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An exploration of Wisconsin choral educator preparation for supporting adolescent singers

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AN EXPLORATION OF WISCONSIN CHORAL EDUCATOR PREPARATION FOR SUPPORTING ADOLESCENT SINGERS

by

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DEDICATION

I would like to dedicate this work to my children: Vincenzo, Dominic, and Gioia. With a little patience and a lot of determination, you can do hard things.

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ABSTRACT

Adolescence is a time of rapid and sometimes widely varying changes in the voice (Cooksey & Welch, 1998; Gebhardt, 2016; Harries et al., 1998; Killian, 1999; Sweet, 2015). As such, content and pedagogical knowledge of the voice is particularly important for educators when supporting adolescent singers. Shulman's (1986) framework, Pedagogical Content Knowledge (PCK), is a tool to examine the ways in which educators integrate their content and pedagogical knowledge with their knowledge of individual learners to best support student learning outcomes.

The purpose of this study was to explore the preparation of secondary choral educator candidates in Wisconsin with specific regard to supporting adolescent voices. This study was completed using qualitative methods through a collective case study design to gather personal knowledge and experiences of student teacher candidates serving in two separate educational settings and attending different teacher preparation programs in Wisconsin. Methods of data collection included interviews with student teacher candidates and their cooperating teachers, syllabi from choral methods courses, and a video teaching sample from each student teacher.

This study found that student teachers felt confident in their abilities to teach in

several topics related to the adolescent voice, however there were also areas that they identified as emerging skills in need of additional support. State licensure boards and teacher preparation programs may use these findings to guide future curriculum and licensure requirements in ways that may better support the identified areas for growth.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

NASM.....National Association of Schools of Music

PCK ..... Pedagogical Content Knowledge

Chapter One

Adolescence is a time of rapid and sometimes widely varying changes in the voice (Cooksey & Welch, 1998; Gebhardt, 2016; Harries et al., 1998; Killian, 1999; Sweet, 2015). As such, content and pedagogical knowledge of the voice is particularly important for educators when supporting adolescent singers[1]. For many adolescent singers, a choral educator will serve as their first resource for vocal instruction during these pubertal changes (Dillon, 2013). Green (2018) posited, "Effective choral conductors possess mastery in three distinct areas: content competency, teaching skills, and social behaviors" (p. 1) Therefore, choral educators need a strong understanding of content and pedagogical strategies necessary to support the specific needs of such learners.

The teacher preparation programs of choral educators may play an important role in the acquisition of such knowledge (Ravall & Simberg, 2020; Smith & Sataloff, 2003). As a choral educator who has worked with many student teachers from different institutions and teacher preparation programs, I frequently discovered areas of preparedness among student teachers that were still emerging upon their arrival in the secondary choral classroom. Topics such as the singing ranges of adolescent voices, teaching through the voice change, choosing accessible repertoire, caring for transgender voices, and other issues affecting young singers were often challenging for student teachers to grapple with. This led me to wonder if there may be more that teacher

[1] For the purposes of this study, I refer to adolescents in the pubertal period of their growth stage. Gackle (2006) pointed out that females tend to begin their pubertal transitions between the ages of 10 and 12, while males tend to enter this stage slightly later between the ages of 12 and 14.

preparation programs could be doing to ensure choral teachers are equipped with specific knowledge of the adolescent voice.

Shulman's (1986) framework, Pedagogical Content Knowledge (PCK), is a tool to examine the ways in which educators integrate their content and pedagogical knowledge with their knowledge of individual learners to best support student learning outcomes. Content knowledge in any given subject area may encompass a vast scope of material for educators to understand. For choral educators, Smith and Sataloff (2013) asserted that content knowledge includes the anatomical and physiological understanding of phonation. The educational backgrounds of choral conductors may play an important role in their acquisition of such content knowledge (Ravall & Simberg, 2020; Smith & Sataloff, 2003). Spurgeon (2004) posited that undergraduate training of choral educators has perhaps "focused too heavily on teaching conducting skills, rehearsal techniques, program administration, and repertoire selection and have neglected the one issue that is fundamental-singing" (p. 28). Irregularities in the acquisition of PCK in choral education could be interpreted as an area of significant concern considering the complexity and diversity of the adolescent voices they support.

Every teacher travels a unique path to acquire knowledge in their chosen field, coming from different backgrounds and attending different teacher preparation programs. It is a combination of those experiences that informs their classroom teaching. If I reflect on where I acquired my vocal knowledge it would be from the following sources in chronological order: choral directors, voice teachers, undergraduate choral methods class, student teaching mentors, colleagues, and graduate pedagogy classes. However, that is

my journey alone, whereas another person may not have had voice lessons prior to college or may not have chosen to attend a graduate program. Certainly, varying groupings of these resources and potentially others I did not experience, might result in different knowledge for the learner. While such prior experience is important to take into consideration, teacher preparation programs and licensing requirements often serve as a primary source of teacher knowledge, and it is through such programs that one is deemed proficient for classroom teaching by state and national standards. Therefore, although numerous content knowledge sources exist, I chose to focus on undergraduate coursework to gain information on one piece of a larger puzzle.

Acquiring content and pedagogical knowledge is only one facet of becoming an effective educator. Teachers must use their content and pedagogy knowledge and apply it to instructional techniques to transfer that knowledge to their students. As such, student learning outcomes could differ based on their teachers' content and pedagogical expertise. If others, like me, gain their earliest vocal pedagogy knowledge from a choral educator, it is important that person be knowledgeable on the topic. However, it is possible that a choral teacher may not be an expert in the adolescent voice depending on their educational background.

Someone other than a voice specialist may be licensed to teach multiple ensembles. For example, a teacher primarily trained in instrumental ensembles may be licensed to teach choir; however, singers and instrumentalists have different needs in rehearsal. Smith and Sataloff (2003) pointed out that a conductor with an instrumental background may approach a choral warmup with a focus on tuning, thus demanding the

voice produce immediate prolonged sound. Such a practice may lead to vocal fatigue and the development of ineffective warm-up habits in student singers. Alternatively, the researchers stated that choral educators with content knowledge specific to the voice might begin with alignment and breathing to optimize a singer's warm-up. Differing content knowledge may lead to alternative pedagogical choices in these cases, each affecting the learner's outcome.

While a thorough understanding of content is an important base of knowledge for educators, it is not the sole knowledge needed to engage in effective teaching. According to Shulman (1986), it is imperative for effective teachers to have a deep understanding of content, pedagogical and curricular knowledge, and knowledge of learners. It is the interconnection of these understandings that constitutes PCK. While researchers indicate that PCK is an important consideration for music scholars (Gohlke, 1994; Greiser & Hendricks, 2018; Haston, 2018; Millican, 2013; Venesile, 2010), Millican (2013) pointed out that only a small number of academics in music have explored how PCK functions within the field. This may indicate that more research is needed to examine how music educators acquire PCK for their specialty areas.

Personal Narrative

In considering my own acquisition of PCK of the adolescent voice, I reflected upon my own background in music. I loved being in choir. In high school, I signed up for every extracurricular opportunity in singing that I could, and I accompanied my first-year choir every so often to keep up my piano skills. As a first-year student in our Vocal Jazz ensemble, I was encouraged by my director to seek out private voice lessons. It was here

that my musical path really began to change. My voice teacher had recently moved to the area to teach at our local state university. Throughout high school she brought out a voice that I did not know I had, and one that I learned quickly could be used for more than just a hobby. She taught me technique and vocal health practices that I could apply to my choral singing as well. The choral programs in my schools were top notch, nationally recognized, and led by outstanding educators. Despite that, I was getting a different kind of instruction in voice lessons that was filling the gaps of perhaps what choir could not give me as a developing solo voice at the time. Looking back now, this could be because my choral directors at the time did not have the same educational background on the solo adolescent voice that my voice teacher had. While there are differences in the instructional goals of a choral class versus a voice lesson, they both require the healthy use of the same instrument.

I began my college studies intending to double major in voice and piano performance. As such, my beginning undergraduate studies included one course in vocal pedagogy. However, despite my love for and success in the performance track, I ended up switching my major to ultimately complete a degree in K–12 Choral and General Music teaching. The subsequent coursework did not include any further vocal pedagogy education, rather general education requirements, one choral methods class, and a choral repertoire course. The rest of my vocal pedagogy training would come from graduate studies that I pursued while working as a full-time teacher. I completed my student teaching placements at elementary, middle school, and high school which was uncommon at that time. Both my mentor and I felt strongly about having some

experience at each school level, rather than narrowing it down to only two. I accomplished this by completing a quarter (9 weeks) of full-time high school student teaching and then moving to a half day each at elementary and middle school for the second quarter. Splitting my time allowed me to have experiences, though some limited, in all the grade levels that I would be certified to teach. Another way that my experience was unique was that I was a product of the local school system, and therefore already had established relationships with my cooperating teachers in the area. My high school cooperating teacher had been my choral director as a 9th grade student, and ultimately was responsible for connecting me to voice lessons and setting me on my educational path. He, as well as my two other placements, already knew my skill level as well as my strengths and areas for growth upon entering student teaching. This is not true for everyone.

