex settings. Also, the

single-sex environment was reported to benefit classroom behavior, lessen distractions, improve focus, provide a greater sense of ownership, create a strong team dynamic, and build camaraderie among one another. From a musical perspective, participants championed the single-sex environment for its ability to allow choral directors to differentiate curriculum, cater vocal development, provide more individualized instruction, choose literature that best fits changing voice ranges, teach mixed-voice music in sectional formats, and pay homage to the single-sex choir's historical precedents. Other participants felt motivated to keep single-sex choirs for their possible effects on choral enrollment and participation.

Qualitative analysis.

Derek.

Derek described two main benefits connected to single-sex choirs. One of the most impactful, he described were the enhancements to music literacy and sight-reading ability, particularly with his all-male choir. "The boys dig in and love [sight-reading] and are farther ahead than the girls. Girls read well, too, but they're not as intense. Even the high school director has commented on how well the boys read." The other major benefit to students is better vocal technique. Single-sex classes allowed him to cater and individualize techniques for each class, addressing individual issues like voice change through warm-ups, conversations, and choral literature that best meets student needs. Both of these benefits served as primary motivations for leading single-sex choirs on his campus. When responding to whether or not he would continue single-sex choirs into the future, Derek described that at the end of each school year his principal has asked if Derek wanted to continue single-sex division. "I always respond 'yes' because it is best for kids socially, is age-appropriate, and they just succeed better in these groups than in [mixed-voice] choirs."

Tricia.

Like Derek, Tricia's responses toward single-sex choirs were largely favorable; however, in contrast to Derek, her responses described stronger motivations and greater perceived benefits to female students over males, particularly related to psychology and sociology. The single-sex environment, Tricia explained,

has so many social and emotional improvements. The girls became a family and community. I've never been able to experience that before [when splitting sixth-grade classes into single-sex choirs]. Even being silly was hard in front of the boys. With girls, it's just *us*. Just because it's a girls' class, it's not princesses, rainbows, and ponies.

There's comfort there and they feel better about it.

When describing the impacts to male students, Tricia described instances where male students' self-consciousness about their physiological changes led to deflective behaviors in the classroom instead of effective teaching moments. This division of classes "eliminated significant recurring behavior problems with both sexes" and allowed the girls to move "farther and faster than I ever imagined...and it was a ton of fun because we could do it easily and quickly...and were on the same page when doing it."

Tricia responded in support of keeping single-sex choirs at her campus "unless something weird happens with the schedule, like an enrollment drop, major changes with scheduling, or that I would make enemies with my administration about it." Tricia championed the ability of these classes to allow for individualized instruction on voice change and allow student progress at their own rates and in their own ways. Tricia summarized her favor toward single-sex choirs by reflecting back on her early career teaching mixed-voice choirs at the middle school level: "I

have no reason to believe that [mixed-voice] choirs will lead to a better educational experience for anybody. From what I've noticed over my career, when people teach [mixed-voice] choirs, they split them and teach parts separately anyway.”

Nancy.

Though Nancy's choral music classes were smaller in enrollment than the other three participants' programs, she described the impacts of single-sex classes as related to their impacts on musicianship and pedagogy.

After I split, the boys' and girls' tone really changed. There was more engagement and they all wanted to be there because they enjoyed it more. My kids even thanked me for splitting! I was able to structure my classes differently, allowing for more movement in my boys' classes, because...jeez, boys can't stand still.

The classes, she explained, allow for differentiation in literature and warm-up and have been largely successful. Students in her program have learned to trust her and each other more, thus creating a greater bond. To illustrate the environmental changes to her classroom, Nancy addressed the psychological and sociological impacts of single-sex classes:

Middle school students are so self-conscious and are trying to discover who they are. They are afraid of being heard [in school and in choir]. This setup makes it safe for them where they can feel secure around each other. They are so easily influenced by others and are trying to gain confidence. I walked in today for the first day of school to ninth grade orientation and couldn't believe what I saw...all the boys were in one corner and all the girls were in the other. They already sit separately from one another.

When asked if she would keep single-sex choirs into the future, she answered simply: “One hundred percent yes. I will never go back.”

Mark.

Mark reported many of the benefits of single-sex choirs as sociological and musical, particularly as related to improving the community culture of singing as an acceptable pursuit. As previously described, Mark's challenges in motivating his largely-Hispanic community were related to the lack of a vocal music program in his district for many years. The lack of a program helped shape a community that enjoyed music culturally but was opposed to singing in public situations such as choir. When he arrived at his school, Mark described the situation:

Students in my community loved music but just wouldn't sing. After we [separated the choirs], the whole attitude toward singing changed, along with the culture and the music we made. Students have more pride in what they do. Each class is equally prideful of the atmosphere and culture that they've developed.

Single-sex choirs, he portrayed, "help students develop in their own specific ways and find confidence and pride while doing it. It's been incredibly positive."

Cross-case themes.

All four interview participants described single-sex classes as "best for kids," yet their reasons to support their claim differed based on their experiences. Motivations included: (a) musical benefits such as enhanced music literacy, sight-reading skills, and vocal tone; (b) pedagogical improvements including opportunities for individual instruction and ability for classes to move at different rates; (c) catered lessons to address physiological change; (d) cultivation of the psyche, particularly with regard to self-consciousness and engagement in the classroom; and (e) sociological improvements, especially the development of a singing culture,

creation of safe environment, and formation of a familial environment within the choral classroom.

Convergent analysis.

Convergence from the qualitative and quantitative strands indicated a nearly identical parallel between interviewed directors and SSCO participants that separated their choral programs into single-sex choral ensembles. Of the comments from participants with single-sex choral programs (see Table 11), all but two were replicated by at least one participant during the interview process. Table 13 presents motivations of interview participants cross-referenced with SSCO participants that separated their choirs into only single-sex choirs.

Table 13.

Motivations of Interview Participants Cross-Referenced With SSCO Participants With Single-Sex Choirs

Motivation	D	T	N	M
Easier to address changing voice issues	X		X	
Differentiated curriculum/catered vocal development/ individualized instruction/more student-centered	X	X	X	
More appropriate ranges in literature/mixed-voice music not always appropriate (range/text) for changing voice	X		X	
Students hesitant to sing in mixed settings/social discomfort/ insecurity toward singing		X	X	X
Students learn at different rates/respond to different stimuli	X	X	X	
Emotional and psychological differences between the sexes/ lack of maturity, only most advanced students ready for mixed	X	X	X	X
Physiological differences between the two sexes	X	X	X	X
Increases enrollment/encourages participation in choir	X	X		X
Gives greater sense of ownership/team dynamic/better rehearsal atmosphere/culture/camaraderie	X	X	X	X
Behavior is improved/distractions minimized/better focus and attention span		X		
Can still teach mixed music effectively through single-sex classes		X		
Historic precedent for single-sex choirs (choirs of men and boys)				
Students thrive in both single-sex and mixed environments and				

need and deserve both kinds				
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Note. Column abbreviations correspond with first letter of each interview participant.

Summary

Motivations for both mixed-voice and single-sex choirs were connected to the benefits for students, choirs, the choral program, and the director. Effects on the choice of ensemble voicing included physiological, psychological, musical, organizational, pedagogical, and behavioral influences. Though many commonalities existed (see Tables 9-12), variance in responses also occurred and were based on environment, enrollment, campus needs, and director preference.

Research Question Three: Facilitating Single-Sex Structural Designs

Research question three studied the change process to include single-sex choirs at the middle-level, particularly with regard to the timeline of when change occurred (if at all), how change was facilitated, identification of key players that were involved in the change process, analysis of strategies used, itemization of difficulties faced during the process, and description of impacts to students. Results are presented first through separate quantitative and qualitative strands and are then converged to provide further insight into the results.

Quantitative analysis.

Single-sex structural designs.

The SSCO was designed to identify programs that had recently undergone change and pinpoint when and how that change took place. Table 14 presents change timelines for implementing single-sex structural designs within middle-level choral programs, noting those that have changed as recently as two years ago to those that traditionally remained single-sex.

Table 14.

Choral Program Timelines for Implementing Single-Sex Structural Designs

Timeline	<i>n</i>	Percent of Sample
Always been single-sex.	136	54.84
Changed from mixed-voice to single-sex choirs more than 4 years ago	51	20.56
Recently changed from mixed-voice to single-sex choirs in the past 2 years	36	14.52
Recently changed from mixed-voice to single-sex choirs in the past 3-4 years	25	10.08

Note. $N = 248$.

Slightly over one-fourth of participants ($N = 248$) responding to the SSCO implemented structural designs containing only single-sex choirs (see Table 6). Of those participants, over half described their structural designs as having always been single-sex, while the others had experienced change. More than half of the choirs have always been single-sex, while those that changed to single-sex noted the timing of those changes. While one-fifth of program experienced change more than four years ago, slightly more did so more recently.

Facilitating change.

SSCO survey design allowed for deeper investigation of the 112 programs experiencing change in one of the three timelines provided as survey choices (the past 2 years, 3-4 years, 4 or more years). The ease when facilitating change as reported by participants of the SSCO was mixed, with participants either reporting relative ease, some difficulties, numerous challenges, or by identifying their lack of involvement in the process. Table 15 presents participants' ease when facilitating change to include single-sex choirs.

Table 15.

Participants' Ease When Facilitating Change to Include Single-Sex Choirs

Ease When Facilitating Change	<i>n</i>	Percent of Sample
I made the request and the change was easily granted.	36	32.14
I made the request and the change was granted, though conversations/advocacy efforts were necessary.	35	31.25
I was not involved.	26	23.21
I made the request and the change was not granted; however, with additional research/conversations/advocacy, the change was eventually granted.	14	12.50
I made the change on my own with no request submitted.	1	0.89

Note. $N = 112$.

Nearly one-third of participants reported the change request to be well-received by key players and thus the request was easily granted. A similar proportion of SSCO participants found more difficulties when presenting the change request, requiring conversations and advocacy efforts when discussing the change with key players, yet the change was approved. Still further, 14 participants made the request to key players and were initially rejected but later approved after additional research, conversations, and advocacy efforts. Twenty-six participants were not involved in the change process.

Change strategies.

Along with timelines and initial reactions, change strategies used ($N = 256$) when implementing change to include single-sex choirs largely differed among SSCO participants, ranging from casual to concerted elements. Table 16 presents change strategies used when implementing change to include single-sex choirs.

Table 16.

Change Strategies Used When Implementing Change to Include Single-Sex Choirs

<i>Change Strategy</i>	<i>n</i>	<i>Percent of Sample</i>
Informal/casual discussions	89	34.77
Formal meetings	48	18.75
E-mails	40	15.63
Citing research	37	14.45
Music/fine arts advocacy efforts	30	11.72
Unknown	9	3.52
Citing examples of other single-sex programs	1	0.39
Previous experiences with single-sex choirs	1	0.39
Verbal and written announcements	1	0.39

Note. $N = 256$.

Informal and casual discussions were the most common strategy (used by participants when presenting the change to key players. Other common strategies used by participants with key players included formal meetings, e-mail communications, citing existing research, and using music and advocacy efforts and materials.

Players involved.

Key decision makers ($N = 241$) involved in the approval and change process to include single-sex choirs varied among SSCO survey participants, primarily the participants and members of the administration. Table 17 presents key players involved in the change process to include single-sex choirs.

Table 17.

Key Players Involved in the Change Process to Include Single-Sex Choirs

Key Player	<i>n</i>	Percent of Sample
Myself	85	26.90
Campus principal	75	23.73
Campus counselors/registrars	59	18.67
District administrators (e.g., superintendent, fine arts director/ coordinator)	31	9.81
Campus assistant/vice principal	27	8.54
Campus fine arts colleagues	20	6.33
Previous choral director	9	2.85
Unknown	6	1.90
Other choral staff (e.g., head choral director, high school director)	4	1.27

Note. $N = 316$.

Roughly one-fourth of participants ($n = 85$) identified themselves as a key player in the change process. Other most common players included campus principals, campus counselors and registrars, district administrators such as the district superintendent or fine arts supervisor/coordinator, campus assistant/vice principals, and campus fine arts colleagues. Nine participants cited previous choral directors as influential to the change process, with four others describing other middle and/or high school choral directors as key to implementing change.

Difficulties experienced.

As compared to ease of, strategies used, and key players involved in change, responses of SSCO participants ($N = 172$) were more uniform when identifying difficulties and obstacles experienced during the change process. Table 18 presents difficulties faced by participants when implementing single-sex choirs.

Table 18.

Difficulties Faced by Participants When Implementing Single-Sex Choirs

Difficulty	<i>n</i>	Percent of Sample
Campus master schedule/singleton courses/conflicts with other courses	73	42.44
Potential size of classes	45	26.16
None	25	14.53
Lack of administrative support	16	9.30
Unknown	4	2.33
Gender equality issues	4	2.33
Lack of support with other colleagues/other campus programs	3	1.74
Staffing	1	0.58
Funding/budgeting	1	0.58

Note. *N* = 172.

Respondents overwhelmingly listed the campus master schedule as the primary obstacle to creating single-sex choirs, citing singleton course offerings and schedule conflicts with other courses as challenges. One-fourth of participants described the potential size of classes as another main obstacle to creating single-sex classes, particularly with low enrollments of male singers. Nine percent of participants described challenges with support from administrators. Nearly 15% reported no difficulties during the change process.

Qualitative analysis.

Derek.

Single-sex structural designs.

Derek described his impetus for change as the imbalance of female and male singers. Upon his arrival seven years ago, all of the choirs at his campus were mixed-voice and divided by grade. The eighth-grade mixed choir, he described, had eight boys and the seventh-grade mixed choir had 10, which he described as “abysmal” for the size of the campus. He had previously worked at two other middle schools prior to the current campus and attempted to

create single-sex classes but struggled because they were smaller campuses with fewer teachers, thus creating more schedule conflicts. Derek described the challenges: “I [accomplished] this at my last school for one year, but my administration was not quite as cooperative and told me it they wouldn’t be doing it anymore because it was too hard to schedule.”

When thinking about his current school, he became excited and optimistic when thinking about this possible change and its effects on enrollment:

I wanted to get more guys in the program. There are so many more boys in the school that like singing but didn’t want to sing in choir. The boys that I did have were talented but did not want to meet their potential. They felt dejected when working in front of the girls and didn’t want to sing out. I thought...there’s got to be a better way to make these boys feel successful.

Facilitating change.

Halfway through the first year, Derek presented his principal with the single-sex proposal. He labeled the proposal as “an idea” and said “if it is possible I would like to make this happen for next year.” Derek explained the positives of such an organization, stating: “if we are really about kids and what is best for kids, we will make this setup work. To support his claim, he described several benefits that single-sex choirs provide for students, including (a) the ability for male students to sing appropriate voice parts rather than being stuck on a baritone part together, (b) enrollment growth, (c) ease in creating a safe environment for students during physiological change, (d) greater levels of participation during rehearsal, and (e) lower levels of self-consciousness from students about their voice during puberty.

Derek admitted he was surprised when his principal not only felt that single-sex classes would be possible, but that they actually would be easier to schedule than mixed-voice choirs.

His principal quickly responded: “I don’t think it would be that big of a deal [to split classes].” After initial approval from the principal, approximately three months passed. During this time, principals and counselors looked at scheduling to see if it, in fact, would be feasible in the master schedule. In mid-spring, the principal gave final approval for the change and scheduling began.

Derek explained that due to the high levels of arts participation on his campus (approximately 80% of students enroll in one of 16 performing ensembles), the arts classes are scheduled first in the master schedule. Derek, his principal, and the four counselors (one for each grade) talked periodically in late spring about how to best divide the classes. Based on enrollment and the master schedule, it was jointly decided that fifth- and sixth-grade classes would remain mixed-sex and divided by grade and seventh- and eighth-grade students would be grouped together but separated by into two single-sex classes.