I was offered a job immediately after graduation in a middle school whose choral program had been directed by many teachers over the course of a few years. I built my choral career over 14 years, establishing programs from the ground up, learning to fundraise and navigate educational politics, taking leadership roles, and flourishing musically. I taught choir, general music, and performing arts (theatre) at three different middle schools during my time in the public K–12 school system. During that time, I took a non-existent choral program and led it to blind selection for a performance at our state choral director's convention within the first 5 years of my career. Part of my strategy to build successful choirs was to provide voice lesson opportunities to my singers. I was the first middle school director in our district to establish a voice lesson

program during the school day. I hired a voice teacher to provide individual pull-out lessons during choir time to any interested students. This helped to support the development of healthy techniques in many students who were experiencing adolescent voice change and, as such, greatly aided in the retention of those voices in the choir. It is important to note that I chose to implement a lesson program, not because I did not have the knowledge to address the adolescent voice change, but because the time I was allotted with my choirs did not allow for extensive instruction to take place. I recognized that my students would benefit from this additional support and made it a point to find another way to provide this support to them rather than hoping they seek it out on their own. Furthermore, I recognized that opportunities to work with a private voice teacher would complement and enhance the healthy vocal practices that I was already teaching during choral rehearsal. I associate this with my own children's participation in baseball. Their coach supports their physical health during practice and on the field, but also may hire a hitting or pitching specialist to solidify those healthy techniques. Coaches, or in this case, choral educators, should be knowledgeable to advise healthy choices for their players, or singers.

Part of my focus and interest in vocal pedagogy stemmed from my own struggles with vocal health. I felt unprepared to grapple with classroom management as a first-year teacher. As mentioned, I student taught in familiar situations that had strong classroom management already established. I found myself struggling to keep my voice healthy and still be heard over the classes every day. At the end of my first year of teaching I became pregnant with my first child. In December of that year, following a busy weekend of solo

performances with two different orchestras, I woke to find that I had lost my voice. I was 7 months pregnant and attributed it to a combination of exhaustion from the demanding performance schedule and the beginnings of a virus. However, after a few weeks, my voice did not return, affecting both my singing and speaking capabilities. After being evaluated by a Laryngologist that specialized in singers, I was found to have paralysis of one of my vocal folds. This prevented the folds from adducting and abducting in the normal fashion, thus inhibiting my ability to make sound. It is still undetermined, even now 14 years later, if this was caused by daily misuse in the classroom or as a secondary condition to the pre-eclampsia I had been battling at this stage in my pregnancy. Perhaps it had been the combination of the two. It was decided by the laryngologist that the paralysis could not be treated surgically, so I was prescribed several months of speech therapy, but no guarantee that the condition would resolve. It took several years of voice lessons and rehabilitation to be able to healthfully sing again. Over that time, I made a concerted effort to learn more about the voice, healthy techniques, and pedagogy surrounding vocal injury. That knowledge has been invaluable to my own teaching. Most recently, I was able to recognize a vocal issue in one of my college voice students. While I am not a medical professional, I had enough vocal pedagogy knowledge to identify there was an issue and connect her with the proper resources and medical personnel to be diagnosed and treated. She is now recovering post-surgery and back in my voice studio completing her studies.

I was an adult and professional singer when I experienced vocal issues, however vocal health considerations and injuries are not limited to adulthood nor professional

musicians. Gebhardt (2016) described the topic of vocal health in adolescents as one that receives insufficient attention of researchers. Despite the lack of research, Gebhardt (2016) stressed that the development of healthy habits is often the "first line of defense" (p. 9) in avoiding long-term problems. Tepe et al. (2002) noted that adolescents may find it more challenging than adults to implement vocal best practice due to their lack of bodily awareness. Oftentimes one needs to register pain to ascertain that something is wrong. Despite such challenges, Gebhardt (2016) indicated that choral educators do have the ability to aid the learning and implementation of healthy vocal habits in changing voices. While research does not suggest that choral educators need to be medical professionals, an awareness of the vocal mechanism and the practices that support general vocal health are important to have when supporting students during the critical juncture of adolescence.

As I became a more experienced teacher, I assumed additional responsibilities as a cooperating teacher to choral educator candidates at the college level. These students took on teaching roles within my classroom under my supervision. While I enjoyed my choral role immensely, my interest in the solo voice continued to develop throughout my choral career and I sought more knowledge through a master's program in vocal pedagogy. In 2022, I left K–12 public education to become an Adjunct Professor teaching voice lessons and music education courses to graduate and undergraduate students at my alma mater. Part of my new role was supervising student teachers at their general music/choral music placements. At this point in my career, I have served in every aspect of a choral educator's educational journey from student to teacher, to mentor, to

supervisor. The combination of these experiences in choral education coupled with my vocal pedagogy background and my own struggles with vocal health are what sparked the initial interest for this study.

The Complex Nature of Teacher Licensing

Teacher education and licensure requirements vary across states and institutions. To examine current choral teacher candidates' preparation for supporting adolescent voices, it is important to understand the general requirements of the degree-granting programs they attend. May and colleagues (2017) found that "thirty-nine states designated 'music' as the subject area for certification" (p. 70). This designation encompasses a vast range of potential content knowledge and may not delineate by specialty. As such, educators with incongruous sources of content knowledge may be certified to teach a broad range of content. For example, a generalized designation may allow one to teach courses such as band, choir, orchestra, and general music (Grieser & Hendricks, 2018; May et al., 2017).

Licensure requirements of vocal and choral specialties are opaque. May et al. (2017) found that only 12 states narrowed the music designation by providing voice-specific concentrations. Of those, there were six states whose vocal designation was a combined certification with instrumental and/or general music. Grieser and Hendricks (2018) posited that, "teachers' preparation in subject specific content can influence decisions about content and sequencing, conceptions of what it means to teach a specific subject, and the selection of particular curricula" (p. 3). Grieser and Hendricks (2018) went on to add,

> Research has suggested that teachers' subject matter preparation and pedagogical training are positively related to student learning, and when teachers are assigned subjects outside of their fields of specialty, both their instructional strategies and student learning gains are affected negatively. (p. 2)

Licensure requirements suggest that it is possible for one to teach choir without having content knowledge specific to choral or vocal specialties, particularly of the adolescent voice. This is potentially problematic in terms of how educators may understand vocal development and apply that understanding to vocal pedagogy and curriculum design, thus affecting student learning outcomes and vocal health. Regier (2021) studied the experiences of preservice music teachers to investigate what factors may have influenced their feelings of readiness to teach in the classroom. Regier (2021) noted that participants "expressed difficulties teaching ensemble genres in which they had fewer pedagogical experiences" (p. 343). In other words, someone with more experience teaching band may have less confidence teaching orchestra or choir, despite being licensed to do so. While it is impossible, and perhaps undesirable, for every licensure program to be identical, there are measures in place to make sure that programs are following common guidelines.

National Association of Schools of Music (NASM)

The National Association of Schools of Music (NASM) is an accrediting body through which many music teacher preparation programs in the United States work through to create and maintain a set of standards for their degree programs. Founded in 1924, NASM's primary function is to deem a higher education institution as "having met

certain qualifications or standards."[2] Such standards are categorized into two main areas of interest: "educational quality and institutional probity." Currently, NASM accredits approximately 650 institutions of higher education. While NASM has an extensive handbook on accrediting procedures and required competencies to attain each degree, for the purposes of this study I will focus solely on the specifications set forth for vocal and choral music, as stated under their standards for a Baccalaureate degree in Music Education specialties. The 2022–2023 NASM handbook lists 5 essential competencies for vocal/choral music (NASM, 2022, p. 125):

a) Vocal and pedagogical skill sufficient to teach effective use of the voice.
b) Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development for vocal/choral music.
c) Experiences in solo vocal performance and in ensembles. Ensembles should be varied both in size and nature.
d) Performance ability sufficient to use at least one instrument as a teaching tool and to provide, transpose, and improvise accompaniments.
e) Laboratory experience in teaching beginning vocal techniques individually, in small groups, and in larger classes.