Once the final approval was given and the classes were scheduled, Derek began his preparations for the upcoming fall semester. “It was up to me to find bodies for these classes. I also had to find a lot of new repertoire so I spent time talking with other directors that taught [single-sex] classes to ask them how they met the needs of the kids through these classes,” Derek said. Simultaneously, he was involved in logistical discussions with his principal, particularly as it related to his all-female class. Prior to the change, seventh- and eighth-grade female students were separated by grade into one of two mixed-voice choirs. On average, 60 females were enrolled in each choir. The new change was scheduled to bring all seventh- and eighth-grade female students together in one class for a course enrollment of 120 (it would eventually grow, he exclaimed, to 132 students). To accommodate a class of that size, he and his principal discussed how to change the room configuration for student safety and optimal learning. Derek

already had the three-row Wenger choral risers, but needed a fourth row for that many students. His principal agreed and purchased the fourth row for the anticipated growth.

In hopes of generating interest and recruiting students (especially males), Derek informed the current choir students and parents about the upcoming “special” changes to the choral program and the “new directions” it would be headed. He used the final spring concert as the platform to do so, describing many of the benefits he had previously mentioned in the first meeting to the principal, including social implications, voice change, and individual growth. He described the response to be overwhelmingly positive: “No one has ever come to me and said ‘I wish you had a mixed choir.’”

Student impacts.

After informing students and parents of the change to separate classes into single-sex choirs, Derek experienced rapid growth. He described the exciting time after the initial announcement:

Boys began flocking to the class. I only expected 10 boys to return, but then all of the athletes started to come...and all of a sudden I had 32 students. The girls saw a surge in enrollment, too, although you might call it growth by dumping. There were some diamonds in the rough, though, and the [female] enrollment grew to 132 that first fall and eventually to 175.

When the fall semester began, Derek experienced immediate changes in his male students:

All the things improved. There was a *huge* change in attitude and participation. Boys immediately latched onto each other in brotherhood because we created an environment for them, as young gentlemen, to act like a young man, have pride in themselves, their attitude, and work ethic. Now, there’s more buy-in [because] they’re more aware of the

uniqueness of their situation. Behavior issues were minimal as compared to the mixed choir. In the mixed choir, they have more time to get fired up, but they're so much more respectful in a [single-sex] setting.

In continuing to portray the improvements to male students' classroom behavior, Derek labeled the improvement as "exponential," stating: "middle school boys can be quite interesting at times, but the [single-sex] environment gives them the chance to laugh and then get back to work. As long as they can do that, we're good to go."

Female students, Derek reported, experienced many changes as well, particularly with regard to musicianship and engagement:

The women just soared! They would get so frustrated with the guys and then get put out. Either [the boys] weren't singing or trying hard enough and it would make the girls give up. When [the girls] were together, they realized it was all about them. We went from singing two-part music [in mixed choir] to singing three- and four-part literature. The level of music and musicianship has been just phenomenal.

Derek described the long-term effects of single-sex choirs as numerous. Retention increased among male students to 95%. Seventy-five percent of his current male choir has remained in choir all four years of middle school. While recruitment was strong with female students, it:

...took a little more time with the girls but eventually grew similarly to the boys' numbers. Now, 95% of my eighth-grade girls have been in choir all four years. It's really exciting. They stay in the program because the process and organization of the program has changed.

Six years have passed since the first year of the single-sex organization on Derek's campus. What started as 10 boys when mixed choirs existed has grown between 50 and 65 boys per year enrolled in all-male choirs. Female enrollment has grown from 120 to 175 girls in seventh- and eighth-grade. Though a champion for single-sex choirs, Derek urged the importance of mixed-voice opportunities for students:

We still have opportunities for students to sing mixed. We sing with the high school on a side-by-side concert where we sing mixed music together. I also will program mixed music at Christmas and spring concerts to allow students to sing together and have even combined [male and female] students together on masterworks such as Bernstein's *Mass* alongside the high school.

Players involved.

In addition to the principal and counselors, Derek collaborated on the change to include single-sex choirs with the high school choral director. All students that continue into high school as freshmen are placed in single-sex choirs. "Our district is all about training and getting ready for the next level," Derek described. "If we started here with seventh-graders, he urged, students would have two years of training before the transition." He suggested that this newfound vertical alignment further strengthened the case with his administration.

Difficulties experienced.

Derek experienced two main challenges with the single-sex division of classes. The primary challenge was the increases in class sizes, particularly in all-female classes. Female classes grew to as large as 175 students before being split this school year. With only one class for each sex, Derek explained:

It's easy for a counselor to dump students in that class. Luckily, our new principal has put his foot down by putting smaller caps on class sizes. It is now 90 students in one class for safety reasons. In the past, counselors would override the class maximums. I tried to fight for it and tell them that we couldn't service that many students well, but struggled.

Another challenge faced has been changes to when choir classes meet throughout the day.

Derek's all-male class used to be scheduled in the mid-morning, which he felt to be optional, but was moved to the last period of the day. "What I originally thought would be a challenge has actually worked to our advantage," he proudly stated.

By eighth-period, they've had their day. Now they get to come in and do something completely different. I've learned that when they meet at that time of the day, I have to shoot the bull with them for about five minutes. They get a chance to vent and get out the extra energy from the day and then we can get started. I get more done in the 45 minutes left by doing this than I would if I tried to keep things 'as is' for the 50 minutes.

Change strategies.

When asked to provide others with advice and strategies about the change process, Derek responded quite frankly:

Don't be afraid to ask. People bitch and moan about their situation but then don't follow through with asking. All [administration] they can say is 'yes' or 'no.' It's all about how you approach it. Tell your administration that you have an idea that you don't know if it will work or not, but that you believe is best for kids and wonder if it could be a possibility... We are all passionate people. We go in guns blazing. You have to make administrators think it is their idea. Don't be afraid to go through the hoops and play the game. You may have to accept that it may not be possible now. Sometimes it feels like

it takes an act of God to get things going. It's all in the way you present it.

Tricia.

Single-sex structural designs.

Tricia facilitated change to include single-sex choirs at two different middle school campuses. Both campuses provided unique information to support the research problem; therefore, both are included in Tricia's qualitative analysis. Campuses will be referred to by the pseudonyms Green Mountain Middle School (previous campus) and Iona Middle School (current campus). Changes at Green Mountain Middle School included separation of sixth-grade students into all-male and all-female classes. The structural design at Iona Middle School changed completely, first through separation of seventh- and eighth-grade into all-male and all-female classes and later through replication with sixth-grade students. In an effort to better identify cross-case themes, analysis has been categorized into the elements found in research question three and then separated into accounts from Green Mountain Middle School and Iona Middle School.

Upon her arrival in the spring semester at Green Mountain Middle School (her first teaching position), the choral program had experienced many difficulties in creating stability and retaining staff. Tricia would become the fourth choir director in six years. The position was half-time and contained three classes, including a sixth-grade mixed-sex class, a seventh- and eighth-grade all-female class, and a seventh- and eighth-grade all-male class. Tricia quickly found success in the program, particularly in the single-sex classes, and became full-time in the fall semester. The following January, one year after her initial hiring, she began the conversation to split the sixth-grade choirs by sex in hopes of replicating the successes occurring with her

seventh- and eighth- grade single-sex choirs. Tricia, however, experienced numerous difficulties in gaining enough credibility with administrators and counselors due to high turnover in the choral position. After it became evident that administration would not support such a split, she abandoned it for the year and kept the existing organization of classes.

After several years at Green Mountain Middle School, Tricia transferred campuses to rebuild the choral program at Iona Middle School, which had only mixed-sex classes at the time of her hiring. In the previous year, the choral program had four boys in sixth-through-eighth grade enrolled in a mixed choir class with all of the seventh- and eighth-grade girls. One other section of sixth-grade girls existed. This organization remained during her first year at the campus. She split duties between Iona Middle School and a neighboring high school to create full-time employment. Tricia described the difficulties of the structural design and her motivations for change during the first year:

I had no doubt in my mind that I needed to split the classes. There was just too much to do with male voice change and I couldn't handle it in a sensitive way without being in the presence of girls. I was by myself...there was no option for sectionals or other staff. It was a big goal of mine before I even took the job. I had previous experiences with [single-sex] choirs at previous schools so I knew it worked. I also knew that single-sex choirs at the [seventh- and eighth-grade level] aligned with the rest of the district and region, so I had that going for me.

Following five years of successful teaching at Iona Middle School, one of Tricia's three sixth-grade mixed-sex classes enrolled more male students than female, even though the distribution of students was random. Tricia recollected the challenges of this male-dominated mixed-sex choir:

There were just enough boys that they changed the whole attitude and dynamic of the class because they knew that they had the majority in the class. The difference between this class and my other two [sixth-grade mixed-sex] classes was unbelievable. The boys in the majority class were some of the least bought in to choir. In some ways it ruined the experience for everyone. I thought to myself how I could rethink this setup to save the girls. Honestly, I wasn't thinking about the boys' needs, but instead of thinking how to rescue the girls.

Tricia attempted to implement several other strategies before attempting to structure classes by sex, including varying instruction, differentiating when possible, and changing pacing to better meet boys' needs; however, she was not seeing the desired results.

Facilitating change.

One year after her initial rejection at Green Mountain Middle School, Tricia again began conversations related to single-sex choirs with key players. By this time, the choral program had grown in enrollment, had found successes in the community and in regional contests. These led to enhanced credibility with administrators and counselors, who began to listen more closely to the proposal. Fortunately, there was a school in the district that had undergone changes to move sixth-grade students to all-male and all-female classes and thus, Tricia used this to strengthen her case. She presented the proposal to the principal for a second time in January. Discussions quickly moved to the counselors to see if such a change would be possible within the master schedule. Counselors felt that the change could be difficult and cited numerous schedule difficulties with singleton course offerings and conflicts with individual student schedules. Tricia described persistence as the best tool for addressing the pushback that she faced. Commonly, she would address issues with the response: "I appreciate and understand your concern, but we are

talking about sixth-grade here and those are seventh-and eighth-grade sections that do not apply in this case.” Counselors and administration started to see she was both knowledgeable and well-researched and eventually supported her structural changes by including single-sex choirs on course registration cards in the spring.

At the end of her first year at Iona Middle School, the choral program had grown in both musicianship and enrollment. No real conversation was necessary to split seventh-and eighth-grade choirs into single-sex choirs, as Tricia described it as “kind of a given” that it would happen after the first year if the enrollment grew. The only question was whether the job would become full-time and allow for more sections of choir to be scheduled rather than Tricia traveling between two campuses. It was decided in mid-spring that both the high school and the middle school positions would be full time, leaving Tricia the choice of positions. She chose to remain at Iona and the approval was given to split the seventh-and eighth-grade choirs into all-male and all-female sections.

With regard to the sixth-grade split at Iona, discussions began the spring after Tricia attempted changing her teaching style to better meet the needs of her mixed-sex sixth-grade classes. Tricia presented the idea to the principal by saying: “I have an idea but am worried it could lock up the schedule. I really think it is important for kids. I am hoping together that we can figure out how to do this so that it is not a huge burden.” The principal was quick to approve, saying “sure, if that’s what you want...I don’t even think that would be that big of a deal.”

At both Green Mountain and Iona, once approval was given, discussions occurred with counselors. Tricia said, “it [became] about talking with counselors where classes would be placed and what were the potential conflicts, particularly with athletics.” Schedules were arranged to align with student course registration cards, designed by the assistant principals who

made the master schedules, and the timeline was similar in each situation, with courses selected in late spring and implementation beginning the following fall.

Student impacts.

Impacts to students at Green Mountain Middle School were mixed. Tricia described that the change benefitted the girls very positively but that the all-male classes added stress:

I liked that it freed the girls to learn at their own pace and do their own things, but boys' classes were very challenging and stressful. I felt like I didn't understand that age group and what kind of personality or mentality it takes to teach them successfully. I hear many people say to be [the boys'] coach, but that's not my [*modus operandi*]. I have to find examples of people like me who want to do what I do...the whole sarcastic, sort of your mom mentality...it's hard to find people like that.

Tricia summarized the change at Green Mountain as beneficial for what it did to improve the girls, but was still unsure as to how the boys benefitted. The exception to this, Tricia believed, was the improvement in male retention from sixth- to seventh-grade, which improved by 25%. However, as she reflected on the change process many years later during the interview, she felt her skills with male choirs had significantly improved and that had she been given the same organization of classes again, she might feel differently given her teaching experiences.

Impacts of the single-sex division at Iona were similar to Green Mountain with regard to females; this division drastically improved the instruction with male singers. Tricia described the improvements with males through her own lens as teacher:

I still have my struggles with boys but now I am 15 years into teaching. I know that I can do this and am more self-assured about all-male classes. I've been able to work with associate [directors] who are male who have helped to right that wave a bit.

Additionally, Tricia's experiences teaching male choirs have helped her teaching strategies change along with the personalities of the singers in her male choirs. She recounted her changes as a teacher rather humorously:

My teaching style changes every year because I am trying to get better but I can still be me. It's not all about football, red meat, and beer in the boys' classes even if the stereotypes tell you it should be. This is not the football team. You don't have to be a coach to find success.

Over the years, the structural design of Tricia's Iona Middle School program has morphed along with her teaching. What began as a program with one mixed-voice choir with four boys and one sixth-grade female choir has divided several times. Today, the program is completely single-sex, containing three female choirs and three male choirs. These include sixth-grade, seventh- and eighth-grade junior varsity, and seventh- and eighth-grade varsity (auditioned) choirs. Retention of singers at the first separation of seventh- and eighth-grade choirs reached 100%; after the sixth-grade separation, the retention rate stayed steady for female singers at 90 to 95%, but improved dramatically with male singers from 50 to 75%.

Though classes are completely separated, Tricia uses social events, incoming student recruiting concerts, region honor choir auditions, and spring concerts to provide opportunities for socialization and musicianship across sexes.

Players involved.

Key players involved in the change process at both Green Mountain and Iona included principals, assistant principals, and counselors. In all three instances of change, positive relationships with principals were beneficial to gaining approval.

Difficulties experienced.

In addition to the difficulties associated with all-male classes, Tricia addressed three challenging situations she experienced at Iona. The first two prevented a male student from being in the all-male class. After speaking with the student, parents, and counselor, in both situations, the males were placed in the varsity treble choir in order to keep the student in choir. Tricia felt that the decision was in the best interest of the student to remain in the choral program, where they could still learn the skills. For the boys, it was vocally challenging. The alto voice part kept them sitting on their break and was difficult; therefore, both boys were placed on soprano where they could sing in their head voice the whole time. Tricia reflected on the process:

Honestly, I was against it at first. He's going to have to choose, but the student wrote me an e-mail saying he understood that other students might make fun of him but he wanted to do it and not sing with sixth-grade boys. Both students continued in their assigned choirs the following year.

The other difficulty faced involved a transgender male student. Tricia explained the challenge:

I had a situation a few years ago where I had a student named Ken who identified as a male but was born female. Ken and his family had not addressed transgender status with counselors. Legally on paper, he was listed as female, as Macy. When I met the child in person, I asked her (not realizing she was identifying as a male) to tell me about herself, to which she responded: 'I am a transgender male.' I was taken aback and responded to see how this might affect his choir placement. He was not taking hormone therapy and had traditionally been in the girls' choir. I suggested to Ken and the family that the junior

varsity treble choir might work and that if it was okay, that's where I would place him.

Our uniforms were all black so that made it easier.

When asked about how other directors could handle this situation, she responded: "As a director, I would lean toward biological capabilities, but if the social request was made by the student, I would have done what they [sic] wanted, especially at the middle school level."

Change strategies.

Having separated programs on three different occasions, Tricia was passionate when asked to provide advice for others looking to create similar changes, beginning first with how to address administrators:

When you talk to administrators, remember that it is about the kids. They are the instruments in that classroom. You, like band directors and coaches, need to group [students] together. We [as choir directors] are dealing with instruments that are changing. They need to grow together. Be student-centered. It's very hard for administrators to deny that. Some will say 'no,' but it's harder to say 'no' when it is about kids. If you approach this with the perspective that it would be easier for me [as a director]...it won't work. If you believe it is important, be persistent about it. Look for other examples across the district and region and do your research. Try new things and don't live in fear. The worst thing is not the answer being no, the worst thing is not knowing the answer or never having sought the answer when it comes to what's best for kids.