In addition to these competencies, which are specialized by content area, there are general teaching competencies that must also be demonstrated (NASM, 2022 p. 127):

1. Ability to teach music at various levels to different age groups and in a variety of classroom and ensemble settings in ways that develop knowledge of how music

[2] NASM data and history are publicly available on the organization's website.

works syntactically as a communication medium and developmentally as an agent of civilization. This set of abilities includes effective classroom and rehearsal management.

2. An understanding of child growth and development and an understanding of principles of learning as they relate to music.
3. The ability to assess aptitudes, experiential backgrounds, orientations of individuals and groups of students, and the nature of subject matter, and to plan educational programs to meet assessed needs.
4. Knowledge of current methods, materials, and repertories available in various fields and levels of music education appropriate to the teaching specialization.
5. The ability to accept, amend, or reject methods and materials based on personal assessment of specific teaching situations.
6. An understanding of evaluative techniques and ability to apply them in assessing both musical progress of students and the objectives and procedures of the curriculum.

While NASM provides this general set of competencies to the institutions, it is up to each individual school to interpret them and apply them to the design of their own curriculum. Green (2018) stated, “Each institution is expected to develop its curricular requirements for general musicianship, areas of specialization, and other disciplinary studies with NASM’s required percentages for each separate program and degree” (p. 5). Therefore, each school does not necessarily address required competencies within their programs in the same way. As such, schools may all hold NASM accreditations without requiring the

same coursework of their teacher candidates. While NASM validates the foundations for coursework, it is up to each state to provide the final licensing requirements. Many permanent teaching positions require one to be licensed in their subject by the state in which they are employed. Thus, a person licensed in Wisconsin may not be eligible for employment as a teacher in Illinois without going through their specific licensure requirements and vice versa. This is not to say that exceptions and emergency situations do not exist. It is possible in many states to apply for temporary emergency licensure to hold a short-term position. For the purposes of this report, I will focus on the licensure requirements that are specific to the state of Wisconsin.

Wisconsin Teacher Licensure

In Wisconsin, there are three required steps to teacher licensure as outlined in state statute PI 34. The first is that the applicant must hold a bachelor's degree. Second, the applicant must have completed a teacher preparation program that is approved by the Department of Public Instruction (DPI) and pass all required state testing in their content area. DPI does not specifically regulate field or observation hour requirements, thus leading to an even broader sense of expectations from each individual institution. Finally, applicants must pass a background check. Once satisfied, an applicant is granted licensure at the Tier Two Provisional level. This is considered a probationary license for initial educators. Teachers can move to the Tier Three Lifetime License by completing six semesters of service in the content of their original licensure (DPI). There is a Tier Four Master license available to teachers on an optional basis as it requires an additional process to gain National Board Certification. In addition to traditional teacher preparation

programs in the undergraduate setting, DPI also allows for alternative pathways to licensure for those seeking career changes or emergency licensure to fulfill a position. As is true with NASM, DPI sets forth a generalized standard that teacher preparation programs must demonstrate to become an approved pathway. Ultimately, individual teacher preparation programs in Wisconsin still design their own curriculum within those licensure guidelines. Other states may provide more specificity regarding the required content of their programs. Therefore, teachers may be granted identical licensures while having learned and practiced varying skill sets within their respective programs.

Licensure examinations. In Wisconsin, there are different sets of examinations one must take to obtain licensure. This varies by content area, grade level, and preparation program. Wisconsin currently offers a Praxis exam that focuses specifically on vocal and general music knowledge. According to the study companion offered by the testing company, this test is divided into five main categories with the corresponding percentage each topic takes of the overall exam: Music History and Literature (13%), Music Theory and Composition (14%), Music Performance (20%), Music Pedagogy and Instructional Practices (40%), and Professional Issues and Music Technology (13%). It is important to keep in mind that this exam is meant to assess the knowledge of candidates applying for licensure across all grades K–12 in vocal and general music. The study guide outlines each of the five categories into smaller subtopics. One of the subtopics under the Music Pedagogy category states that a prepared candidate "knows how to teach vocal production and performance techniques with respect to a variety of factors" (ETS study guide). It goes on to list vocal mechanism, vocal diction, vocal tone, changing

voice, tessitura, and health and wellness issues for vocalists as primary areas of focus. While this preparatory list appears to cover extensive topics in vocal pedagogy for the choral setting, not all of them necessarily appear on the actual exam. While the test preparation materials recommend that a candidate have knowledge on these topics, the test itself may not assess them all. It is implied that all suggested topics should be touched upon within the teacher preparation experience regardless of their appearance on the final exam. Furthermore, the test does not measure a teacher candidate's competency with practical in-the-field teaching, rather only measures one's ability to recall memorized topics. Thus, the test reveals very little about the candidate's pedagogical abilities.

The combination of completion of a teacher preparation program, state licensure examinations, and the student teaching experience should, in theory, produce choral educators with content and pedagogical knowledge sufficient to support students in the secondary choral classroom. However, despite this combination of requirements being in place, it is possible that student teachers are not fully prepared to teach their subject matter. MacLeod and Walter (2011) posited one reason for this, noting,

> It is possible that student teachers gain the necessary information and skills during the degree program, but are not required to apply the skills until the student-teaching experience, perhaps leaving a gap of many months or years between acquisition and application. (p. 12)

This gap in time may suggest that students forget skill sets by the time they are able to employ them in student teaching and beyond. Brown and colleagues

(2014) studied a group of core subject student teachers to gain insight into their perceptions of preparedness. They found that participants rated Pedagogical Content Knowledge the second lowest in terms of preparedness. Brown et al. (2014) stated, "This is an important finding since pre-service teachers' pedagogical content knowledge is closely associated with their teaching practice and further associated with student achievement" (p. 87). This may suggest that the completion of a current teacher preparation program, state licensure examinations, and the student teaching experience may not be comprehensive enough to produce choral educators with the content and pedagogical knowledge needed to confidently teach in their own classrooms.

Theoretical Framework

In his framework Pedagogical Content Knowledge (PCK), Schulman (1987) theorized that teachers must be able to connect their *subject matter knowledge* to their *pedagogical knowledge* to successfully help students absorb and understand content. For choral music teachers, a physiological understanding of the voice is a critical part of instructing ensemble singers to maintain healthy vocal technique. However, Millican (2013) pointed out, "A high degree of subject matter knowledge or skill in a particular area does not guarantee that a person will be successful in conveying that knowledge or skill to others" (p. 45). While some choral educators may be confident in their adolescent voice knowledge, they may not be skilled in pedagogical techniques that transfer that knowledge successfully to their students. Therefore, a solid base of content knowledge, combined with an equally sound pedagogical approach, might increase educators'

effectiveness when supporting adolescent singers. Choral educators must thoroughly understand vocal anatomy and pedagogy, as well as the unique "needs of the pediatric and adolescent voice," to successfully instruct such voices (Gebhardt, 2016, p. 36).

Purpose and Research Questions

Considering my observations of student teachers in my own classroom and what I perceived to be a potential gap in content and pedagogical knowledge of the adolescent voice, I found it necessary to explore teacher preparation programs as a source of such knowledge. In this study I aim to identify the adolescent voice PCK of Wisconsin choral educators completing their teacher preparation in choral practicum settings and explore whether that knowledge was acquired in the teacher preparation program. Therefore, the purpose of this study is to explore the preparation of Wisconsin secondary choral educator candidates with specific regard to supporting adolescent voices. This study will address the following research questions:

- Where, if anywhere, do preservice choral educators in Wisconsin report they gained their knowledge of the adolescent voice?
- To what degree do preservice choral educators in Wisconsin perceive they are prepared to support adolescent voices in the secondary classroom?
    - In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they are knowledgeable?
    - In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they need additional support?

- To what degree do cooperating teachers in Wisconsin perceive that preservice choral educators are prepared to support adolescent voices?

Outline of the Study

This report is organized into five chapters. Chapter 1 is an introduction to the study that includes the background of the problem, teacher licensure procedures, overview of theoretical framework, purpose statement, and research questions. In chapter 2, I examine existing literature related to the specific needs of the adolescent voice, the preparation of choral educators, and provide a rationale for the use of Shulman's (1986) theoretical framework of Pedagogical Content Knowledge (PCK). Chapter 3 provides an explanation of collective case study design using protocols suggested by Stake (1995). Included in chapter 3 is the selection of sites, participants, and data collection and evaluation methods. Chapter 4 presents the data and findings collected through the interview sessions as well as emergent themes. In Chapter 5, I address the research questions, implications for music education, and discuss the needs for future research.

Chapter Two

The purpose of this study was to explore the preparation of Wisconsin secondary choral educator candidates with specific regard to supporting adolescent voices. Therefore, in this literature review I examine research related to the specific needs of the adolescent voice and the sources of choral educators' Pedagogical Content Knowledge (PCK; Shulman, 1987) of the adolescent voice.