Tricia felt many administrators may be apt to reject a proposal out of a lack of knowledge of the needs of a choral program rather than a lack of support:

People in many areas are fighting for the understanding of our choral programs. We

can't just throw a bunch of kids in one class and expect them to do well in our field. We are fighting to be treated with respect and like a valid content area. We deliver instruction...not babysit. But as choral directors, you have to treat it like a real class. You have to go to your administrators with actual reasons [for your proposal] and research to back yourself up. You can't be afraid. Many administrators are just underinformed of what occurs physiologically, developmentally and psychologically. This isn't really different than any other class. Students need to be placed in classes that match their skills and what they are capable of doing. In most cases, you would not put your fourth-, sixth-, seventh-, and ninth-graders in the same class, so why would you put a bunch of singers in completely different places developmentally in the same place? Boys are already hampered vocally by puberty and administrators need to know what's going on.

Tricia continued her passionate response by reflecting on her small classes at the onset of the change:

It's outrageous when [directors and administrators] think you need lots of boys to make a class happen. Ten or fewer boys in middle school with the right boys make it work. You may only have eight, but you can do really well with those boys. They can begin singing unison and it will sound great. Once success happens, more boys will come...even if they have jacked up voices and lots of hormones. They're *winning* at something rather than being told they are holding back the girls.

After focusing on student success, she paused and reflected on a session at a state convention she once attended:

I keep coming back to a session I saw a few years ago [titled] *Beauty is the Carrot* by Cynthia Nott. She reminded us to ask ourselves why we're baiting kids to join choir.

Being a part of the successful choir is the carrot, not the recruiting tactics. It's about being successful. In middle school, what girls can do and what boys can do is probably different, especially in a small program. The whole thought of 'I can't divide them because I only have a few boys' is ridiculous. Split them out and support them and help them find success. Use simple music and make them feel good about what they're doing, then the literacy increases...the [enrollment] increases...and then you can ask 'why would I hold my boys to a different standard than girls?' Boys should be able to do the same but they need the right environment to do so. The only way you can get them there...to provide a fair and equal education for both sexes...is by focusing on their specific needs and getting them up to where they need to be. It's not going to happen in one year and it's *not* going to happen in a mixed choir.

Nancy.

Single-sex structural designs.

Nancy began teaching at her private school campus in 1996 and taught mixed-voice choirs twice weekly for 17 years. In 2013, she began further study of the changing male voice in an effort to better serve her male singers. The more she researched, the more she realized the voice was so very different than that of middle school girls. In addition to the many physiological differences, she became increasingly aware of the differences in learning style and musical preferences. Nancy reflected: "my students did not want to sing in front of each other at all." It was at this time that Nancy began to consider changes to the structural design of her middle school choral program.

Facilitating change.

As student insecurity became more and more prevalent, she approached her administration to see if it would be possible, for a one-year trial period, to increase to three meetings per week, one day for mixed-sex rehearsals, one day for female sectionals, and one day for male sectionals. Her administration, which has consistently been supportive, agreed to the new arrangement for the upcoming school year. Once the year began, a discrepancy in engagement between single-sex sectionals and mixed-voice rehearsals surfaced. Nancy described the challenge faced when combining students, saying “the discrepancy in participation was huge. When students were apart, they sang out, were confident, and trusted one another. When they came back mixed, they were reserved. They just wouldn’t sing.”

In an effort to troubleshoot this problem, Nancy began collaborating with a cross-town middle school director who had separated her choirs into single-sex ensembles. Nancy described the discussions: “When I asked her about it, she said ‘I’ll never combine again.’ Separating those classes will be the best thing you ever did.”

After speaking with her colleague, she was convinced to find a solution that could work at her school. “That year we were meeting three times per week, I began to plant the seed with my administration to split completely,” Nancy explained. To keep the same amount of instructional time, she proposed that choirs meet four times per week, twice weekly for all of the female students and twice weekly for all of the male students. Nancy described the proposal presentation and approval process as swift:

I knew my idea would create twice as many sections and preps, but it would be worth it. When I told my head of school that the students learn differently and just wouldn’t sing in front of each other, she responded, ‘yeah, my daughter (who was in choir) tells me

that. It makes sense why they [would be hesitant].’ The approval happened right away...right at the first meeting.

Once approval was given, Nancy, the head of the school, and the instrumental teacher sat down to create the schedule to determine when classes would meet in hopes of reducing schedule conflicts. The private school environment allowed for more flexibility in scheduling individual students since enrichment activities occurred simultaneously (in a block period before lunch). Nancy described how staff worked together to schedule students that wanted to be involved in multiple music ensembles:

When kids want to do more than one thing like band or orchestra, we sit down as a staff each year to identify those students and determine a plan of when they will go to band or orchestra and when they will come to choir. If a student wants to do two ensembles, they’re normally in choir about 75% of the time. If they want to do all three, it’s normally about 60%. It may not seem like a lot, but those kids tend to be the strongest musicians since they also play an instrument, so they do just fine with the missing time.

Student impacts.

Nancy labeled the structural changes and their impacts on students and her teaching as positive, noting “As soon as I did it, my life and their life was better. Their behavior and classes improved dramatically.” Initial musical successes differed between male and female classes, primarily because of Nancy’s experience as a female coach:

As a female myself and as a coach of girls, I knew how to handle them. I naturally can connect to girls because I am their coach. They really connected to their bodies quickly and began letting their voices out. The girls advanced much further and faster than I expected. We started singing three-part music right away.

With male students, Nancy admitted a need to continue finding ways to meet their needs:

I wanted to connect with the boys like I do when I coach, so I looked at myself. I started ordering boys warm-up books, I read everything I could get my hands on. Any time I saw a story about the change voice or middle school singers, I read it. I realized that when my students were mixed, I was doing my boys a disservice. I realized they didn't want to stay in choir because they didn't understand what was happening with their voice. As I read more research I wondered why I hadn't separated them sooner!

Nancy explained how the research informed and changed her male classes:

We treat it like a team, even say 'team on three!' I start my boys moving and they love it. We do the hokey pokey...hands up...they move and show off and dance. The boys help lead warm-ups, essentially they are the coaches on their choir team. We talk about how singing is athletic and how they have to use their core when they sing. I've continued to try and find out more about what boys like. We have a big chart where every kid has two notes that are laminated so we can track their range. It helps them see how they've grown and helps them understand their voices better. I knew I wasn't comfortable with the boys, so I wasn't afraid to do more research, and I found more repertoire and things that they love. I gear the learning to what they need.

As Nancy reflected on the process, she concluded she may have not been meeting student needs in mixed-sex settings:

Students have learned so much about how to sing and how to connect with their audiences through separate classes. I realized that in the mixed choir I was concentrating too much on the boys getting them to match pitch and sing right notes and ignoring the girls.

Since the change, enrollment has seen slight increases, but is dependent on the number of students that are admitted to the school. Retention, on the other hand, has seen rapid growth, especially into the high school choirs. “Now, through their own classes, they understand how their voices work and they look forward to being back together again in mixed choir in high school,” she stated.

Nancy almost exclusively keeps choirs separated throughout the year, but uses two scheduled concerts (grandparent’s day and a spring concert) to bring students together as a mixed ensemble.

Players involved.

Key players involved in the change process at Nancy’s campus included the middle school head of school, instrumental music teacher, and the department head. Prior to the change, all parties had fears about overlapping students, but through collaboration students have been able to gain a quality educational experience in all programs. While other campus staff were not involved in the change process, Nancy described their reactions to the changes: “The other staff on campus were surprised when I told them that classes would be separated. And now they love supporting the kids in their separate choirs.”

Difficulties experienced.

Nancy reported two minor difficulties with single-sex classes – how to structure the learning with fun and balancing the two, and achieving musical successes with small numbers of male students. “A small middle school boys’ group won’t always sound amazing, but people still love it. Everyone’s really been on board and the parents love seeing them sing together.” Nancy described.

Change strategies.

Nancy adamantly agreed that single-sex choirs had improved her choral program and was eager to provide advice to those looking to engage in change:

If you believe it's the right thing to do, keep working on it and keep pushing your administrators, supervisors, boards, and colleagues. But if you don't believe in it, don't do it. You'll have to teach them differently for it to be effective. It may not work in the first year but hang in there. If your administration won't let you, keep at it and defend your idea. If they're a good administrator, they'll listen and make it work.

She summarized her thoughts by again referring to the impacts of research:

If you want to best serve students, you should separate them and really research how boys learn differently than girls. Do everything you can to treat every singer well [sic] and make them feel valued. If your students don't feel like they're contributing, they aren't going to want to stay. You have to believe in it. When you delve into the research, it's a no brainer.

Mark.*Single-sex structural designs.*

Mark was hired to revive a vocal music program in a district that seven years prior had no music program. An instrumental music teacher, who also offered a section of choir, was hired first. Mark was hired four years after the instrumental teacher and faced numerous challenges in developing a structure that supported choral music. At his hiring, he insisted on having the freedom to build the choral program in the right way and was given support to do by the superintendent. His first year, he taught elementary music and one mixed-voice choir of sixth-through-eighth grade students. Mark reflected on the first year and the lack of singing culture:

It became apparent when I got here that singing was not a thing. Students loved band for what they could do with instruments, but even though we have a large Hispanic population that loves music, they didn't want to sing. Most of my middle school students, particularly the eighth graders, quit because they didn't want to sing with sixth-grade students. I knew I had to build in a different way.

Mark continued by describing how he attempted to build culture at the primary levels:

In my first two years, I let my primary kids loose into the community to build a culture of singing with the young ones. I told them that their job is to go home and teach your family the songs we learned in class. That brought singing to the family and encouraged the siblings. The community started to notice that kids were doing this. It was great to hear kids singing on the playground. It was the kids that started to help change the culture in the town.

Facilitating change.

By the second year, the middle school program had divided into two classes, a sixth-grade mixed-voice choir and a seventh- and eighth-grade mixed-voice choir. There were three boys in the beginning choir and four in the seventh-and eighth-grade choir. As the numbers grew, Mark contemplated single-sex choirs and presented the idea to his male students:

I talked to the boys specifically and said that I would love to make a choir with just boys. I presented the idea to them by saying 'what if there was a class just for guys so you can be yourselves and not worry about the girls making comments or about you making a mistake in front of them?' The boys were thrilled with it but I told them we would have to have more boys to do it. I knew I had no guarantee that it could happen, but I challenged my guys to find other guys that could join us in choir.

He followed by presenting the proposal to his principal in the spring through specific language:

I have a proposal for you. What we have now works fine but it is not a great setup for the choir yet. It would be really beneficial for the boys to have their own class for vocal issues, technique, and to address puberty issues. The boys have a reset vocally when that happens. If they had a class, it would be better for them and would give us another class offering for the choir program.

Mark's principal approved the request at the meeting, but Mark did not hear anything back for two months. He described the stresses involved with waiting and following legal guidelines:

I didn't want to push it. I was terrified, though. We had to make sure that everything was gender-neutral and inclusive. We were going to call it a men's chorus but if we had a student who was transgender, we would take them. I knew we'd have to be careful in how we labeled the choirs. There are others near us with single-sex choirs, so I knew we weren't alone in this. In May, I checked the student registration papers and choir wasn't listed as single-sex. I asked the principal and he responded, 'oh yeah, it's good.' They were planning to separate students without relabeling the courses...essentially just two sections listed as choir, one that had all boys and one with all girls.

Student impacts.

Single-sex classes began in Mark's third year as a choral director. Eighteen girls made up the female choir and nine boys joined the male choir, five of whom were eighth-graders. Mark recalled how the male choir culture developed:

I told my guys that they were starting a movement and built them up by building their confidence and self-esteem. I wanted to make them powerful young gentlemen where others would say 'I want to follow that guy.'...and then they would be led to choir.

Mark continued by describing the benefits of the single-sex choirs in the first year:

It was 100% positive. It kind of terrified my accompanist and I...only one switched out because they didn't like it. The sounds and camaraderie in the men's group is fantastic. Behavior has also improved. When together, they were distracted by each other or trying to impress others. My girls also benefitted, particularly with how to handle voice change and keep their voice healthy as it transitions into the next phases. I've been able to give them more specific tasks than I would with the guys. At first, they wondered why they couldn't sing with the guys. I told them about puberty and said the guys weren't quite as advanced and that with an all-girls class, they get their own specific support system. The results have just been amazing. With the new setup, I was afraid but have been blown away.

Though classes were split, Mark continued to provide opportunities for mixed-voice singing, which presented a surprising challenge:

In the second semester, everyone learned the same songs and came together to create a mixed choir, but it kind of started a desire for an advanced mixed ensemble with my kids...I'm going to have to figure out how to do that.

At the end of the first year, retention rates rose. Nearly all of the girls and all of the eighth-grade boys continued into high school choir. All of the sixth- and seventh-grade boys remained in choir as well as a majority of the girls. The next year, 40 new students enrolled in choir, for a total enrollment of 62 students (44 girls and 18 boys). Mark reflected on how the culture has changed district-wide:

It's amazing to see how much the culture has shifted. Each group has been able to learn in an atmosphere that works for them. I was talking with my elementary teacher who took

over for me when I moved to the middle and high school and we realized that we've solidified that singing is okay. A lot of those boys that I have were once on the fence. I would ask them who their favorite artist was and encourage them by saying 'what if I told you that by the end of the year, you could sing one of those songs in class with no problem? I promise you will be able to do this by the end of the year.' I basically made a bet with them by playing on their ego and now I've hooked them in [sic] choir.

Players involved.

Key players involved in the change included the superintendent, middle school principal, and students; however, Mark informally polled parents at concerts by saying "[single-sex choirs are] what I would love to do...do you think your student would be interested in this?" Although he believed parent involvement was unnecessary, he felt it strengthened his convictions for the change. The elementary music teacher also was involved in retention efforts through conversations with Mark in hopes of keeping students participating in vocal music.

Difficulties experienced.

Mark described one difficulty with single-sex choirs as it related to the structure of the courses:

At the beginning, I tried structuring classes the same. That was a mess. Now I have differentiated learning by using general planning, a wider variety of movement, and changes of activities for the guys and more specific musical objectives with the girls.

With this exception, Mark reported no other difficulties due to district and community support.

Change strategies.

Mark contemplated the change process and what he might recommend to those looking to embrace their own changes at their schools, focusing more on meeting district and administrator expectations:

I feel that the setup happened because I understood what my administration and district wanted from me and the choral program. I told them that the best way that I can give you results is through [single-sex choirs] and that I can give them what they want if they would let me have it this way. Talk to your principals and administrators about what you want for the program and how you want it to be seen, and then gather support. Schools are data-driven. Show them the research and why [single-sex choirs] are a good idea.

Mark urged directors find employment where their visions for the choral program matched those of supervisors:

It really comes down to you. You have to make sure the district is in line with your vision for the program. If you and your district or administration are not looking at choir in the same way, you won't have the growth you want. They have to show value in the program. I'm lucky. My administration tells me 'it's your program. Run with it. Just keep us in the loop.' When I do want to make changes, I always phrase it as 'this is what's best for kids' because my administration wants to provide great opportunities for kids.

Cross-case themes.*Single-sex structural designs.*

While each campus and participant had challenges that were unique to the school and program, commonalities existed between the participants and choral programs, particularly with regard to the impetus for change, obstacles faced, and optimism associated with creating a new

organizational design. Three of the four participants cited low male enrollment and/or an imbalance of female-to-male singers as motivating factors for including single-sex choirs. The same three participants also had previous experiences teaching single-sex choirs. In Mark's and Tricia's schools, the choral programs were striving to develop a positive culture for singing and thus affected their teaching assignments and class offerings. Ultimately, the common thread among all participants was the belief that single-sex choirs could better meet the needs of students (e.g., changing voice, addressing reticence to sing in front of each other, "rescuing" the girls, etc.), and all were optimistic about the benefits of the change to include single-sex choirs.

Facilitating change.

Pre-change activities used to facilitate change included teacher actions, observations of students, and both school and administrative actions. Common teacher actions included researching and reflecting on current teaching practices, observing student performance and engagement, attending conventions, networking with other colleagues, holding discussions with students, engaging parents in conversations pertaining to single-sex choirs, studying the master schedule to identify potential conflicts with other classes and programs, and developing positive relations with administrators. Prior to change, school and administrative actions included periodic modification of school schedules, shifting choral class meeting times and facilitating discussions related to staffing.

Proposals were presented to principals using common language, which included the phrases such as, "I have an idea," "I have a proposal," "best for kids," and "if it's possible." In the proposal presentation, participants presented benefits to administrators and ended the proposal by asking if change would be possible.

Following the initial approval given by administration, change activities included logistical and planning discussions with other staff, administrators, and counselors. Though staff members (e.g., high school choral director, elementary teacher, associate choral director, instrumental teacher) differed by participant, discussions with other professional staff emerged as a common element. With regard to counselors and administrators, discussions on how to split students, adjust the master schedule, and notate schedule choice cards were shared among participants. Students were involved in initial approval activities through discussions pertaining to upcoming changes to the choral program.

Post-initial approval activities included actions by the choral director and counselors, as well as interactions between the director and administrator, students, and parents. Common themes among participants included locating single-sex choral repertoire and preparing for how to best meet the needs of students in single-sex environments. Counselor actions comprised scheduling students in classes, labeling choir classes, and discussing when and where to schedule choir classes within the school's master schedule. Director interactions with administrators encompassed discussions related to course labeling and logistical challenges. Conversations connected to the purpose of changing the choral program to include single-sex choirs were shared between students and parents.

Few post-implementation activities existed that related to facilitating change. Those that occurred surfaced because of difficulties in the choral classroom such as classroom management and assessment. These encouraged participants to adopt a growth mindset to better serve students. Director actions included researching single-sex choirs, reading and purchasing resources, and engaging in self-reflection.

Student impacts.

With the exception of Mark, students were not involved prior to the change being approved by administrators. Once approval was given, students were impacted through several actions. Direct effects included the selection of classes based on the new organization of classes and involvement in discussions related to single-sex classes. Indirect effects included actions by participants to change the rehearsal environment and by counselors to place students in courses based on new separation criteria.

Students were largely impacted after the implementation of single-sex choirs. Common themes have been categorized into impacts on all students, male students, female students, and indirect impacts through director actions. All-student impacts of single-sex classes common among all participants included psychosocial, musical, physiological, organizational, and pedagogical improvements. From a psychosocial perspective, impacts included the development of traditions, improvements to student behavior and attitude, and increases in student engagement, participation and pride toward singing. Musically, students were able to perform more appropriate literature selections that included vocal parts catered to the changing voice. Due to its appropriateness, participants were able to increase difficulty levels of choral literature. Interview participants also reported improvements to vocal tone and technique and increased usage of differentiated lessons and individualized assessment. All participants commented on the ease to engage in discussions on changing voice in the single-sex environment than in mixed-voice choirs. Pedagogically, the split allowed students to progress at different rates through a catered, more positive rehearsal environment.

Specific to male singers, interview participants reported enhancements to choir culture, development of a sense of team, ease in facilitating movement activities, better awareness of

voice change, higher motivation levels, improvements to self-esteem and behavior management, and increased enrollment and retention as compared to the mixed-voice environment.

Participants reported numerous benefits of single-sex choirs specific to female students. These included improvements in student attitudes, the ability to progress faster than in mixed-sex settings, increased levels of musicianship and part-singing, higher enrollment and retention rates, and both social and emotional improvements (e.g., choir as family and community, lower anxiety). Common indirect impacts to both sexes through director actions included teaching style changes, implementation of increased assessment, application of research to pedagogy, and development of new teaching tools for single-sex classes.

Players involved.

Key players involved in the change process that were replicated among participants encompassed the choral director, administrators, counselors, campus and district professional colleagues (including choral directors, other music staff, and non-music staff), other choral directors outside of the district, current choir students, future choral students, parents of students enrolled in choir, and the community-at-large.

Difficulties experienced.

Pre-change difficulties frequently experienced by interview participants included low and/or imbalanced enrollment levels (particularly with regard to male singers), lack of musical success with mixed-sex classes, classroom management problems, and substandard levels of student participation and motivation to sing. Difficulties experienced post-approval shifted away from students and toward logistical challenges. These involved potential shifts to class sizes, scheduling difficulties (i.e., when and where to best schedule students and reduce and/or eliminate conflicts), how to divide classes (by ability or grade-level), and how to label classes

(i.e., men's choir versus choir). Post-implementation difficulties affected students at greater levels than those occurring during the post-approval period. Challenges such as class enrollment, managing the all-male choir, understanding the mentality of the opposite sex of the teacher, increased teacher preparation time, and classroom management were common among interview participants.

Change strategies.

Commonalities among participants when discussing change strategies before the proposal presentation included questions for the choral director to answer. These questions included: (a) how students will improve through single-sex classes, (b) what the district and campus administration expects from the choral director and program, (c) if and how your choral program structural design can mirror others near your campus, and (d) assessing whether the school district is aligned with your visions related to single-sex choirs.

To present the proposal to key players, participants recommended a fearless approach focused on solutions rather than complaints about the current situation. Participants encouraged the use of specific phrases that are student-centered and encourage collaboration with administrators. Interview participants found successes supporting the proposal by comparing choral music to band (many of whom schedule homogeneous classes for beginning instruments), defending the proposal by citing research, anticipating potential problems, gaining support from multiple individuals, and providing data. Challenges were commonly addressed through understanding that the process may take time and persistence, additional advocacy efforts may be needed, and that success can be found even with low student enrollments. Each director reported increases to enrollment once the single-sex classes found musical successes. Other recommendations by participants included the importance of finding success through appropriate

music, creating a safe environment for students to explore their voices, supporting students by understanding their specific needs, providing students a fair and equal education no matter the class grouping.

Convergent analysis.

Convergence of the quantitative and qualitative strands revealed parallels among timelines for changing structural designs, how change was facilitated, key players that were involved in the process, and difficulties experienced during the change process. Table 19 presents common themes present in summaries of both the quantitative and qualitative strands.

Table 19.

Common Themes Present in Quantitative and Qualitative Strands

	Quantitative Strand	Qualitative Strand
Timeline for Structural Change	<ul style="list-style-type: none"> • 14% changed past 2 yrs. • 10% changed past 3-4 yrs. • 20% changed 4+ yrs. ago 	<ul style="list-style-type: none"> • 25% changed past 2 yrs. • 25% changed past 3-4 yrs. • 50% changed 4+ yrs. ago
Facilitating Change	<ul style="list-style-type: none"> • 32% change easily accepted • Popular strategies: informal discussions, formal meetings, e-mails, citing research, advocacy 	<ul style="list-style-type: none"> • 100% change easily accepted • Popular strategies: informal discussions, formal meetings, citing research, previous experience with single-sex choirs
Key Players	<ul style="list-style-type: none"> • Campus principal, choral director, campus counselors, district administrators, campus assistant principal, campus colleagues 	<ul style="list-style-type: none"> • Campus principal, choral director, campus counselors, campus assistant principal, campus colleagues
Difficulties Experienced	<ul style="list-style-type: none"> • Campus master schedule, size of classes, none, lack of administrative support 	<ul style="list-style-type: none"> • Campus master schedule, size of classes, none

Summary

As evidenced in Table 19, diversity in the timelines for structural change occurred with participants of the SSCO and with those participating in the interviews. While change was easily accepted by all administrators of interviewed participants but not by SSCO participants, the strategies used by participants of both strands were similar. Key players were nearly identical

among the two strands, with the exception of district administrators. Difficulties experienced were also similar with administrative support emerging as the major difference between the two strands.

Research Question Four: Barriers to Creating Single-Sex Choirs

Research question four investigated the barriers to creating single-sex choral programs and the structural design choices of directors of programs with only mixed-voice choirs, particularly whether or not they would adopt a single-sex environment. Convergence of results related to this research question will not be presented as qualitative interviews were created to investigate directors that successfully navigated change to include (and who are now teaching) single-sex ensembles. Therefore, results presented only represent the quantitative strand.

Quantitative analysis.

Director choices to change or reject single-sex ensembles.

SSCO questions were designed to investigate the motivations for single-sex and mixed-voice, as well as determine a director's opinion toward single-sex choirs. The SSCO surveyed participants on whether or not they would adopt a single-sex environment at the middle-level, given no obstacles were in place. Table 20 presents participants' opinions on including single-sex choirs at the middle-level.

Table 20.

Participants' Opinions on Including Single-Sex Choirs

<u>Would you adopt single-sex choirs?</u>	<u><i>n</i></u>	<u>Percent of Sample</u>
Yes.	194	42.17
Not sure.	142	30.87
No.	124	26.96

Note. $N = 460$.

As presented in Table 20, nearly one-half of SSCO participants would adopt a single-sex environment if no obstacles were in place. Approximately one-fourth of participants would not adopt single-sex choirs; the others were undecided.

The subsequent SSCO question investigated if participants had previously attempted to separate classes into single-sex ensembles. Table 21 presents the results related to the middle-level, showing that the vast majority had not tried to separate their choirs by sex.

Table 21.

Participants' Previous Attempts to Facilitate Single-Sex Choirs

<u>Have you attempted to separate into single-sex choirs?</u>	<i>n</i>	Percent of Sample
No.	244	72.62
Yes.	92	27.38

Note. $N = 336$.

Nearly three-fourth of participants ($n = 244$) had not previously attempted to separate choirs by sex.

Participants attempting change were directed to questions in the SSCO that further investigated the rejection of single-sex ensembles, including key players with whom the idea was discussed, strategies used when presenting the proposal, and barriers possible or previously experienced. Table 22 presents key players involved in the attempted change.

Table 22.

Key Players Involved in the Attempt to Include Single-Sex Choirs

Key Player	<i>n</i>	Percent of Sample
Campus principal	89	37.71
Campus counselors/registrars	55	23.31
Campus assistant/vice principal	36	15.25
Campus fine arts colleagues	30	12.71
District administrators (e.g., superintendent, fine arts director/ coordinator)	23	9.75
Unknown	6	1.90
Only myself	2	0.85
Other choral staff (e.g., head choral director, high school director)	1	0.42

Note. $N = 236$.

The campus principal was the most common key player involved in the attempted change, followed by campus counselors/registrars, campus assistant/vice principals, campus fine arts colleagues, and district administrators.

Multiple strategies were used during the attempt to separate choirs by sex as reported by participants of the SSCO, ranging from casual to concerted in nature. Table 23 presents the strategies used when attempting change to include single-sex choirs.

Table 23.

Change Strategies Used When Attempting Change to Include Single-Sex Choirs

Change Strategy	<i>n</i>	Percent of Sample
Informal/casual discussions	100	39.37
E-mails	49	19.29
Formal meetings	43	16.93
Citing research	34	13.39
Music/fine arts advocacy efforts	25	9.84
Phone calls	3	1.18

Note. $N = 254$.

Common strategies used during the attempt to separate choirs included informal and casual discussions, e-mails, formal meetings, citing research, and music/fine arts advocacy efforts.

SSCO participants responded with 766 potential or previously observed barriers to single-sex choirs. Table 24 presents participants' reported potential or previously observed barriers to creating single-sex choirs at the middle-level, with the majority related to the master schedule and class sizes.

Table 24.

Participants' Reported Potential or Previously Observed Barriers to Creating Single-Sex Choirs

<i>Change Strategy</i>	<i>n</i>	<i>Percent of Sample</i>
Campus master schedule/singleton courses/conflicts with other courses	264	34.46
Potential size of classes/lack of male students	151	19.71
Lack of administrative support	78	10.18
Staffing	78	10.18
Gender equality issues/transgender students	46	6.01
None	39	5.09
Lack of support with colleagues/other campus programs	30	3.92
Funding/budgeting	27	3.52
Locating choral repertoire	23	3.00
Specific pedagogical approaches for single-sex classes	20	2.61
Lack of parent support	8	1.04
Legal challenges	1	0.13
Facilities	1	0.13

Note. $N = 766$.

As seen in Table 24, participants reported many different observed or possible barriers to single-sex choirs. One-third cited the campus master schedule as a potential obstacle, while nearly 20% described the potential size of classes and/or lack of male students as a hurdle to these groups. Other frequently reported barriers included lack of administrative support, staffing issues, and gender equality issues and/or transgender students. Just over five percent of respondents had not previously experienced nor foresaw any barriers to these ensembles.

Summary

SSCO participant motivations to include single-sex choirs at the middle-level varied among those responding to the survey. Nearly three-fourths of participants had not attempted to separate classes by sex; however, those that did involved many of the same key players and change strategies of those that found success in separating classes. Those with mixed-voice choirs indicated schedule and size of classes as primary barriers to separating classes into single-sex choirs.

Chapter Summary

Results found in the responses of both SSCO and interview participants indicated multiple organizational designs exist in middle-level choral programs. Though a majority of middle-level choral programs contain mixed-voice choirs, single-sex choirs are prevalent in many programs. Motivations for both single-sex and mixed-voice differed among participants, but focused on pedagogical, musical, physiological, and psychosocial benefits to students. Structural designs including single-sex choirs were both inherited and changed by participants. While many responses were in agreement among participants, the strategies used, key players involved, difficulties faced, and impacts to students were unique to the school, its environment, and the choral director. Many SSCO participants indicated a desire to change to include single-sex choirs; however, those directors (along with others) previously experienced or foresaw several administrative challenges that prevented successful changes.

CHAPTER FIVE

Discussion

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. This chapter presents discussion of the results in the order of the research questions. Discussions are organized into quantitative, qualitative, and convergent elements. Implications for choral music education are threaded into the discussions of each strand. Following the discussion, a conceptual framework for separating choirs into single-sex choirs is presented.

Research Question One: Organizational Design and Frequency

Participants of the SSCO reported a mean choral program enrollment of 130 students. Of these students, the ratio of females to males was 2:1, an improvement of the 3:1 ratio consistently found in extant literature (Dame, 2017a; NASSP, 1984, 1996; O'Toole, 1998; Rodgers, 1926; Williams, 2011). While this finding should be encouraging to choral directors, this ratio indicates an imbalance of male singers and a continued need by choral directors to recruit male singers (e.g., Demorest, 2000; Freer, 2007; Zemek, 2010). An implication may be that there still remain reasons for the imbalance, and points to issues not only in recruiting male singers, but also in retaining them. Continued research and analysis of effective recruiting techniques for male singers is recommended.

Female-to-male ratios were similar when compared with participants teaching at both the middle and high school levels. Not surprisingly, participants teaching only at the middle-level enrolled nearly twice as many singers in choir than those teaching at both levels. This could be attributed to split-campus teachers' inability to offer multiple sections of choir, reduced time for

recruiting, additional teaching expectations on both campuses, and/or smaller school enrollments. Investigations into the effects of staffing on recruiting singers at the middle-level could prove valuable to directors looking to increase participation. Regardless, adequate staffing by districts of choral programs might be paramount to the success of the middle-level choral program. Advocacy efforts by directors, parents, and other key players might strengthen the case for additional staff units in choral departments.

Responses from participants of both strands revealed diversity among choral program organizational designs and hierarchies, further supporting Hamann's (2007) claim that middle-level choral education might lack a clear vision. Mixed-voice choirs existed in over three-fourths of choral programs and were the most common voicing at the middle-level. This was consistent with Dame (2017a) and McClung (2006), who both found single-sex choirs at the middle-level to be in the minority. Half of SSCO participants offered only mixed-voice choirs, approximately one-fourth led only single-sex choirs, and the other one-fourth offered both single-sex and mixed-voice choirs. These results indicated a disconnect between research, (e.g., Dame, 2011; Nycz, 2008), commentaries (e.g., Collins, 1999; Kennedy, 2004) and current practice, and also might suggest that tradition among offerings may be a choice that schools make to avoid changes. Additionally, these decisions may be the result of convenience.

As supported by ratio imbalances, programs with single-sex choirs offered more all-female ensembles than all-male ensembles. Though the current study did not investigate if extracurricular single-sex ensembles were offered by departments, the lack of programs to offer opportunities to perform treble and tenor-bass music is potentially troublesome. The preference by participants to offer mixed-voice choirs could be connected to a lack of experience in teaching single-sex choirs, as supported by interview responses. Regardless, the decision to offer

mixed-voice choirs while also experiencing a deficit of male singers creates a cyclical problem – not enough male singers but also not providing male singers the ability to sing together in single-sex settings. It is possible that the participants are not aware of the imbalance or are not confident they might effect change. Future investigations could attempt to identify best practices for implementing and supporting single-sex ensembles at the middle-level.