Pedagogical Content Knowledge theorists postulated that teachers must be able to connect their content knowledge to their pedagogical knowledge to successfully help students absorb and apply content (Ball, 2000; Millican & Forrester, 2019). Shavelson and Stern (1981) suggested that "in order to understand teaching we must understand how [teacher] thoughts get carried into action" (p. 457). Shulman (1987) posited that there are three facets of knowledge that are critical to the development of PCK. The first is content knowledge of the subject matter one intends for students to learn. The second is knowledge of curriculum and pedagogy, which encompasses successful methods to transfer such knowledge to students. Finally, knowledge of the individual learner is imperative to achieve PCK. Ball (2000) theorized that a primary cause for concern in teacher education is that it is assumed content knowledge and pedagogical knowledge will be seamlessly and organically integrated by a teacher over time and experience. The author posited that in fact, this integration may not be taking place easily, or in some cases at all. It is this very integration that Shulman (1986) deemed integral in the development of PCK.

PCK in Music Education

Content Knowledge

For choral music educators, content knowledge includes not only the notes and rhythms on the page, but an intimate understanding of the voice. Every instrument, including the voice, requires a specific set of skills for mastery. Millican & Forrester (2019) posited, "The specialized knowledge required for teaching (music) encompasses a teacher's ability to integrate information about a broad range of students, subject matter, context, and professional matters" (p. 380). Generalized licensure designations may allow non-specialists to teach varying content without such a specialized skillset. Grieser (2014) explored the PCK of specialists and non-specialists in string education. The researcher's findings suggested that specialists, meaning those who are highly educated in a specific area of study or instrument, in this case strings, had a greater understanding of string technique than non-specialists, or those who pursued a core or generalized education in music. Additionally, Grieser (2014) posited that non-specialists' content knowledge held misconstrued ideas and was disorganized in comparison to specialists.

Millican (2013) sought to describe how band directors demonstrate their PCK in their classrooms and performances. The researcher surveyed 91 directors identified through honor band finalists in a southern state to nominate highly capable beginning band directors for the study. Of the 24 responses received, the three directors with the most nominations were selected as expert participants for the study. Millican compiled a list of PCK characteristics that emerged through the observation of these three expert band instructors. Among the most prevalent characteristics were teachers' abilities to

assess performance through imagery, predict and identify problems while also understanding their root causes, make specific choices in scope and sequence of instruction, and connect students with the physical awareness of music-making. Millican posited that these characteristics demonstrated PCK through the teachers' combination of their "knowledge of students, knowledge of content, understanding of curriculum and sequencing, and general teaching skills in order to communicate both abstract and concrete musical concepts to students in an effective way" (p. 51). While Grieser (2014) and Millican (2013) explored PCK from an instrumental perspective, elements of both studies could translate to choral instruction, where a specialized knowledge of the adolescent voice is required.

Choral educators may make pedagogical choices based on the whole ensemble, rather than individual voices. "It is likely that directors place varying levels of priority on the ensemble needs versus the individual needs rather than a binary choice to prioritize one over the other" (Bertelli-Wilinski, 2009, p. 11). Similarly, Parker (2016) posited, "Though choral teachers viewed teacher–student relationships as primary, their description of actions and interactions within community often focused on the full group" (p. 227). This may stem from varying preparation that a choral educator receives in comparison with that of a voice teacher. As mentioned in Chapter 1, it was my vocal pedagogy background that prompted me to take special care to offer individual vocal lessons to choral students to mitigate any chances for my choral ear to overlook individual needs. Millican (2013) suggested that the individual aural and visual observation of students could be an integral part of successful pedagogy. Killian (2003)

found that choral educators were taking at least some care to make modifications based on the needs of individual singers. While building choral tone and aural skills of the adolescent singer remains an important job of choral educators, it is also imperative that educators support age-appropriate vocal techniques and address individual vocal needs. Educators' engagement in such an activity may provide opportunities to observe and identify students that need guidance in vocal technique while navigating their voice change. However, choral educators must have both the specific content knowledge of the adolescent voice to recognize such needs, and the pedagogical knowledge needed to provide support.

Pedagogical Knowledge

Shulman (1986) theorized that educators' content knowledge is not enough to successfully cultivate student growth to the fullest potential. Pedagogical knowledge is also required to effectively communicate content to learners. Specifically, within music education, Millican (2013) affirmed that a thorough knowledge of content alone does not assure that an educator possesses the ability to transfer that knowledge successfully or meaningfully to others. This is consistent with the observations of Grieser (2014) who identified pedagogical differences in string specialists versus non-specialists' teaching, noting that the latter lacked the rigor of technique and content needed to stimulate student growth.

To effectively confer content knowledge, Millican (2013) pointed out the need for educators to be keenly in tune with the unique ways that students receive and process that content. Just as solo and choral singing have differing characteristics, so does the art of

teaching them. Spurgeon (2004) noted the importance of adolescent choral educators having an accurate understanding of effective pedagogy that develops appropriate techniques specific to the age of the singer. This means that it is imperative for teachers engaging in choral pedagogy, while ensemble-driven, to take the solo voice into consideration. Spurgeon (2004) explained that such practices not only support individual student voices but can also cultivate endurance and longevity of the whole choir. Spurgeon (2004) specifically identified elementary and secondary choral conductors as needing thorough physiological knowledge. Such knowledge might include the anatomy of the larynx and thoracic cavity at various ages of development. This knowledge would likely come from educators' different educational backgrounds and specialty areas. With these widely varying levels of skill and experience, the choral and vocal pedagogical techniques used can also differ significantly.

While Millican (2013) found that highly experienced band directors exhibited PCK in their instruction of beginning band students, preservice educators may not be equipped in the same manner. Therefore, Millican (2014) further studied the PCK of pre-service teachers for beginning bands by recording 49 videos of beginning band students playing a musical excerpt. Of those examples, four that exhibited common problems of beginner students were selected by expert educators. Millican identified 314 preservice band participants via convenience sample to view the videos, identify problems and their causes, and offer potential solutions. Participants were able to identify 19 issues amongst the performances, with only three being common to all videos. Only 121 participants responded with causes for the three common problems but were non-specific in their

explanations. Of those, 62 were unable to clearly articulate a cause at all. Furthermore, many participant solutions stated what they would work on with the student but were unable to specify *how* they would work on that skill. Therefore, Millican's (2014) findings provided an example of how a lack of PCK amongst pre-service music educators can affect student instruction. The preservice participants could relate student performance to their content knowledge but could not adequately integrate pedagogical knowledge to facilitate student learning and growth.

A healthy choral rehearsal culture nurtures singing technique that is built upon solid respiratory understanding, bodily alignment, and consistent awareness of acoustic resonance chambers (Smith & Sataloff, 2003). To achieve this, the choral educator must have the pedagogical knowledge necessary to implement holistic vocal techniques that take the solo voice into consideration within their choral pedagogy. For example, choral educators often focus on choral blend, which they achieve through vowel unification. Spurgeon (2004) pointed out, however, that a choral educator's approach to vowel unification may cause the development of tension for the individual singer. The researcher also noted that the tendency toward a dark, round choral tone, can pull the tongue and lips taut, resulting in tension that may affect the neck muscles. While this technique may support a particular choral sound, it may be achieved at the risk of vocal health if not approached from an informed pedagogical perspective. In response, the author asserted that choral educators should engage in regular individual student assessments to best guide the coordination of breath support and phonation in young singers. To do this effectively, educators must possess knowledge of the adolescent voice

and have the ability to both identify vocal issues and provide pedagogical solutions for working through them. The integration of content and pedagogical knowledge may lead to a more effective and healthful choral experience for students.

Curriculum Knowledge

Among the many needs of adolescent voices that choral educators must consider; careful repertoire selection is of utmost importance. Deyton (2018) stated that choosing literature is "the most important decision that a choir director makes, as these pieces become the vessels through which almost all musical learning takes place" (p. 6). When selecting repertoire, a choral educator might consider the tessitura of all voice parts, including whether there is a demand for sustaining pitches that are at the extreme ends of the range. An understanding of the vocal mechanism during adolescence, coupled with an understanding of how to support it through pedagogical practice is required when selecting repertoire (Deyton, 2018).