SSCO responses pertaining to number of ensembles offered revealed both promising and potentially concerning results. The finding that approximately one-third of programs offered multiple all-female choirs and one-fifth of programs offered multiple all-male choirs should be encouraging to the field of choral music, as these programs likely encouraged more participation in choir. However, there still remains the issue that choral programs differ in their offerings of choir opportunities and also do so in disproportion according to sex. An implication is that perhaps not all students have equal access to mixed- and single-sex choirs, a point of concern for choral music educators and school districts. Further exploration into choral programs offering multiple single-sex choirs at the middle-level is recommended to determine how these programs work to recruit and retain singers.

In programs with both single-sex and mixed-voice choirs, single-sex choirs were organized at introductory levels to predominantly serve mixed-voice choirs, including pop/show choirs and advanced mixed-voice choirs. Programs with mixed-voice choirs at beginning levels commonly led to more advanced single-sex choirs. Comments by participants indicated a majority of these mixed-voice groups were comprised of sixth-grade students, affirming the results of Kotara (2013), who found most sixth-grade choirs to be mixed-sex. Further analysis of the data indicated programs with single-sex choirs at the introductory levels enrolled slightly more male singers than those with mixed-voice choirs. These results confirmed those of Dame

(2011) who reported sixth-grade single-sex choirs enrolled more male singers than those participating in mixed-voice choirs. Future research might compare the male recruitment and retention techniques of directors teaching single-sex choirs with those teaching mixed-voice choirs.

Ability-based choirs are a commonly-adopted technique for placing singers of all ages into choral ensembles (Hawkins, 2015). In programs with multiple single-sex ensembles, a majority of participants separated choirs into ability-based ensembles, leaving other programs to be split by grade level or schedule convenience. Though auditions may, indeed, discourage a student from participating in choir, separation of classes by grade level or schedule convenience could potentially be more damaging to the success of the ensemble, as students in these groups may not share the same ability level, attitude toward singing, and/or may be imbalanced with regard to voice type. Additional research is needed to determine director motivations for separating by grade level or schedule convenience.

Organizational designs and ensemble combinations of interview participants mirrored those by SSCO participants in that they varied widely among choral programs. Among the interview participants, three of the four choral programs separated all choirs by sex, while the other organized fifth- and sixth-grade choirs into mixed-sex choirs and seventh- and eighth-grade choirs into single-sex ensembles. Reported organizational challenges centered around limitations to the choral department schedule, staffing allotments, and other non-music teaching expectations, which limited the ability to further divide classes. Further inquiry into the impacts of campus schedules, staffing, and directors' additional teaching responsibilities on choral program schedules and operations is recommended.

Research Question Two: Motivations for Ensemble Voicing Selection

SSCO and interview participants described numerous motivations for ensemble voicing selection. Discussions have been categorized into physiological, musical/pedagogical, organizational, psychosocial, behavioral, and director-centered motivations for ensemble voicing selection. Parallels between those teaching single-sex choirs were evident when compared to those teaching mixed-voice choirs even though the ensemble voicings were different.

Physiological.

Physiological motivations for including mixed-voice choirs at the middle-level included the ability to better meet student needs during voice change, particularly as related to sixth-grade male voices, as some participants claim have not changed by this age. While many male voices, indeed, have not changed by this age and can easily sing treble literature in beginning mixed-voice choirs, there may be students who are experiencing voice change at this time (Cooksey, 1999; Killian, 1999) and may benefit from single-sex choirs. Continued research pertaining to the age at onset of voice change is recommended, especially considering voice change may be occurring “at a time when [students] are the most awkward, [and] make big choices about their future involvement in music” (Sweet, 2015, p. 7). Thus, not only the physiological aspects are important, but also the impact these may have on recruitment and retention in choral programs.

Participants leading single-sex choirs reported all-female and all-male choir offerings addressed the voice change and its inherent challenges more effectively than mixed choirs. Their findings support those of Adcock (1987), Barham (2001), Kennedy (2004), and Zemek (2010) who touted the single-sex choir’s ability to better meet students’ vocal needs during adolescent voice change. Additionally, participants in the current study described ease in addressing the physiological differences among students, such as the ability to learn at different rates and the

need by male students to move. An implication is that the participants were quite aware of their students' differences and provided choral offerings that best suited them. Participants' responses connect the extant research of Chadwell (2010), Deak and Barker (2002), Gurian (1998), Gurian and Stevens (2011), and Kindlon and Thompson (1999) to the choral classroom and may help advocacy efforts of those seeking to reorganize their choral music programs.

Musical and pedagogical.

The ability of single-sex choirs to address changing voice issues and other physiological needs may be connected to their ability to enhance pedagogical delivery and improve student musicianship. Previous research described enhancements to vocal pedagogy (Barham, 2001; Hawkins, 2015), literature selection (Canfield, 2009), pedagogical delivery (Bazzy, 2010; Freer, 2007), and performance (Patton, 2008) through the use of single-sex choirs.

Participants in the current study reported single-sex choirs to effectively address pedagogical and musical needs, particularly through (a) individualized musical instruction and pedagogical techniques for each sex, (b) a more student-centered environment, and (c) differentiated class structures and operating procedures. Interview participants further described the benefits of single-sex choirs on choral/vocal tone, music literacy, and sight-reading. Improvements to pedagogy and musicianship may help educators to create a more positive, encouraging environment for students, thus potentially improving motivation, enrollment, and learning outcomes.

Participants with mixed-voice choirs at the middle-level described greater availability of mixed-voice choral repertoire and the desire to expose students to a greater variety of music as motivating factors for facilitating these ensembles. Those leading single-sex choirs also addressed repertoire, but through the ensemble's ability to facilitate selection of music that

contained more appropriate ranges for changing voice, rather than struggling to find mixed-voice music that was developmentally suitable. Thus, the criteria for literature appeared to differ according to the voicing of the ensemble. Though treble and tenor-bass music may ultimately be a better fit for changing voices, this assumes that single-sex directors know and understand the physiological needs and limitations of the changing voice. Quality mixed-voice music for middle-level singers, though at times scarce, can oftentimes be a better choice than treble or tenor-bass literature. Directors might benefit from engaging in score study and analysis before programming music for singers at this age. Moreover, college and university choral music education programs could include training on changing voice and literature selection for pre-service teachers.

Another issue identified from SSCO responses included the ability of mixed-voice choirs to create additional flexibility for unchanged male singers. This seems logical in that McKenzie (1956), Cooper (1964), Swanson (1959), and Cooksey (1977) identified the ranges of pre-pubertal males to lie in the typical soprano and alto ranges of mixed choir literature; however, these results appeared contrary to that of exemplary middle-level choral directors surveyed by McClung (2006) who believed single-sex choirs offered teachers more opportunities to attend to student vocal needs than mixed-sex classes. While it cannot be argued consistently that mixed-voice choirs offer unchanged male students the ability to continue in ranges most appropriate for their voices, it certainly can be debated that the single-sex environment can facilitate male singers who are unchanged through music voiced as CCBB, TTBB, and/or SATB. Choral music publishers such as Cambiata Press, BriLee Music, and Carl Fischer specifically address changing male voice through identification of ranges used within the music, as well as connecting

literature to Cooksey voice stages. Additional studies and commentaries might explore commonly-performed repertoire ideal for all stages of voice change.

Organizational.

Participants offering only mixed-voice choirs as part of their choral program designs described the fit of these ensembles within the school schedule as a motivation to offering mixed-voice choirs in their programs. Mixed-sex classes allowed for more flexibility for counselors and administrators to schedule students in multiple choir classes. Single-sex classes, on the other hand, required a more rigid approach and forced students into one (or potentially) more options, thus decreasing convenience for those who created student schedules and possibly increasing course conflicts. While reduced schedule conflicts for students and increased schedule convenience are both valid motivations, it must be questioned whether they are sound reasons for creating mixed-voice choirs or if, instead, they are concessions to what may be the path of least resistance. Further investigation is necessary to determine the validity of these motivations.

Similar to participants with only mixed-voice choirs, participants with both mixed-voice and single-sex choirs reported schedule convenience and inflexibility within the master schedule as motivating factors for mixed-voice ensembles. As previously discussed, it could be argued that this motivating factor could be a concession rather than a benefit; second, it underscores the inconsistency of choral ensemble offerings to all students. Nonetheless, future research is encouraged to improve understanding of the balance of such offerings and the extent to which these meet student needs.

Participants with mixed-voice choirs described these ensembles as improving the facilitation of ability-based choirs. What is implied is the imbalance of female to male singers in choir which creates limitations as to where to place male singers. Most options might include

placing them all in a single-sex class or dividing them into one or more mixed-voice choirs. Though results suggest organizational designs of choral programs are situational and are based on enrollment and school schedules, it could be argued that single-sex choirs could also be separated by ability level, particularly when large numbers of female singers exist, as reported in this investigation. While sufficient enrollment of male singers may not be available at the onset of single-sex choirs to separate by ability, research suggests these ensembles improve enrollment and retention of male singers (e.g., Dame, 2011; Kotara, 2013), therefore creating future opportunities for separation of ability-based male choruses.

Participants with mixed- and single-sex ensembles reported the mixed-voice choir to fit well within their program hierarchy of choirs. As Sax (2017) described, “there are few differences in what girls and boys can learn, but there are big differences on how to teach them” (p. 103). It appears likely that participants with both types of choirs are well-equipped to adapt to the needs of their students. Considering many choral programs use single-sex choirs to serve advanced mixed-voice choirs, it is recommended directors with both types of ensembles adopt a hierarchy where single-sex choirs are used as training choirs while mixed-voice choirs function as more advanced performing choirs that eventually feed into high school mixed-voice choirs. Such structures might better attend to issues of vocal production, tone quality, and motivation of the singers before they are merged into mixed-voice ensembles which could require different teaching strategies to address both females and males.

Psychosocial.

Motivations for including mixed-voice choirs included eliminating the gender issue and facilitating greater socialization across sexes. Choral directors leading mixed-voice ensembles tout their ability to enhance psychological and sociological perspectives, including the ability to

eliminate the gender issue and socialize with students of the opposite sex (McClung, 2006). Choral music ensembles serve numerous psychological and sociological benefits, some of which include higher quality of life, emotional wellbeing, and social bonding (e.g., Clift et al., 2010; Pearce, Launay, & Dunbar, 2015; Teater & Baldwin, 2012). While mixed-voice choirs might facilitate these benefits, it could be debated that single-sex choirs can also help to create these enhancements (e.g., Barham, 2001; Beery, 2009; Freer, 2007; Kennedy, 2004; Patton, 2008; Swanson, 1960; Sweet, 2010; White & White, 2001).

Arguments for single-sex offerings were convincing as well. For example, participants facilitating single-sex choirs reported several student impacts, including higher enrollment, greater risk-taking behaviors, emotional and psychological improvements, greater confidence, and fewer social discomforts through the single-sex choir. Though single-sex choirs do not eliminate the gender issue or enhance cross-sex socialization as mixed-voice choirs do, opportunities exist for single-sex choral directors to create opportunities for combined musical performances and social events (Barham, 2001).

Future research is needed to identify the extent to which the mixed-voice choir could improve classroom culture, as those with single-sex choirs also reported improvements to classroom culture. Participants described single-sex choirs' improvements to classroom culture through their development of a sense of team, trust and bond with one another, and creation of a more student-centered environment, aligning with the results of Dame (2017c), Hawkins (2015), and Jorgensen and Pfeiler (2008).

Behavioral.

The results of this study suggested that connections appeared to exist between psychosocial elements and student behavior. Similar enhancements to student behavior and

classroom management were reported by participants leading mixed-voice choirs and also by those teaching single-sex choirs. Participants with mixed-voice choirs reported improvements to student behavior and classroom management as motivating factors for these ensembles. Any improvements in the often-difficult middle school/junior high choral environment should be celebrated, yet these motivations appear contrary to the responses of single-sex choral music educators participating in the current study as well as previous research of Spielhagen (2008), who documented reduced levels of discipline referrals in single-sex schools. Additional studies reporting improvements to classroom management (e.g., elimination of distractions, greater teambuilding opportunities, improved self-esteem, and greater social camaraderie) through single-sex choirs included Carp (2004), Gurian et. al (2009), Gurian and Stevens (2011), Jorgensen and Pfeiler (2008), and McClung (2006). Since there appeared to be behavioral benefits for both choral ensembles, an implication might be that choral conductors experience particular successes with one group as opposed to another, perhaps based on their personalities or their ability to manage mixed- versus single-sex choirs.

Director-centered.

Personal preference was described by participants leading mixed-voice choirs as a motivating factor for including these ensembles at the middle-level, supporting the findings of McClung (2006). It could be argued that interview participants who successfully navigated change to include single-sex choirs were equally passionate in their motivation to include all-male and all-female choirs. It cannot be disputed that teachers should teach what they are passionate about; however, caution is recommended in that no matter the voicing, choral ensembles should strive to place student needs above director preferences.

Research Question Three: Facilitating Single-Sex Structural Designs

Survey participants recently changing choral program designs to include single-sex choirs described their timelines for change. Results were mixed with just over one-half of participants reporting their choirs to have always been single-sex. Of the remaining programs, nearly half had changed recently. These results indicate potentially positive bridges between researchers studying the effects and benefits of single-sex choirs and practicing choral music educators implementing the recommendations of that research. It might also mean participants were interested in following a trend, perhaps not wanting to appear to be opposed to change. Continued research, promotion, and advocacy of these groups may continue to lead others toward organizational change.

Of SSCO participants facilitating successful change within their programs, one-third reported no difficulties in creating change. Just under one-half of participants had to support their proposal through research and advocacy but were approved. These results suggest the need by choral music educators to present change that is supported by research. On the other hand, the one-third of participants that were easily allowed to change their choral programs could indicate that presenting administrators with change initiatives such as single-sex choirs may not be as difficult as initially projected. Replication of the quantitative aspects of this study may prove beneficial in determining administrators' likelihood to embrace change within choral programs.

SSCO participants used several strategies to navigate change, with the most common strategies reported to be informal and casual discussions, formal meetings, sending e-mails, citing research, and presenting advocacy materials related to choral music. Key players involved in the change process of both strands included the choral director, campus principal, counselors, and registrars, as well as district administrators, assistant principals, and fine arts colleagues. The

common tendency of participants to use informal discussions and formal meetings to present proposals to others signifies a need for positive relations between choral directors, administrators, and other key players, who ultimately can affect the daily activities within a choral program, and thus the teacher's daily actions and expectations. College and university choral music education programs would be wise to offer music education majors and student teachers training in communicating needs with principals, counselors, and other key players.

Among those reporting difficulties with change, the primary barriers included the campus master schedule, potential size of classes, and administrative support as the most common. These difficulties align with previous research describing the challenges of operating choral programs with regard to scheduling (Adcock, 1987; Cox, 2002; Freer, 2007; Hawkins, 2015; Lucas, 2007; Nycz, 2008; O'Toole, 1998; Rodgers, 1926; Van Camp, 1987; Wilson, 2012), working with administration (Rodgers, 1926; Hawkins, 2015), and class sizes (Nycz, 2008; O'Toole, 1998; Wilson, 2012). These issues imply that choral directors may need to thoroughly understand the larger picture in terms of schedule, class sizes, and attitudes of administrators and evidence of what is best for students in order to better prepare to argue for change.

It is recommended that directors be proactive in anticipating potential barriers that could affect their choral programs. In programs seeking to embrace change, class sizes may become imbalanced at the onset (particularly in all-male classes); therefore, the choral director must strive to present the other benefits to creating single-sex classes to offset the potential downside administrators and counselors may see in a low enrollment all-male choral class.

As presented in the qualitative results, single-sex structural designs were facilitated due to low male enrollments, cultural views of singing as an acceptable pursuit, social discomforts in mixed-sex environments, and motivational differences between males and females. Single-sex

structural designs commonly began through formative assessments grounded by research, reflection, and collaboration with others. A majority of these actions aligned with the recommendations presented in research of and advocacy efforts for single-sex classrooms (e.g., Chadwell, 2010; Marks & Burns, 2008) and single-sex choral ensembles (Dame, 2017c; Hawkins, 2015), particularly the need to research, plan for change, communicate needs with others, gain buy-in, study the master schedule, and reflect on curricular choices.

When presenting the proposal, the use of specific, student-centered vocabulary emerged as a common theme. Single-sex proposals often were supported through references to other single-sex choral programs and citations of extant research related to vocal pedagogy (Beery, 2009; Giddings, 1930), potential enrollment growth (Barham, 2001; Jorgensen & Pfeiler, 2008), cultivation of a safe rehearsal environment (Giddings, 1930; Sweet, 2010), and reduced levels of social discomfort related to singing (Barham, 2001; Beery, 2009; Collins, 1999; Freer, 2007; Kennedy, 2004; Killian, 1999; Patton, 2008; Skoog & Niederbrach, 1983; Swanson, 1960; White & White, 2001).

With all four interview participants, approval was generally given with little resistance, aligning with some participants in the quantitative strand. Consistent with the recommended sequence of actions by Chadwell (2010), logistical discussions and planning with key players followed the initial approval and included discussions about splitting classes, registering students, gaining buy-in from students and parents, and effectively communicating change. As reported by Castelli (1986), Demorest, et al. (2017), Harrison (2007), Lucas (2011), and Sweet (2003), the influences of and acceptance by family and non-music teachers emerged as motivators for singing in choral music. It could therefore be concluded that gaining approval

from others may encourage participation in single-sex choral ensembles and is thus an important aspect of the change process.

After presentation and approval of the change initiative, a simultaneously occurring set of events emerged as common themes, similar to the results found in Dame (2017c). Events included curricular decisions, choral literature selections, as well as creating single-sex courses and assigning students. All actions were replicated by campuses of each of the participants, providing additional weight to their importance during the change process. Though Chadwell (2010) presented a recommended sequence for communicating change, many of these actions in presenting change related to single-sex choral ensembles are unique to the needs of choral music education and therefore are new research findings. Further investigation of this might be beneficial.

Post-implementation actions aligned with what many would consider as best practices of successful choral directors, no matter the organization of classes (e.g., Fiocca, 1986; McClung, 2006). In summary, choral directors assessed the situation, made improvements when necessary, and continued striving to best meet student needs essentially exhibiting the behaviors of a successful teacher in choral music.

The decision to split classes into all-male and all-female classes impacted male and female students during all change stages. Predictably, the greatest impacts to students occurred during the post-implementation stage. Nycz (2008) studied the advantages and disadvantages of single-sex choirs at the middle-level and reported psychosocial advantages to students to be a more positive environment for social interactions and improved classroom management. These results were duplicated in the current study and aligned with motivations listed by SSCO participants leading single-sex choirs. Interview participants described single-sex choirs' ability

to enhance choral tradition and culture, improve student behavior and attitude, increase student engagement and participation, and develop pride for singing. Participants also reported positive changes to the rehearsal environment through single-sex choirs, providing additional support to the research of Fiocca (1986) and Gurian and Stevens (2011).

Musical benefits reported by interview participants centered on the ability to better reach students individually through techniques such as voice testing, increased individualized assessments, and more differentiated instruction, all techniques recommended by studies and commentaries by Barham (2001), Cooksey (1999), and Dilworth (2012). From a choral perspective, single-sex choirs allowed participants the ability to choose more appropriate literature, a benefit also reported in the research studies of Beery (2009), Canfield (2009), Fiocca (1986) and Giddings (1930). The effects of more appropriate choral literature could mean higher enrollments of adolescent singers. Freer (2015) and Sweet (2003) reported students' motivation to sing in choral ensembles to improve when they connected to choral literature. The level of difficulty in the choral literature increased in the programs of each of the four interview participants. More challenging repertoire, combined with increased individualized assessment and differentiation, likely led to participants' claims of improved vocal tone and technique. Additionally, it is feasible that the participants were more motivated to choose more difficult literature and/or use a broader variety of pedagogical strategies, resulting in vocal improvements. Future studies might attempt to exclusively examine how single-sex choirs improve vocal tone and technique.

An additional benefit of single-sex choirs conveyed by all four participants was increased frequency of conversations specific to male and female changing voice, which participants reported led to a greater understanding by students of their own voice capabilities, particularly

among male singers. Research by Cooksey (1999), Freer (2007), and Kennedy (2002) suggest a greater understanding of the voice may lead to continued participation in choir.

From a sociological perspective, all-male choirs helped to create and/or improve cultures related to singing as a masculine pursuit. Participants reported all-male choirs helped young male singers to form a sense of team among classmates, aligning with the recommendations of Gurian et al. (2009) and Gurian and Stevens (2011). Motivations to sing by males increased on all four campuses post-implementation, a phenomenon supported by research that occurs when students enjoy music and singing (Clements, 2002; Demorest et al., 2017; Freer, 2015; Haire, 2015; Kennedy, 2002; Lucas, 2007; Sweet, 2003). Improvements to male singer self-esteem as reported by participants could likely be connected to motivation, as adolescent males are motivated to sing when they hold positive musical self-concepts (Clements, 2002; Lucas, 2007; Lucas, 2011).

All four participants described the ability of all-male classes to allow for greater movement during the choral rehearsal, a technique recommended by both researchers and master teachers (e.g., Chadwell, 2010; Fiocca, 1986; Gurian, 1998; Leck & Stenson, 2012; McMahan, 2008; Sax, 2017). Increased movement during rehearsal may likely account for director reports of fewer classroom management issues in the all-male classroom as compared to the mixed-voice environment (Spielhagen, 2008).

Perhaps most importantly, male singer enrollment and retention experienced growth on all four campuses after the formation of all-male choirs, a trend reported by Dame (2011, 2017c), Hawkins (2015), and McClung (2006). The creation of single-sex choirs may prove beneficial as choral directors continue to strive to balance choral enrollments and promote choral singing as a masculine pursuit.

Sax (2017) reported girls to be motivated by friendships, spending time together, talking with one another, and being together in face-to-face, conversation-essential environments. Interview participants reported improvements to female singer attitude, musicianship, and speed of learning in all-female choirs, providing support for Sax's (2017) claim that male students can negatively affect females in mixed-sex environments. Similar to the benefits to male singers, yet unique in their own ways as females, social and emotional improvements within the rehearsal environment and among singers themselves were consistent among participants. These improvements, both when combined and exclusive to one another, may attribute to female enrollment and retention rate improvements reported at each campus. Regardless, each improvement created by all-female choirs warrants further reflection by choral music educators of all levels.

Difficulties experienced by interview participants occurred at all stages of the change process. Pre-change difficulties connected to director motivations for change and difficulties facing choral music education as reported through research, including low male enrollment (Rodgers, 1926; NASSP, 1984, 1996; O'Toole, 1998; Williams, 2011; Dame, 2017a), lack of musical success with mixed-voice choirs (McClung, 2006), classroom management difficulties (Fiocca, 1986), and low levels of motivation and participation (Kennedy, 2002; Lucas, 2011; Williams, 2011).

Post-approval challenges closely mirrored the recommended needs of and timelines for creating single-sex choirs as presented by Marks and Burns (2008) and Chadwell (2010), indicating a greater need by research within choral music education to create timelines and conceptual frameworks specific to the creation of single-sex choirs. Difficulties faced by participants in the current study were not unique to the participants interviewed. Dame (2017c)

reported complications to the master schedule, staffing, securing facilities, and collaboration with other fine arts staff as hurdles to the change process. Hawkins (2015) also described scheduling as a challenge facing those seeking to create single-sex choirs. In addition to these problems, participants from Hawkins (2015) cited barriers to single-sex choirs as limiting opportunities for students to work across gender, low male enrollment, potential legal issues, lack of funding and staffing, and preference of mixed choirs over single-sex by directors and students.

Though the classroom management challenges reported after implementation of single-sex classes could be connected to the learning curve associated with teaching new groupings of classes, other explanations for difficulties in managing the environment could include the unique nature of the physical, hormonal, and brain-based differences of each sex (Gurian et al., 2009; Tomlinson, 2001; Wicks-Rudolph, 2013). More research into the investigation of students' physiological differences as well as best practices of managing single-sex classrooms is recommended.

The qualitative strand ended with advice from participants, which could perhaps best be summarized as the need for those seeking change to determine how single-sex classes benefit students and meet director, district, and choral director expectations. These commonalities emphasized the need by participants to create and defend their philosophy and vision for their choral programs, aligning with the change methodologies and philosophies of Bolman and Deal (2008) and Chadwell (2010). Participants finding success in changing choral program designs to include single-sex choirs used fearless, student-centered, data-supported approaches. These methods closely aligned with the recommended sequence for negotiating change by Chadwell (2010), which included developing a rationale, gathering data, describing benefits, completing research on sex differences, describing students' potential experiences in the classroom, creating

a proposed structure, providing anecdotal information, and allowing for question and answer time with constituents affected by the change.

Parallels in the strategies used to facilitate change, players involved in the process, and difficulties faced when presenting change were evident in both strands. One difference between the strands, however, was evident in administrative support. Interviewed participants all easily facilitated change, while SSCO participants reported mixed levels of administrative, thus further underscoring the need for advocacy efforts and positive relations between choral directors and school administration. This, however, does not appear to be a newfound realization presented by the research. Rodgers (1926) described the importance of having a “sympathetic and understanding principal who believes in the value of music education and so builds his program that music...will insure musical results and development of musical power” (pp. 21-23). Along with gaining administrative support, directors should strive to thoroughly research the benefits to single-sex choirs and their impacts on student learning. Neuschel (2005) urged the need of the leader to be an “extraordinary agent for change...growth...and to show the way for bringing it out” (p. 7). To do so, directors must be experts in the areas of physiological, psychological, sociological, musical, organizational, and pedagogical needs of adolescent singers (Wicks-Rudolph, 2013). Adopting a proactive stance to anticipate problems and studying change initiatives within educational settings may also provide additional support for single-sex choral ensembles.

Research Question Four: Barriers to Creating Single-Sex Choirs

Though the majority of choirs in the current study and in previous research studies (e.g., Carp, 2011; Dame, 2017a; Williams, 2011) are mixed-voice, responses by SSCO participants suggest this choice may not always be made out of preference. When given the choice to include

single-sex choirs at the middle-level if no barriers were in place, nearly half indicated they would do so. Most participants had not previously attempted to facilitate single-sex choirs; however, some participants indicated a previous attempt to separate classes into single-sex choirs and a desire to adopt single-sex choirs. These results signify a need for future qualitative investigations that delve further into why change proposals to include single-sex choirs were unsuccessful.

Key players involved in both unsuccessful and successful change initiatives within the current study closely resembled each other, notably the administrators, counselors, and choral music educators. Duplication of key players may suggest successful change initiatives are situational, requiring a multidimensional approach to find success. Future research examining teacher-administrator interpersonal dynamics, as well as language and strategies used to negotiate change with administrators may prove valuable to those looking to successfully navigate change in choral programs.

SSCO participants were asked to identify barriers that either surfaced during unsuccessful change initiatives or could be foreseen as potential hurdles when presenting a single-sex proposal. Participants cited the campus master schedule as the greatest hurdle to creating such ensembles, supporting the results and commentaries of Abril and Bannerman (2015), Adcock (1987), Chadwell (2010), Dame (2017c), Freer (2007), Hawkins (2015), and Van Camp (1987). This suggests a continued need by choral directors to understand the impacts of scheduling on the choral program and develop positive relations with those who create schedules and place students in courses. Though training on scheduling systems may not be available to choral directors, supportive school counselors and administrators may be willing to share aspects of the process with choral directors and/or work to solve scheduling problems if positive relations exist.

Lack of students, particularly males, was another barrier listed by SSCO participants, confirming the need for effective male recruitment and retention techniques and thus supporting the findings of Hawkins (2015). In many schools, including some in the current study, class minimum sizes must be met in order to create a new course. A lack of students (commonly males) in a choral program may prevent such courses from being formed. Ultimately, for single-sex choirs to become effective, administrators might be willing to look beyond the rigidity of a class minimum enrollment and instead allow the creation of a new course based on its benefits to students. Successes of participants in the current study suggest directors should present the change initiative in a way where the physiological, psychosocial, pedagogical, musical, and potential enrollment impacts outweigh the challenges and barriers that may be presented by administrators (i.e., small class size).

Chadwell (2010) and Dame (2017c) described the challenges of staffing single-sex programs, noting these initiatives may require creation of new sections of classes and could potentially require an additional staff position. Responses by participants of the SSCO commonly listed staffing as a hurdle to creating single-sex choirs, suggesting this may indeed be the case. An implication of this finding may be that schools tend to make decisions based on finances rather than accommodating the needs of the students and the programs. Continued research related to adequate staffing levels for choral music programs is recommended.

The other, and perhaps most challenging, barrier commonly listed was that of gender equality and how to best place transgender students. Palkki (2015) encouraged directors to best serve transgender students through repertoire selection, structure of choral programs, choice of recruitment tools, and through chosen words and actions. While mixed-sex choirs undoubtedly make it easier for choral music educators to place students in classes, it cannot be assumed that

single-sex choirs cannot provide a sound educational experience for transgender students. While research supporting single-sex choirs with particular regard to transgender students is scarce, successful educational experiences with these students can indeed occur in single-sex choral classrooms, as reported by Tricia's interview responses. Future research investigations might examine how directors facilitate transgender student placement in single-sex choral ensembles.

Mark described a labeling dilemma related to the term "gender equality" that may have connected to fear of legal implications. Debates for and against single-sex education have existed since the creation of Title IX in 1972, which was designed to ensure equality of educational programs, courses, services, and facilities for both sexes. Though clarifications have been made to the law over the years, single-sex choral ensembles are legal and supported by research (Cable & Spradlin, 2008; United States Department of Labor, 2011; United States Department of Education, 2014).

Instances of single-sex choral classrooms at the middle-level, while still in the minority, certainly exist and, as evidenced by the results found in the SSCO, may be gaining traction. These choirs help to create educational experiences for students and are supported by the results of both the current study and extant research. Though barriers to creating these ensembles do exist, it may be the responsibility of the choral director to determine whether the barriers outweigh the benefits and potential impacts to students.

There are acknowledged limitations related to both strands of research exist in the current investigation. In the quantitative strand, return rates were not able to be calculated due to policies of national music organizations. While efforts to reach as many middle-level choral music educators were exhausted by the researcher, it is possible some populations were not reached through the research design. Qualitative research requires a large investment of time to

accurately transcribe and analyze data, develop themes, and report participants' statements, opinions, and views. In the current study, only four choral directors participated in the qualitative interviews. Though efforts were made to make these individuals as diverse as possible, other philosophical beliefs and programmatic choices are, indeed, likely. Future research investigating the change process to include single-sex choirs at the middle-level is recommended through inclusion of a variety of research methodologies.

Suggested Conceptual Framework for Implementing Single-Sex Choirs at the Middle-Level

The purpose of this study was to comprehensively examine the frequency of single-sex choirs in middle school music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs at the middle-level. The study used a convergent mixed methods design to ascertain (a) the frequency of single-sex choirs in middle-level choral programs, (b) director motivations to form or reject single-sex choirs, (c) perceived and observed barriers to creating single-sex choirs, and (d) action-oriented strategies for including single-sex choirs in middle-level choral program designs.

The research by Collins (2009) and Hawkins (2015) suggested engagement and motivation to participate in choral music was part of a delicate and interconnected ecosystem. Elpus (2015) encouraged the use of research-based strategies rather than commentary to counter the issues plaguing choral music. Chadwell's (2010) groundbreaking text presented two valuable research-based frameworks for those seeking change. These included sequential plans for designing and implementing single-sex programs and a recommended sequence for communicating change with stakeholders (see Table 2). Frameworks included actions pre-change, post-approval, and post-implementation, including: (a) creation of exploratory groups, (b) identification of key stakeholders, (c) study of research related to single-sex classrooms, (d)

alignment of program with the school's mission statement, (e) development of a rationale for single-sex classrooms, (f) selecting a structure for implementation, (g) gaining approval from stakeholders, (h) receiving feedback, (i) engaging in reflection, and (j) planning for the future.