Selecting appropriate repertoire is important for both testosterone- and estrogen-based changing voices. While Kennedy (2004) discovered that repertoire choices did not affect male participants' enjoyment of choir, other researchers (Cooksey & Welch, 1998; Deyton, 2018) suggested that it did affect singing technique. Cooksey and Welch (1998) found that presenting appropriate repertoire was crucial in developing sustainable techniques in changing voices. Brown (2010) cautioned directors to use care when selecting repertoire so that the appropriate registers, particularly of the male adolescent voice, were being accessed by singers. Kotara (2013) indicated that many teachers struggle with the selection of repertoire at the middle school level, due to the mixed

number of students with changed and unchanged voices within the same ensemble. This research indicates that choral educators should carefully consider repertoire selection to ensure that changing voices are supported while still being exposed to quality literature. Therefore, it may be suggested that choral educators need a deep understanding of how their curriculum choices inform their pedagogical choice and vice versa.

Knowledge of Adolescent Learners

Singers experience a range of bodily transformations that affect their voice during their adolescent years. For changing voices, these effects might take place suddenly or over long periods of time. Many singers may find that navigating their voice during this time is especially frustrating without guidance. Gebhardt (2016) emphasized the integral role that music education plays in connecting adolescent singers to their own physiology, thus equipping them with the ability to respond proactively to their vocal needs. Adolescents require the support of more than one individual to make meaningful changes to behavior and habits, though (Gebhardt, 2016) cited choral educators as a part of the "voice care team" (p. 16) of an adolescent singer. Such a team may comprise teachers and medical professionals who care for different aspects of the voice. The need for choral educators to maintain a high level of knowledge of the specialized considerations of adolescent voices, therefore, is of utmost importance to accurately instruct their students on healthful techniques. For the purposes of this literature review, I examine research on testosterone- and estrogen-based changing voices as well as the transgender voice, as each requires PCK of the adolescent voice for educators to address them effectively.

Changing Voices. The vocal structure has many intricate workings. For a seemingly small system of muscle, cartilage, and bone, the voice produces monumental changes during puberty in both males and females as assigned at birth[3]. However, the male changing voice, also referred to as the cambiata voice or testosterone-based voice, has received most of researchers' attention over the years. During the voice change, the larynx in males lengthens and thickens, which ultimately causes the voice to lower in pitch (Killian, 1999). While the transition can be described in a generalized way, it can be a highly individualized physiological process.

In addition to the vocal apparatus, changes to the respiratory and resonatory structures also occur. Harries and colleagues (1998) pointed out that male adolescents going through puberty find that their breath capacity changes dramatically due to the room created by chest expansion, and their vocal timbre adjusts to the vibration within the new space created by the growth. As these structural changes take place, the male adolescent voice experiences differences in range and sound. It can be frustrating for male singers to navigate these changes due to the voice's unpredictability during this transition. Tone may become breathy, overall range may be lost or have gaps, stamina may decrease, and control of volume may be limited (Killian, 1997). Gebhardt (2016) emphasized that adolescents, while resilient, are not immune to vocal injury, particularly considering their over-involvement in extra activities that use the voice outside of singing. Furthermore, the author accented the importance of approaching the voice from a

[3] Male and female voices will be referred to as the anatomical genders assigned at birth from this point forward.

holistic standpoint. Physiological, auditory, psychological, emotional, and lifestyle habits all have effects on the functionality of the adolescent voice.

While the student experience of voice change can be difficult, it can also be problematic for choral educators to connect learners to their voices when they may not yet have a full understanding or awareness of it. Choral educators often face this problem while teaching to a class of male adolescents who are at varying degrees of voice change. Cooksey and Welch (1998) outlined five stages of the male voice change to provide a system of classification: Midvoice I, Midvoice II, Midvoice IIA, Newvoice, and Emerging Adult. There is no way to pinpoint the exact age in which a student will enter the voice change or move through the stages. However, Killian (1999) and Eaton (1994) suggested that these changes may be occurring, along with other physical developments, earlier than previously thought. This is consistent with Killian and Wayman's (2010) findings that 70% of their 11-year-old participants had already begun the voice change process. This research suggests that teachers may need to assess, prepare, and plan for curriculum modifications as early as the elementary level. Doing so requires educators to continuously check in with their students and update their understanding of individual learners.

Understanding learners and how they experience the voice change is vital for choral educators to support student success. Killian (2003) surveyed 47 choral educators who attended a changing voices workshop to identify a list of changing voice strategies being employed in choral classrooms. Killian (2003) found that many practices implemented within the choral classroom did not sufficiently support male singers

experiencing voice change. Fisher (2019) noted that a choral educators' lack of knowledge surrounding the changing voice could result in the attrition of male voices in their ensemble, students feeling frustrated with their singing voice, or the development of vocal injury. In Freer's (2015) study spanning four countries, six schools' vocal teachers were selected to recommend adolescent male participants. These participants represented current choral singers, students who had quit choral singing, and students who never participated in choral singing to begin with. A total of 85 participants were interviewed by the researcher. Of those, 26% identified themselves as having dropped out of school singing. Freer (2015) found that 72.7% of those who dropped did so because they disliked the sound of their changing voice. Of the 48 students who represented current singers, 97.1% recommended that choral directors "focus on vocal technique specific to male changing voice" (p. 102). This research may indicate that male adolescents want guidance and support during voice change, not only vocally, but mentally and emotionally.

While both males and females experience voice change, there is far less scholarly research that focuses on the female experience, or estrogen-based voice. Sweet (2015) posited that females do not receive equal support as males when trying to navigate the voice change. While music education research lacks balance in the investigation of female voice change in comparison to their male counterparts, there is substantial evidence demonstrating that the female voice change does occur. Sweet (2015) observed a variety of troublesome vocal characteristics that indicated female voice change including, "a complete lack of phonation in certain areas of vocal range, excessive

breathiness in tone, vocal unpredictability, a lack of strength or endurance when singing, limited vocal range, and difficulties transitioning across registers" (p. 78). This may suggest that special knowledge and consideration should be given to the adolescent female voice in the choral rehearsal to healthfully address the challenges that accompany voice change.

Gackle's (1991, 2006, 2011) organization of the female voice change into developmental stages played a pivotal role in bringing the attention of the profession to the topic for further exploration. The author explained that choral conductors' apprehension surrounding teaching junior high voices stemmed from their lack of education on the unique requirements for caring for the adolescent voice. Gackle emphasized the importance of educator proficiency in physiological knowledge and assessment of the adolescent voice, and repertoire selection that caters to the healthy development of the adolescent voice. The author also boldly described the teacher preparation programs at the time to be "woefully inadequate" in relation to the "cultivation of adolescent changing voices" (Gackle, 1991, p. 17). Sweet (2015) found that many females felt embarrassed of their changing voice in choir, due to the fear that they would stick out among the ensemble. This finding "should raise concern for choral music teachers, especially those who teach in less arts-minded music programs…" (Sweet, 2015, p. 86). This research coupled with the general lack of attention the topic receives, may suggest a need for the careful inclusion of education on the female changing voice within teacher education programs.

Sweet (2018) explored collegiate ensemble singers' perceptions of the female

voice change, focusing on how their singing experience may have been shaped by it from a young age. The author's findings suggested a need for specialized instruction to support female adolescents' own understanding of the changes happening to their voices. This knowledge could foster a healthier alternative to the negative self-talk that is born from fear and insecurity surrounding the voice change process. Most importantly, the researcher discovered that participants closely identified with both positive and negative effects that were experienced as a direct result of a choral educator's instructional choice.

Transgender Voices. While adolescence is recognized as a tumultuous time for physical and emotional development of cisgender individuals, attention also needs to be paid to those who do not identify as cisgender. Kennedy and Thibeault (2020) pointed out the struggles of transgender individuals who are wanting their voice to match their expressed gender. Biologically born males and females may seek hormone therapy to disrupt or attempt to reverse the voice change process to retain a singing and speaking range more representative of their gender identity. Romano (2018) noted that the voice changes that occur in a transgender person are just as unpredictable as that of the cisgender pubertal voice change. The author emphasized that notable similarities and trends were nonexistent. The implications of hormone therapies to the voice are vast and unpredictable. Saplan (2018) pointed out that testosterone therapy may cause side effects such as hoarseness and weakness that could limit singing abilities. Sauerland (2022) found three important aspects to repertoire selection for transgender singers, "student interest, student vocal or musical ability, and desired vocal or musical growth" (p. 195). Furthermore, Sauerland emphasized the importance of including students in repertoire

selection when possible, in order to alleviate “the concern a teacher may have in assigning pieces that might cause discomfort or dysphoria for the student” (p. 196).

Garrett and Palkki (2021) emphasized the importance of choral educators treating the transgender voice as any other changing voice in their ensemble. The researchers posited that choral educators should be ready to “develop a personalized approach” for transgender students (p. 178). For example, a student making the transition from soprano to tenor may require some parts to be rewritten if the tessitura of a programmed piece does not fit their needs. Garrett and Palkki (2021) pointed out that such a practice is no different from the modifications often made for the male changing voice. However, to implement this practice, educators must be equipped with an understanding of the physiological changes taking place, knowledge of individual learners, and the ability to healthfully instruct those learners through pedagogy and curriculum.