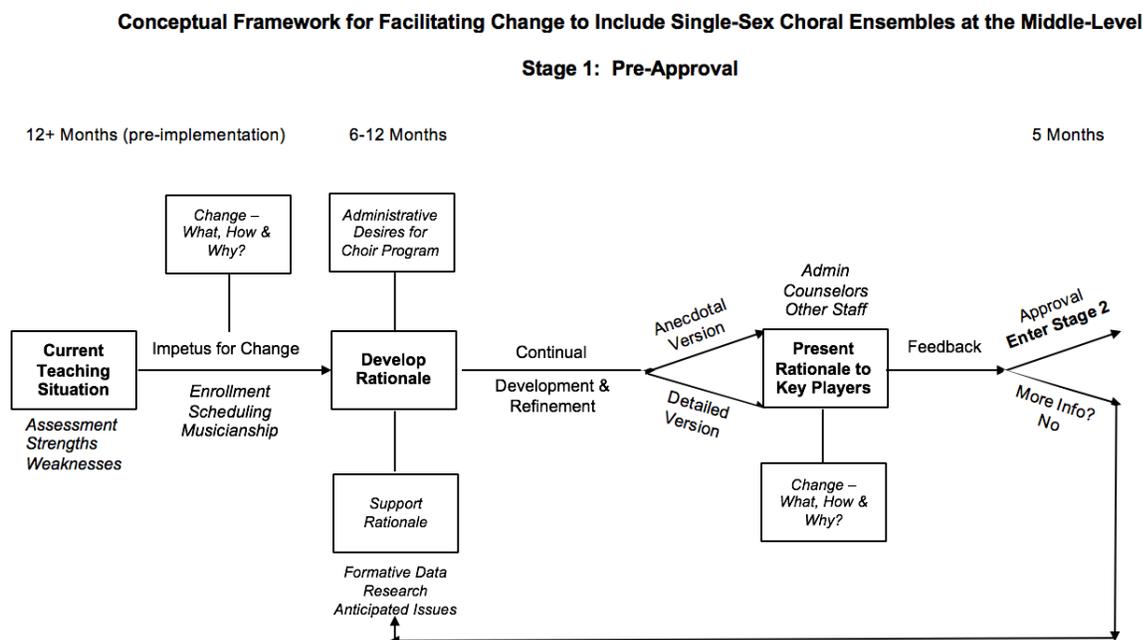
Conceptual frameworks “[lay] out the key factors, constructs, or variables, and presumes relationships among them” (Miles & Huberman, 1994, p. 440). Results found in the quantitative and qualitative strands of the current study suggested creation of a conceptual framework similar to Chadwell (2010), yet specific to single-sex choral ensembles and classrooms could prove beneficial for those seeking to facilitate change to include these ensembles at the middle-level. The complexity of participant responses supported Collins (1999) and Hawkins (2015) in that an effective conceptual framework related to this research field may lend itself to solutions within the larger interconnected system.

Like Chadwell (2010), recommended actions by participants of both the SSCO and qualitative interviews occurred primarily in three stages, which included pre-change, post-approval, and post-implementation. In addition, change initiatives involved multiple key players, creating multiple opportunities for feedback, approval, and/or disapproval. The following figures present the suggested conceptual framework for facilitating change to include single-sex choirs at the middle-level. To best align with participant responses and connect to extant research, figures are divided into three stages. Following the presentation of each figure, discussions pertaining to each stage will follow and will include pertinent research that supports each stage of the framework.

Stage one: Pre-change.

Figure 9 presents stage one of the conceptual framework for facilitating change to include single-sex choral ensembles at the middle-level.

Figure 9. Conceptual framework for facilitating change to include single-sex choral ensembles at the middle-level. Stage 1: Pre-approval.



Bolman and Deal (2008), in hopes of providing usable knowledge that work in practice, sorted insights learned from business leaders and organizations into four major frames termed structural, human resource, political, and symbolic. Within the structural frame lies the central concepts of defining roles, setting goals, and creating an effective environment, to name a few. Leaders operating within this frame must strive to attune structure to the necessary tasks and existing environment. The human resource frame encourages the leader to align organizational needs with the humans that operate within it. Central concepts include addressing needs, skills, and relationships through empowered leadership. The political frame, or what Bolman and Deal (2008) metaphorically describes as the “jungle,” tackles power, conflict, and organizational politics through advocacy efforts and development of agendas and power bases. Finally, the symbolic frame seeks to create meaning and inspiration through development of culture, meaning, and by understanding the stories of players within the organization.

The proposed conceptual framework threads Bolman and Deal's (2008) Four-Frame Model into the educational setting, particularly as it relates to middle-level choral music education. Unlike businesses and organizations, no true staff hierarchy exists; however, transfers can be made as they relate to the hierarchy between administration, choral directors, students, and other key players. In this case the structural frame best connects to the sequence of events for facilitating change, the human resource frame addresses student needs, the political frame links the change process with the political savvy needed to produce successful change among superiors and other key players, and the symbolic frame is used to connect to the needs of the choral program and culture found within it.

As described by Bolman and Deal (2008), "organizational change is a complex systemic undertaking" (p. 378). Kotter (2012) described eight stages repeatedly found in change initiatives. The first included the creation of a sense of urgency and includes the need to solicit input (Bolman & Deal, 2008). Specific to the current investigation, a successful change initiative to include single-sex choirs should include an assessment of the current situation, including particular attention to the structural, human resource, and symbolic frames. Analysis of the structural frame might include an assessment of strengths and weaknesses found within the structural design of the choral program. The human resource frame assessment could examine effects of the structure and pedagogical techniques used in the classroom on student learning. Evaluation of the choral program through the symbolic frame might aid in assessment of the choir culture, both within the ensembles and the school as a whole, specifically addressing the practices, rituals, and expectations in choral ensembles.

Once assessments have been completed, limitations may be found in the current division of classes, potentially creating an impetus for change. Some examples cited by participants in the

current study included low enrollment, substandard musicianship, and scheduling challenges. Others may surface through director reflection and address macro-level needs connected to the choral program's image (symbolic frame) and/or micro-level impacts on students (human resource frame). As supported by interview and SSCO responses, these impacts likely are situationally-based.

Kotter (2012) described the second stage of successful change initiatives as organizing a guiding, credible team to facilitate change. As found in many responses from the current study, the choral director was the primary agent for change. While staffing allotments may limit the "team," it is paramount that key players be identified before presenting change. A majority of the work needed at this stage of change occurs through the structural frame, new structures "must be designed to fit an organization's current circumstances, including goals, technology, workforce, and environment" (Bolman & Deal, 2008, p. 47). Brainstorming the "what," "why," and "how" change will be facilitated can be an important step to anticipating challenges.

Following the brainstorming period, Kotter (2012) recommended the creation of an uplifting vision and strategy. When seeking change to include single-sex choirs at the middle-level, choral directors might strive to develop a rationale for the change. Bolman and Deal (2008) described the need to operate within the political frame by mapping the political terrain and developing an agenda (p. 395). In choral music education, directors could connect their own desires for change with the expectations desired by administrators and superiors. Once these have been merged, supporting the change rationale is needed, as reported by participants in the current study. Citing research, anticipating issues, and collecting formative data are common ways of successfully addressing needs found within the political frame.

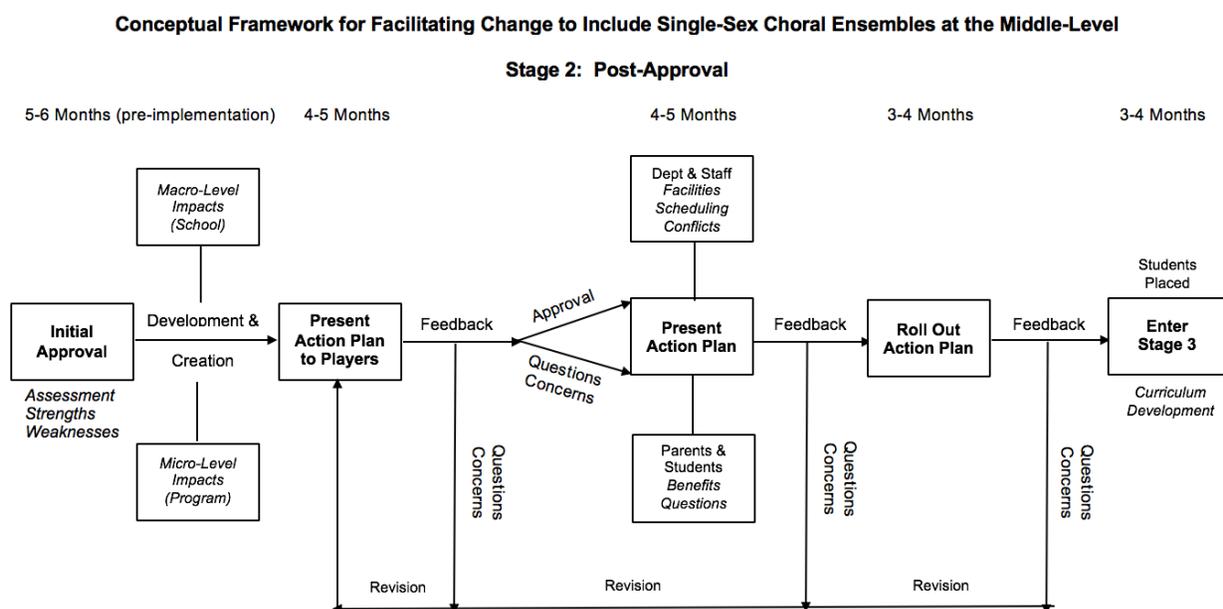
Chadwell (2010) and Elpus (2015) described the need by choral directors to provide both anecdotal and research-supported data to key players when presenting change initiatives. Participants in the current study indicated varying degrees of difficulty in gaining approval for change. In some situations, approval was gained quickly and easily. In others, additional research, advocacy, and conversation were needed. Thus, it may prove beneficial for choral directors to develop both an anecdotal and a more detailed presentation based on the school environment and personalities of the key players to whom the initiative is presented.

The final step in the proposed conceptual framework is presenting the rationale to key players, including administrators, counselors, and other necessary staff members. This step aligns with Kotter's (2012) fourth step for change initiatives—communicating vision and strategy through words, deeds, and symbols. In this stage, all four frames are addressed. This includes creating structures to support the change process (structural frame), holding meetings to communicate direction (human resource frame), creating alliances (political), and demonstrating leadership (symbolic frame), according to Bolman and Deal (2008). As previously discussed, the choral director must use situational awareness to determine if the key player(s) should receive the anecdotal or detailed version during the initial presentation. Regardless, the presentation should refer back to the brainstorming process where the “what,” “why,” and “how” change could be presented was developed. As described by interview participants, both specific and student-centered language should be used. Feedback by key players allows the choral director to advance to stage two of the conceptual framework, demands further explanation before gaining approval, or requires a different approach.

Stage two: Post-approval.

Following initial approval by key players, the conceptual framework enters stage two, which is labeled as post-approval. Figure 10 presents stage two of the conceptual framework for facilitating change to include single-sex choral ensembles at the middle-level.

Figure 10. Conceptual framework for facilitating change to include single-sex choral ensembles at the middle-level. Stage 2: Post-approval.



Once change initiatives have been presented and approval has been gained, Kotter (2002) described how change initiatives enter the next phase: removal of obstacles and empowerment of other people to move ahead in the process. To do so, the choral director must reflect on the change proposal through reassessment in hopes of identifying strengths and addressing potential weaknesses within the four frames that may have surfaced during the initial presentation to key players.

Kotter's (2012) recommendation to empower others connects to the action plan's development and creation stages found in the conceptual framework. To do so, Bolman and Deal (2008) encouraged those seeking change to operate in the structural and human resource frames by removing or altering current structures and procedures that supported the old ways and by providing resources and support for the proposed change. Specific to including single-sex choirs at the middle-level, particular attention to macro- (campus) and micro-level (choral program) needs must be addressed, which can include campus schedule needs, how students will be impacted, and how parents will be informed of changes.

Addressing potential needs at both the macro- and micro-levels will help choral directors gain "early wins," Kotter's (2012) sixth stage of change. According to Bolman and Deal (2008), change agents must plan for these victories by investing in power and resources. In the current framework, investments in power and resources can be found within the action plan through attention to each of Bolman and Deal's (2008) four frames. Important needs must be presented strategically, some of which include reasons for change, benefits of single-sex education, facilities requirements, impacts on the school and/or choral program schedule, and how to address conflicts with students or other programs. Beyond the principal, participants in the current study reported other common key players at this stage to include associate or assistant principals, counselors, and department chairs, though some of these key players can be informed later in the change process.

Action plan presentations likely will receive feedback, including approval, further questions or concerns, and/or needed revisions. It is important for choral directors to "keep going when the going gets tough," and align with Kotter's (2012) seventh stage of change during this feedback period. When the action plan has received approval from all necessary key players and

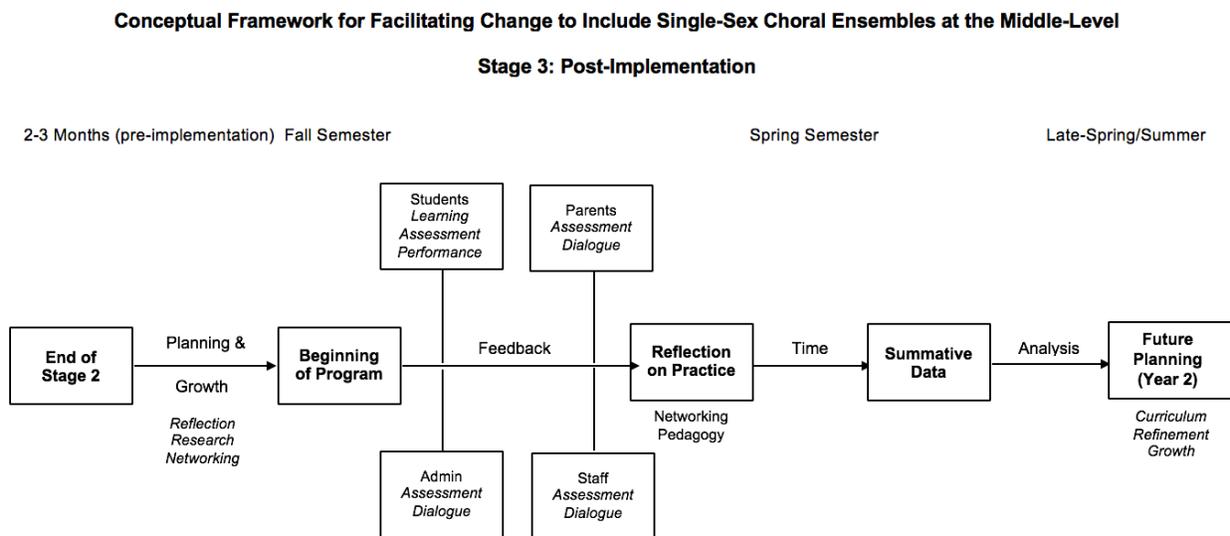
changes requested have been completed, choral directors must inform students and parents of the change to include single-sex choirs, as recommended by Chadwell (2010). As shown in Table 2, specific attention into the rationale, benefits, research, and placement/audition process for single-sex choirs is paramount, as well as time for questions and answers.

Stage two of the conceptual framework culminates with an action plan that has been presented to all necessary players including administrators, parents, students, and other necessary campus staff; received feedback at multiple steps; undergone change when needed; and has connected to the structural, human resource, political, and symbolic frames. The final action plan thus creates a new culture to support emerging and innovative ways, Kotter's (2012) final change stage. Structures and cultures unique to the single-sex choral classroom can now be developed within the new culture of the choral program and the school through curriculum development and student placement in single-sex choirs.

Stage three: Post-implementation.

The third and final stage, titled post-implementation, focuses on actions and events that occur both after the end of the previous school year and after successful launch of single-sex choirs in the middle-level classroom. Figure 11 presents stage three of the conceptual framework for facilitating change to include single-sex choirs at the middle-level.

Figure 11. Conceptual framework for facilitating change to include single-sex choral ensembles at the middle-level. Stage 3: Post-implementation.



Like many educators, preparing for a school year begins with reflection, networking, research (when needed), and curricular design and/or review. Specific to the single-sex classroom, choral music educators must strive to prepare for the musical, organizational, pedagogical, physiological, and psychosocial challenges that relate to the classrooms of each sex. As described by participants in the current study, planning for these classrooms can at times be difficult, but can lead to opportunities for personal growth. Potential strategies for planning and growth could include attendance at summer conventions, choral music reading sessions, collaborating with colleagues who teach single-sex choral ensembles, reviewing literature and resources specific to the needs of all-male and all-female ensembles, and developing a sequential curriculum for the needs of each sex. At this stage, many of the structural and political needs related to the change initiative have been addressed, therefore, it is paramount that choral directors focus on student (human resource frame) and programmatic (symbolic frame) needs.

As described by Kotter (2012) and Bolman and Deal (2008), the need for celebrating early wins at the beginning stages of a new program is critical and helps to provide momentum within the initiative. To achieve early successes, choral directors could strive to replicate some of the successes of single-sex choral educators in hopes of building community within the ensemble. Opportunities can be found through engaging choral literature, discussions on changing voice, cultivation of psychosocial needs, and creating camaraderie within each single-sex class. As described by participants in the qualitative strand, the beginning of the single-sex program can be largely successful. Feedback received by students, parents, administrators, and other staff should be analyzed and reflected upon in an effort to best serve students in single-sex classes. Feedback specific to students can include engagement, behavior, musical success, informal and formal formative and summative assessments (e.g., concerts, voice testing, sight-reading exams, etc.). Feedback from administrators, parents, and other staff merges the political, human resource, structural, and symbolic framework with the choral music program through informal dialogues, reflection, and teacher and program performance assessments. After feedback (positive or negative) has been received, it is important for choral directors to reflect on their practices within the classroom. Doing so can address potential shortfalls of the current organization, help educators to best serve student needs, and further develop the single-sex program.

As time passes, opportunities emerge for choral directors to collect summative data. These can include assessment of student vocal ranges, ability to sing in parts, sight-reading aptitude, festival or contest ratings, motivation to perform solos or in small ensembles, classroom management infractions, enrollment and retention in choir, and feedback gained through public performance. While data gained through summative assessments can (and likely will) be

plentiful, it is essential that all data be analyzed to provide a thorough assessment of the single-sex choral music program. Doing so can lead the program into the second year, and beyond, of the program. To operate within a growth mindset, it is recommended that choral directors and thus their choral programs repeat the strategies found within stage three each year.

Conclusion

Choral music education at any level can be difficult for choral music educators as they strive to select appropriate literature, teach multiple parts, blend and balance voices to create a cohesive whole, and assess learning. Simultaneously, choral music educators must aim to shape a rehearsal environment that is stimulating, demanding, and also motivates singers to not only work together for a common goal, but also encourages long-term participation in the choral art.

In addition, middle-level choral music educators also face challenges unique to students of this age group. Voice change, puberty, physiological differences among sexes, organizational challenges specific to middle and junior high schools, as well as adolescent psychology and sociology all can affect decisions on choral literature, ensemble voicing, and pedagogical techniques used within middle-level choral music programs. The purpose of this investigation was to examine the frequency of single-sex choirs in middle-level music programs, motivations for offering these ensembles, and both strategies for the implementation of and obstacles preventing single-sex choirs in middle-level programs. While this multidimensional purpose served as the foundation for the study, a secondary purpose also exists -- to serve the choral music profession.

Participants of this study hold a preference for mixed-voice choirs at the middle-level, with single-sex choirs occurring in a relatively small number of choral programs. Data analysis reveals some directors choose to form mixed-voice ensembles out of choice, while others teach

these ensembles simply because they are the voicing provided to them by administrators and other superiors.

Though in the minority, some programs provide choral music education through single-sex choral music ensembles. SSCO responses pertaining to the timelines for change appear to indicate growth in single-sex choral music education at the middle-level, as many directors reported recent changes to their program's organizational design. Furthermore, the relative ease of directors to change programs to include single-sex choirs may serve the role of trailblazer for those looking to facilitate organizational change within their own choral programs.

As reported through participants' responses, choral directors that facilitated change to include single-sex choirs did so through situational awareness, employing a variety of purposeful advocacy techniques and including many different key players. To fully recognize and acknowledge the difficulties found in organizational change, Bolman and Deal (2008) described the need for change agents to "celebrate the heroes" and "share stories of the journey" (p. 395). These individuals, particularly the four participants within the qualitative strand, have shared their organizational change with others in hopes of serving others looking to do the same. Their single-sex ensembles appear to have inspired personal, musical, and enrollment growth among their students and their stories can provide one model for success within middle-level choral music education.

As Van Camp (1987) describes, the best teachers should be teaching in the developmental stages such as middle and junior high school. These years form habits and attitudes about choral music that can not only lead to successes at the middle-level, but can build foundations for successes in high school, college and university, community, and church choirs.

If choral directors are able to create classroom environments that are positive and lead to quality performances, the habits and attitudes formed about choral music likely will be positive.

Research has previously addressed the connections between motivations to sing and positive music self-concepts (Clements, 2002; Lucas, 2007; Lucas, 2011) and enjoyment of singing (e.g., Haire, 2015; Kennedy, 2002; Sweet, 2003). Regardless of ensemble voicing, number of students, school setting, administrative support, or teacher experience, choral music educators must strive to make the most informed curricular and organizational decisions that put student needs as the top priority. As described through the stories of the participants, this mindset is not always the path of least resistance but can be achieved by linking philosophies for music education with important programmatic choices. If choral programs are meant to adapt to changes in the educational landscape, choral directors must also be willing to do so, even when it may be uncomfortable or they have no experiences with particular educational initiatives, such as single-sex choirs. By presenting all educational options and serving as advocate, we can best serve students. Choral directors expect much from our students and choirs, and in turn, they should expect the same from us.

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Appendix A

Quantitative Survey (SSCO) Informational Statement

Middle School/Junior High Choral Director,

I know you are busy. I have been in your shoes as a middle school/junior high school choral director for over eleven years. My name is Nathan Dame. I am currently a Ph.D. candidate in choral pedagogy at the University of Kansas under the supervision of Dr. Debra Hedden.

I ask you to take just a few minutes to respond to a brief questionnaire that solicits your expert input about single-sex choirs in middle-level choral programs. Completion of the questionnaire will take approximately 10-15 minutes. The survey will be live for 10 days following your receipt of this email, therefore a timely response is appreciated.

You may access this online survey by clicking the link: <https://goo.gl/forms/jeEII9YqAdN8cp3z2>

By completing this survey, you are indicating consent to participation in the study. While there is a potential risk of loss of confidentiality in all email, downloading, and internet transactions, the data will remain confidential as far as possible in compliance with state and federal law. Participation in this study is voluntary and participants may stop at any time.

If you are interested in the results of this survey, you can contact me at ndame@ku.edu.

Thank you for your participation in my research.

Sincerely,

Nathan Dame
Ph.D. Candidate, Music Education/Choral Pedagogy
The University of Kansas
448 Murphy Hall
1530 Naismith Dr.
Lawrence, KS 66045
ndame@ku.edu

Appendix B

Qualitative Interview Consent Form

As a student in the University of Kansas's School of Music, I am conducting a research project about single-sex choirs at the middle-level. I would like to interview you to obtain your views on these ensembles in your program. Your participation is expected to take about 45 minutes. You have no obligation to participate and you may discontinue your involvement at any time.

Your participation should cause no more discomfort than you would experience in your everyday life. Although participation may not benefit you directly, the information obtained from the study will help the profession at large gain a better understanding of single-sex choirs at the middle-level. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. Thus, your identity and the data gleaned from the interviews will be anonymous and confidential.

**It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may hear your response.*

***This interview will be recorded. Recording is required to participate. We may stop taping at any time. The recordings will be transcribed by me. Only I will have access to recordings which will be stored and encrypted in a secure location and will be destroyed at the completion of the research study.*

Participation in the interview indicates your willingness to take part in this study and that you are at least 18 years old. Should you have any questions about this project or your participation in it you may ask me or my faculty supervisor, Debra Hedden at the School of Music. If you have any questions about your rights as a research participant, you may call the Human Research Protection Program at (785) 864-7429 or email irb@ku.edu.

Appendix C

Survey on Single-Sex Choral Offerings (SSCO)

Section 1: Demographic Information

1. State Where Taught
2. Level Taught
 - a. Middle School/Junior High [Go to Section 2]
 - b. High School [Survey Ends]
 - c. I teach both middle school/junior high and high school. [Go to Section 2]
 - d. I don't teach either of these levels. [Survey Ends]

Section 2: Middle-Level Choral Offerings & Enrollments

3. In the current school year, what is your total male enrollment at the middle school/junior high?
4. In the current school year, what is your total female enrollment at the middle school/junior high?
5. Please check how many of each choir type at the middle school/junior high are a part of your choral program design.

a. All-male	0	1	2	3	4	5 or more
b. All-female	0	1	2	3	4	5 or more
c. Mixed-voice	0	1	2	3	4	5 or more
6. Specific to the middle school/junior high level, are your curricular choirs (those that meet during the school day):
 - a. Single-sex (e.g., all-male or all-female) [Go to Section 3]
 - b. Mixed-voice, (e.g., SAB/SATB, separated by grade or ability, etc.) [Go to Section 6]
 - c. A combination of both single-sex and mixed-voice choirs. [Go to Section 9]

Section 3: Single-Sex Choirs

7. Regarding your single-sex separation of classes at the middle school/junior high, have they:
 - a. Always been single-sex. [Go to Section 5]
 - b. Recently changed from mixed-voice to single-sex choirs in the past 2 years. [Go to Section 4]
 - c. Recently changed from mixed-voice to single-sex choirs in the past 3-4 years. [Go to Section 4]
 - d. Changed from mixed-voice to single-sex choirs more than 4 years ago. [Go to Section 4]

Section 4: The Change Process

8. How were you able to facilitate the change in the middle school/junior high choral program to include single-sex choirs?
 - a. I made the request and the change was easily granted.
 - b. I made the request and the change was granted, though conversations/advocacy efforts were necessary.

- c. I made the request and the change was not granted; however, with additional research/conversations/advocacy, the change was eventually granted.
 - d. I was not involved.
 - e. Other
9. Who was involved in making the change (check all that apply)?
- a. Myself
 - b. Campus principal
 - c. Campus assistant/vice principal
 - d. Campus counselors/registrar
 - e. Campus fine arts colleagues
 - f. District administrators (e.g., superintendent, fine arts director/coordinator)
 - g. Parents
 - h. Other
10. What strategies and communication did you/others use to advocate for the change, particularly with scheduling (check all that apply)?
- a. Informal/casual discussions
 - b. Formal meetings
 - c. Phone calls
 - d. E-mails
 - e. Music/fine arts advocacy efforts
 - f. Citing research
 - g. Other
11. What difficulties or obstacles did you face during the process (check all that apply)? [Go to Section 5]
- a. Campus master schedule/singleton courses/conflicts with other courses
 - b. Lack of administrative support
 - c. Lack of support with colleagues/other campus programs
 - d. Potential size of classes
 - e. Funding/budgeting
 - f. Staffing
 - g. Gender equality issues
 - h. None
 - i. Other

Section 5: Single-Sex Choirs

12. If you have more than one section of single-sex choirs (i.e., two female choirs or two male choirs), how are students placed in different choir classes?
- a. I don't have multiple sections of single-sex choirs.
 - b. Split by grade level
 - c. Ability-based (auditioned choirs)
 - d. Schedule availability/convenience (e.g., two class periods of seventh-grade all-female choirs, two class periods of eighth-grade all-male choirs)
13. Would you be willing to participate in a short interview to further elaborate on your single-sex choirs at the middle-level? If so, please provide your email. [Survey ends]

Section 6: Mixed-Voice Choirs

14. If there were no obstacles in your way, would you separate your choirs into single-sex choirs at the middle school/junior high?
- Yes [Go to Section 7]
 - No [Go to Section 8]
 - Not sure [Go to Section 7]

Section 7: Single-Sex Barriers

15. Have you previously attempted to separate your choirs into single-sex ensembles?
- Yes
 - No
16. Who have you involved in making the change? Check all that apply.
- Campus principal
 - Campus assistant/vice principal
 - Campus counselors
 - Campus fine arts colleagues
 - District administrators (e.g., superintendent, fine arts director/coordinator)
 - Parents
 - I have not attempted to separate choirs into single-sex ensembles.
 - Other
17. What strategies and communication did you/others use to advocate for the change, particularly with scheduling (check all that apply)?
- Informal/casual discussions
 - Formal meetings
 - Phone calls
 - E-mails
 - Music/fine arts advocacy efforts
 - Citing research
 - I have not attempted to separate choirs into single-sex ensembles.
 - Other
18. What barriers at the middle-level have you previously experienced or foresee in making or facilitating this change? Check all that apply.
- Campus master schedule/singleton courses/conflicts with other courses
 - Lack of administrative support
 - Funding/budgeting
 - Staffing
 - Lack of support with colleagues/other campus programs
 - Potential size of classes
 - Lack of parent support
 - Locating choral repertoire
 - Specific pedagogical approaches for single-sex classes
 - Gender equality issues
 - Other
 - None [Survey ends]

Section 8: Mixed-Voice Influences

19. What influences your decision for your choirs to be mixed-voice at the middle school/junior high? Check all that apply.
- Structural: Can structure classes by ability level, fits with school or program master schedule
 - Social: Eliminate the gender issue, encourage students to work together across gender
 - Behavioral: Classroom management is improved; culture and/or interpersonal relations are improved
 - Musical: Work with all timbres, easier to tune SATB, more repertoire choices, better meets student needs
 - Open-ended
20. Are there any specific pedagogical strategies, classroom management approaches, and/or musical resources that you use that aid in teaching mixed-voice choirs at the middle-level? If so, please describe. [Survey ends]

Section 9: Combination of Choirs

21. Describe the organizational design of your choral program.
- Single-sex choirs serve as training choirs to mixed-voice choirs.
 - Mixed-voice choirs serve as training choirs to single-sex choirs.
 - Other: open-ended
22. What are your motivations for including mixed-voice choirs in your choral program? Check all that apply.
- Fits well in program hierarchy of choral ensembles
 - Encourages students to work across gender
 - Improves classroom culture/interpersonal relations
 - Provides students opportunities to sing greater variety of music
 - Improves tuning/ear training because of SA(T)B sonorities
 - Personal preference for mixed-voice choirs
 - More choral repertoire options
 - Aligns with high school choral program design
 - Other: open-ended [survey ends]

Appendix D

Interview Questions

CURRENT/FRAMING THE CHANGE

1. Tell me about the choir offerings at the middle school/junior high, including the number of students you teach in each choir. [RQ 1]
2. How long have you been teaching at your school? [RQ 3]

THE CHANGE PROCESS

3. Describe the timeline for change, more specifically (a) how much time elapsed before you made the decision to move to single-sex choirs in your program; (b) were there any particular events or difficulties that influenced your decision; and (c) how you began involving others, including with whom you began, what you said, and their reactions to the idea, and discuss any resistance. [RQ 2, RQ 3]
4. How much time elapsed from first contact to initial approval? How was approval given and what happened after approval? [RQ 3]
5. How did the change process evolve after initial approval? How were key players, including yourself, involved? [RQ 3]
6. How were students placed in classes? By sex, grade, ability, or something else? Was there a reason for placing students this way? [RQ 3]

AFTER IMPLEMENTATION

7. Once classes began, was there a change in terms of student behavior, attitude, and musical success? Was the initial time period a positive, negative, or mixed result? [RQ 3]
8. What were the benefits to your students in the first year? How were the classes different? [RQ 2, RQ 3]
9. Was enrollment and/or retention impacted during the first year? Did enrollment and/or retention grow or decrease throughout the year? [RQ 3]
10. What was your total enrollment in the second year, in both males and females? [RQ 3]

FUTURE PURSUITS/REFLECTION/ADVOCACY

11. Do you anticipate keeping single-sex choirs in your program? Why or why not? [RQ 2]
12. Have single-sex classes experienced any change since their inception (e.g., structurally, in your teaching, etc.). What are the benefits? Challenges? [RQ 2, RQ 3]
13. Have there been any difficulties in keeping your single-sex choral setup? If so, what advocacy efforts have you used to keep the program intact? [RQ 3]
14. What advice would you give about the change process for those looking to do the same in their school? [RQ 3]
15. Do you include mixed experiences for students in your program? How do you facilitate those? [RQ 1]
16. Is there anything else that you'd like to share?