Lifestyle and Learning. In addition to physical and emotional well-being, it is also important to consider adolescent learning processes. Additionally, the ways they engage their voice outside of singing may contribute to how they apply voice instruction in their daily lives. According to Gebhardt (2016), adolescents can be heavily involved in a variety of activities outside of choir that require prolonged use of their voices. The authors cautioned that these factors may contribute to vocal polyps, nodules, or other voice disorders. While choral educators cannot be responsible for choices of singers that result in misuse, according to the author, they can be responsible for educating students on preventative methods. To support students in this area, choral educators need content knowledge of vocal anatomy and repertoire coupled with necessary pedagogical

strategies to correct the issue. Having a deep understanding of how the student learns will inform curriculum and pedagogy choices.

Constantly evolving research in voice science has brought significant change to pedagogues' understanding of the voice. Clements (2014) pointed to the emergence of voice science as an important contributor to building accurate depictions of the vocal mechanism for those who teach it. The author posited that just as the understanding of the voice has changed over the years, so has the learning styles of voice students. It is imperative that educators are familiar with these differences and establish a common vocabulary, both in spoken word and in imagery that communicates effectively to the individual learner. To do this, Clements (2014) postulated that an educator must have some understanding of their students' life experiences. For choral educators, such understanding may be developed by having dialogue with students about their hobbies and daily usage of their voice. Having knowledge of student experiences may provide opportunities to connect pedagogical techniques to imagery and life comparisons that learners can relate to.

Choral Educators' Acquisition of PCK

A primary origin of PCK for music educators is their teacher preparation programs. The National Association of Schools of Music (NASM) is a professional accrediting agency for higher learning institutions. As noted in chapter one, NASM reviews the quality of degree-conferring institutions based on a set of national standards NASM developed. NASM (2021) suggested that "vocal and pedagogical skill sufficient to teach effective use of the voice" be a core competency of those seeking a baccalaureate

degree in choral music (p. 3). However, NASM (2021) also deemed choral music as a "specialized competency" in which the extent that suggested content is included in teacher education programs is left to the institution to decide (p. 3). Therefore, it is possible for teacher education programs to hold the same NASM accreditation without requiring the same PCK for graduation from their choral programs, however not all institutions seek accreditation with NASM.

A recent study pointed to the undergraduate Choral Methods course as a main source of choral educators' knowledge of content and pedagogy. Chandler (2012) found that 80% of the 161 study participants who taught choral methods classes to preservice educators had an undergraduate degree in music education. Of those, only 14 held master's degrees in voice, and only two with doctoral degrees in voice. Despite their varying educational backgrounds, 76% of participants cited voice as their primary instrument. Chandler (2012) employed the framework of PCK to examine "knowledge acquisition and development and interpret how different teacher expertise orientations may impact student learning" (p. 106). The researcher found that educators teaching the choral methods class most frequently, but not always, stem from an undergraduate music education background with some voice experience. From there, graduate and doctoral studies most often branched into choral conducting or music education without instrument-specific concentration.

Chandler (2012) noted that doctoral programs in choral conducting focus primarily on curriculum in literature, conducting, music history, and theory. The researcher posited that these educational experiences heavily influence the content and

pedagogical techniques taught to preservice educators in choral methods classes. Therefore, a choral methods class may not include vocal pedagogy content and methods that are specific to supporting adolescent voices in a choral setting. Allard (1992) found that music ensembles directed by specialists performed at a more advanced level in comparison to those taught by non-specialists. This finding emphasized the potential for impact on student learning when directors have inconsistent sources of PCK. What was considered specialty knowledge in the field 20 years ago no longer serves as the standard for the diverse representation of learners today.

Ballantyne and Packer (2004) employed a survey method to gather data from early-career music teachers in Queensland, Australia on their feelings toward their teacher preparation programs. The researchers found that educators were satisfied with the "general pedagogical knowledge and skills" that were addressed in their preservice coursework, but they felt that the "pedagogical content knowledge and skills" in their specific area of secondary music teaching were greatly lacking (p. 310). The researchers called for further exploration surrounding the effectiveness of music teacher education programs. These findings are consistent with Grieser's (2014) observations of the differing pedagogical applications of string specialists versus non-specialists. These findings may indicate that preservice educator programs are lacking content-specific instruction within the larger context of their music education curriculum. This may also suggest that choral education programs are still emerging in their presentation of age-specific voice content and pedagogy instruction to preservice teachers.

Summary and Implications

There is a limited body of research that has explored the PCK of choral educators serving the adolescent singing community. However, there is research available that has explored the specific needs of the adolescent voice. Inconsistent sources of PCK could imply a need for further development of choral educators' content knowledge and pedagogical techniques for supporting the adolescent voice. Findings from the reviewed research, while illuminating, are unable to be generalized upon the vast population of choral educators who come from diverse preservice backgrounds and skill levels. Current research suggests that choral educators can help guide the development of adolescent voices through their thoughtful balance of content knowledge, curricular knowledge, pedagogical knowledge, and their keen awareness of the characteristics of their learners.

Although this review of literature covered an extensive array of vocal considerations that may be present among adolescents in the choral classroom, the needs of students in secondary choir programs are ever-changing. It is impossible to prepare for every situation, but the tenets of PCK state the importance of knowing learners and understanding how curriculum, pedagogy, and content affect their learning outcomes.

Chapter Three

The purpose of this study was to explore the preparation of Wisconsin secondary choral educator candidates with specific regard to supporting adolescent voices. I applied Shulman's (1986) theoretical framework of Pedagogical Content Knowledge (PCK) as a lens through which to examine secondary choral educator preparation for supporting adolescent voices. I completed this study using qualitative methods through a collective case study design to gather personal knowledge and experiences of participants, and to allow for natural migration to related topics and follow-up questions. In collective case studies, Stake (1995) stated that research questions "may focus on the binding concept or idea that holds the cases together" (p. 10). I interviewed participants to explore their existing knowledge and understanding in relation to the following research questions:

1. Where, if anywhere, do preservice choral educators in Wisconsin report they gained their knowledge of the adolescent voice?
2. To what degree do preservice choral educators in Wisconsin perceive they are prepared to support adolescent voices in the secondary classroom?
    a. In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they are knowledgeable?
    b. In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they need additional support?
3. To what degree do cooperating teachers in Wisconsin perceive that preservice choral educators are prepared to support adolescent voices?

Qualitative Research

Qualitative inquiry was used for this study, as it enabled me to explore preservice educators' individual knowledge and understanding. Methods of data collection included interviews with student teacher candidates and their cooperating teachers. In addition, I collected syllabi from methods classes that focused specifically on the voice and/or secondary choral methods taken by each preservice participant for examination and comparison. Finally, an observation of a pre-recorded teaching sample was conducted with each student teacher candidate using the Think Aloud (Cowan, 2017) method. This method invites student teacher candidates to speak what is on their mind in a stream of consciousness manner as they complete a given task with the goal of allowing the researcher to hear the participant's inner dialogue as they complete the task. In this study, the task was viewing the video teaching sample they provided.

Collective Case Study

Qualitative case studies allow the researcher to explore "the experience of real cases operating in real situations" (Stake, 2006, p. 3). Furthermore, Stake (2006) asserted that case studies are a "bounded system" that are a "complex, functioning thing" (p. 2). For the purposes of this study, I explored two students studying at different universities and completing student teaching placements at different K–12 schools. Each case was bound by the institution that each student teacher attended and included the student teacher candidate and their cooperating teacher. Each case was bound by time, place, and context (Stake, 1995). Bounding was reviewed regularly (Ragin & Amoroso, 2011), and narrowed or widened as themes and questions emerged from the data.

Stake (1995) described "collective case study" as a method that focuses on more than one participant. Such an approach allows the researcher to examine a variety of feedback without needing to be overly discerning of the cases chosen. Stake posited, "They (cases) may be similar or dissimilar, redundancy and variety each having a voice. They are chosen because it is believed that understanding them will lead to better understanding…about a still larger collection of cases" (p. 23). Given that my goal was to examine the preparation for supporting adolescent voices I felt determined that a collective case study would provide more data than a single case study; therefore, this study was conducted in two separate educational settings, involving student teachers and their cooperating teachers, who attended two separate teacher preparation programs in Wisconsin.

Site Selection

My interest lies with my home city in Southeastern Wisconsin; therefore, I used purposive sampling (Creswell, 2013) to identify two institutions based on representing varying numbers for student enrollment, private and public designations, and diverse populations. The first school, Lakeside College[4], was selected as it is the only private liberal arts college in my area. Lakeside is accredited through the Higher Learning Commission, which is the main accrediting body for Midwest institutions, with many individual disciplines receiving specialized accreditation through other associations. For example, the music department at Lakeside is accredited by NASM. Lakeside's current enrollment is approximately 3,000 students including graduate and undergraduate studies.

[4] All school and participant names are pseudonyms to protect anonymity.

As of 2022, approximately 30% of the student body identifies as American Indian, Asian, Black, Hispanic, Pacific Islander, or multiracial. The remaining 70% of the population identifies as Caucasian. Lakeside offers a DPI certified Bachelor of Music degree in Music Education with a K–12 licensure in instrumental/General Music and Choral/General Music. The program requires 48 credits of general education classwork in addition to requirements in the specified areas of music which include: Musicianship and Performance (43 credits), Core Music Education (14 credits), Concentration Area (14 credits in either instrumental or vocal music), and Professional Education (20 credits). The classes specific to vocal music education are as follows: Applied lessons, Band and Orchestra Pedagogy for Vocalists, Choral Conducting and Techniques, Choral Literature, Choral Rehearsal Techniques, Vocal Pedagogy, and Vocal Music Methods.

The second site is a publicly funded institution belonging to the University of Wisconsin system. As of Fall 2022, Ranger University had an enrollment of 3,966 full and part-time students in both undergraduate and graduate programs. Approximately 30% of the student body identifies as an underrepresented minority. Ranger offers a Bachelor of Arts degree in Music with a concentration option in Music Education. All music majors complete courses in music theory, music history, aural skills, class piano, and applied lessons in their instrument. To complete the Music Education concentration and licensure, students in the BA program must take additional courses as follows: Music Teaching and Learning, Elementary General Music Methods, Secondary General Music Methods, World Music, Sound Production, Class Piano for Music Educators, Conducting, Choral Conducting and Arranging, and Methods of Elementary and

Secondary Choral Music. It should be noted that this particular degree does not require a vocal pedagogy course for its BA or its music education concentration. In addition to the music-specific requirements of the education concentrations, there are also 21 credits of required general education courses. The BA program, in conjunction with the music education concentrations totals up to 92 credits depending on the candidate's applied instrument track.

Identification of Participants

I selected participants based on each university choral educators' suggestion. In preparation, I established contact with the director of choral activities to make connections with current student teachers in a choral placement. Student participants recommended had to be currently assigned to a student teaching placement in secondary choral music. In this case, both sites only had one choral student teacher in the field at the time. No preferences were made for gender or voice part. Subsequent participants were based on their assignment to each recommended student teacher as the cooperating classroom teacher. A case, bound by the institution, included the student teacher candidate and their cooperating teacher.

Researcher Role

I have been an active professional music educator for 16 years, 14 of which were spent directing 4th–12th grade choral ensembles and mentoring pre-service choral educators. I also taught private piano and voice while earning my undergraduate degree prior to professional employment. My own musical education was heavily influenced by participation in choral music from the elementary age through college. This, combined

with classical and music theatre vocal pedagogy training, as well church music involvement has strongly defined my views on teaching vocal music of all styles. Ultimately, the variety of professional roles in which I have served provide me with a unique perspective as a researcher. The insider perspective my background gave me required me to think carefully about how my "biases, beliefs, and personal experiences" may affect how I enacted my role as researcher (Berger, 2015, p. 220).

Case study researchers make conscious and/or unconscious decisions as to their role/s within the study (Stake, 1995). For the purposes of this study, my role as the researcher was as an interviewer, observer, and analyst. During the research process it is important for the researcher to exercise "reflexivity" (Berger, 2015, p. 220). Berger (2015) described reflexivity as an effort to maintain "continual internal dialogue and critical self-evaluation of researcher's positionality…" (p. 220). As a researcher, my personal experiences within the field of study might have shaped my perspective on the data. Consequently, it is crucial to "acknowledge and take responsibility" for my own position in the research, recognizing its potential impact on data collection and thereby enhancing accuracy (Berger, 2015, p. 219). To minimize bias, three interviews were conducted with each of the student teacher candidates, and one with each cooperating teacher. Within the context of the second interview with each student teacher, a Think Aloud protocol was used. I kept extensive notes throughout the interview process to support accuracy.

Data Collection

I gathered data in each case by interviewing the participants, transcribing the

interviews, coding the data, and then interpreting it. While the student teachers were the primary interest in each case, it was important to also gather the perspective of their cooperating teachers, as well syllabi from method-specific classes, and other artifacts as provided by the student teachers to triangulate the data and deepen my understanding of each case. Cooperating teachers oversee the entire student teaching experience, thus observing firsthand the content and pedagogical knowledge the student teacher demonstrates. Barrett (2020) emphasized the importance of "drawing attention to multiple variables, sources of evidence, need for triangulation…" to fully explore a case study design (p. 77).

Interviews

Interviews are a commonly used vehicle for data collection. Stake (1995) asserted that a situation can be viewed by others from perspectives that we may not identify as the researcher. Therefore, interviews may be used as a tool to explore the "multiple realities" (p. 64) of others. Seidman (2006) posited that interviewing "provides a necessary, if not completely sufficient, avenue of inquiry" for researchers investigating the educational experiences of others. Interviews can be carried out in many settings as a "mode of exchanging information" (Marvasti & Tanner, 2020, p. 329). For this study, in-depth, semi-structured interviews were conducted with participants via Zoom. This format allowed for "flexibility in the design of interview questions" providing opportunity for participants to expand and clarify their answers further (Marvasti & Tanner, 2020, p. 333). To investigate the phenomenon being researched, I elected to conduct one-on-one interviews to study each student teachers' existing knowledge, as well as the perspectives

of cooperating teachers on the pedagogical content knowledge that has been presented to the student teacher throughout the duration of the preparation program.

The interview sessions took place over a period of nine weeks, August to October 2023. After participants were confirmed, I provided consent forms (Appendix A) to each participant and granted ample time for individuals to review the document before returning it signed. Each participant was provided a signed copy of the consent form for their records. I outlined my role as the researcher and assured participants that I would not be present as an observer or interviewer during any student contact time, therefore not posing any disruption to instruction. Interviews were conducted at the convenience of the participants outside of student contact time. Consent letters summarized the research study, the participants' involvement in assessing interview transcriptions, and a detailed description of my objective as the researcher to provide anonymity to individual subjects by using pseudonyms.

I conducted three interviews with each student teacher, a format proposed by Seidman (2006) to provide me with an understanding of the preservice educators' perspectives and experiences. The purpose of the first interview was to establish connection with individual participants and explore their existing knowledge on the adolescent voice, and from where they gained that knowledge. Seidman (2006) posited that "In the first interview, the interviewer's task is to put the participant's experience in context" (p. 17). I did this by inviting the participant to share as much as possible about their background and experience with the adolescent voice. The second interview focused on the viewing of a video teaching sample provided by the participant. Seidman (2006)

suggested that the main purpose of the second interview is "to concentrate on the concrete details of the participants' present lived experience in the topic area of study" (p. 18). While viewing the video together, I conducted an interview of the participant using the Think Aloud (Ericsson & Simon, 1980) method to discover the participants' perspective on their present teaching and what informed it. Finally, the third interview was in the form of a follow-up email communication with the participant to ask for responses to a list of questions, final ratings of preparedness, to clarify any questions, and to provide a space for additional comments. Seidman (2006) emphasized the importance of participant reflection; therefore, the main goal of the third interview was to "focus on the participants' understanding of their experience…" (p. 19).

The initial interview took place at the start of the placement, followed by the second interview at the end of the placement, and finally the third interview via email following completion of the placement. Cooperating teachers were interviewed once at the completion of the student teaching placement. Initial and follow-up interviews were conducted through Zoom for approximately one hour each. Each interview was recorded with permission from the participant and subsequently transcribed. At the completion of each interview participants were provided with the researcher's contact information if they were to think of additional comments or questions following the time allotted.

Student teacher candidates were also asked to record a sample of their classroom teaching. This allowed the researcher to "gain insights into the decision-making and intuitive processes used by the participants while conducting and teaching…" (Forrester, 2017, p. 467). Participants were prompted to verbally express their initial reactions to

their teaching sample, with the researcher occasionally interjecting with clarifying questions.

Think Aloud Method. The Think Aloud Method (Ericsson & Simon, 1980) is built upon participants verbalizing their stream-of-consciousness. Charters (2003) pointed to Vygotsky (1962) as the starting place for examining the Think Aloud method, as the "inner speech" he discussed is similar in characteristics to what a participant might say using the think aloud method. This might allow the researcher to hear the participant's inner dialogue as they complete a task. Researchers have also referred to the think aloud method as stimulated recall (Calderhead, 1981). Stimulated recall has been utilized by many researchers to promote student teachers' learning from their own experiences (Calderhead, 1981; Davis, 2003; Freitas et al., 2004). Simulated recall can be an effective way to glean information about student teachers' perceptions regarding their own teaching through reflection (Nilsson, 2008). Charters (2003) hypothesized that the think-aloud method best serves a collective case study due to the nature of examining the experiences of multiple participants. Therefore, the think-aloud or stimulated recall method served as an opportunity to gain insight into participants' understanding of their own teaching practices. At the start of each Think-Aloud I encouraged the participants to simply narrate what we were viewing and provide the first thoughts or observations that came to mind. I occasionally stopped the video to allow for discussion and follow up questions related to the participant's verbal reflections. When there were specific moments that I wanted the participant to provide insight on, I tried to invite them to reflect by saying "tell me about this," or "what prompted you to make that pedagogical

choice"? I was careful to keep my questioning generalized and free from my own opinions to simply allow the participant to share their stream of consciousness thoughts. The second interview that employed Think Aloud protocols within it were recorded via Zoom to allow for transcription and analysis of data.

Material Culture

The main source of artifacts was the collection of syllabi from the primary classes of each sites' degree program that focused on choral methods or adolescent voices. I also asked participants to submit a short video teaching sample of themselves instructing a chorus at their respective student teaching placement. I instructed participants to include in the teaching sample a warmup and an activity that related to teaching choral repertoire. I allowed participants to pick any choir or grade-level they preferred at their placement. This video submission allowed me to view and discuss the sample with the participant through a Think Aloud format. This "material evidence" (Hodder, 2000) allowed me the opportunity to reflect on both teaching and learning that took place in the classroom.

Data Analysis

During the data collection process, I conducted research via Zoom over a 9-week period. The data were coded by examining the information for repetitive themes that materialized during the data collection process as they related to the research questions (Stake, 2006). Saldaña (2009) posited that coding is utilized to summarize data and is built upon the researcher's interpretation. Furthermore, Saldaña (2009) asserted that coding for recurring themes assists in confirming the "five R's" he refers to as "routines, rituals, rules, roles, and relationships" (p. 6). He also emphasized that coding can change

throughout the process. Therefore, in-depth reflection and "meticulous attention to language and images" are imperative when attempting to find accurate meaning in data (p. 11).

Cross-case analysis allows the researcher to transfer a concept to like situations to "transcend the particular in order to understand the general" (p. 95). For the first cycle of coding (Miles et al., 2014), I highlighted emergent themes and made comments using descriptive coding to summarize themes into short phrases. During the second cycle coding, I arranged the codes into a smaller number of "categories, themes, or concepts" (Miles et al., 2014, p. 79). In addition, I continually revisited literature to draw connections between what I found versus previous research on the topic. Miles et al. (2014) asserted that cross-case analysis is employed to "enhance generalizability or transferability to other contexts" (p. 95) while still understanding that there are disputes regarding their use in qualitative research. My objective was to look for "relevance or applicability" of findings in each individual case as well as their connections to one another (p. 95). Pattern coding was applied to support the use of cross-case analysis. Miles et al. (2014) grouped the pattern codes using four classifications: categories or themes; causes or explanations; relationships among people; concepts of theoretical constructs (p. 80). Therefore, this study explored two individual cases so that we might better understand the knowledge of the adolescent voice that pre-service choral educators possess, not only in individual cases (Stake, 2006).

Trustworthiness

The process of triangulation is imperative for validating research findings through

a multi-method system to ensure research quality (Gall et al., 2007). While data were being organized and coded, I triangulated data to compare whether the collected data were consistent with what was already known about the phenomenon (Stake, 2006). This was completed through multiple student teacher interviews, the reviewing of artifacts, and the interview of each cooperating teacher. This triangulation process allowed me to confirm that data I interpreted through interviews were validated with the participants, therefore curtailing misunderstandings, and personal biases, while continuously examining the data (Stake, 2006).

Another crucial process in interpreting data is that of member checks. Following the transcription of interviews, I performed a member check to verify the accuracy of the documents. Each participant was given the option to review the interview transcripts to ensure accuracy and clarify any interpretations I made. I also had the opportunity to ask additional questions to gain further clarification on participants' comments. Therefore, member checks served as the final step in the triangulation process, confirming accurate intent of the participants, thus allowing for "repeatability of an observation or interpretation (Stake, 2006, p. 37).

Limitations

As mentioned previously, the results of this study cannot be generalized as I only explored two cases. However, this study remains important due to the interpretation of artifacts and interviews that will allow the reader to draw their own connections through "naturalistic generalizations" (Stake, 2006, p. 8). Furthermore, the acquisition of content knowledge is an ongoing process over the course of one's career. As such, studies that

examine the other contexts in which content knowledge is acquired may provide a more holistic view on educators' PCK of the adolescent voice. Additionally, it is not possible to know every piece of knowledge conferred to students in methods classes by only looking at the syllabi. It is possible students were absent from classes, or that syllabi did not cite every topic discussed in class.

Summary

In this chapter I described my use of collective case study methodology to examine the adolescent voice knowledge possessed by two preservice choral teachers. In chapters 4 and 5, I chronicle the data collected for each case, which were bound by institution, present a summary of emergent themes and findings, provide a cross-case analysis, and discuss the implications for choral teacher preparation and suggestions for further research.

Chapter Four

The purpose of this study was to explore the preparation of Wisconsin secondary choral educator candidates with specific regard to supporting adolescent voices. In chapter 4, I present data and findings relating to two cases, the first of Ranger University and the second of Lakeside College. Data were collected using semi-structured interviews, observations, and reviewing class syllabi. The data were coded, and the emergent themes triangulated across interviews, observations, and through the member check process with each interviewee (Stake, 2006). I organized the themes that emerged from the data into three main categories. They are (1) The Impact of Personal Experience on Teaching, (2) Gaps and Inconsistencies in Teacher Preparation, and (3) Realizations During Student Teaching. The themes were complex in that within each theme there were moments where the data aligned and where it ran contrary. I will describe each main theme as well as the sub themes that emerged. The chapter ends with a summary of the conclusions drawn from the cases.

Timber Ridge High School

Laura completed her secondary student teaching placement at Timber Ridge High School, one of three comprehensive high schools in the area's school district. Comprehensive high schools foster a well-rounded education in multiple specializations geared toward college preparation for all students, versus a school that prepares students for one specialty, such as fine arts, medicine, or technology. Timber Ridge has approximately 1500 students enrolled in grades 9–12 and over 160 staff members. Opened in 1965, this site is a publicly funded institution comprised of approximately

50% economically disadvantaged students. Timber Ridge HS is home to four choirs: Freshman Treble Voices, Mixed Choir, Advanced Treble Voices, and the top advanced mixed choir that is by audition only. The cooperating teacher at this site, Phoebe, has been a public-school choral director for 35 years, 21 of which have been at Timber Ridge High School. She has served as a cooperating teacher for numerous choral teacher candidates over the course of her career and directs the Treble, Concert, Cantare, and Chorale choirs.

Mirage Middle School

Josephine served as the second quarter student teacher at Mirage Middle School. Mirage is the largest middle school in its district, with approximately 1000 students. This site is publicly funded and boasts a highly successful fine arts department that engages approximately 50% of the entire student body in its bands, choirs, and orchestras. Choirs at Mirage Middle School are delegated by grade level with no audition required. The 6th, 7th, and 8th grade choirs meet in split class sections, but each grade level section performs together at concerts. The cooperating teacher at this site, Bonnie, has been a middle school choral director for 27 years, and she has mentored 18 choral student teaching candidates throughout her tenure with many more choosing to do their observation hours in her classroom.

Impact of Personal Experience on Teaching

As I outlined earlier in my own personal narrative, every teacher travels along their own unique path that eventually helps to inform their initial practices as an educator. For musicians, many start private lessons on an instrument at a very young age, or take an

interest in their school music classes, while others perhaps discover their passion for music later in their education through participation in performing ensembles. The impact of personal experience on teaching became evident through discussions with the participants and two sub-themes emerged: (1) Private Lesson Instruction and (2) Participation in Choral Ensembles.

Private Lessons

While most schools offer music instruction in the form of performance ensembles, general music, or music appreciation class setting, families may choose to supplement in-school offerings with private instruction on an instrument or voice through an independent teacher. Starting age for private lessons varies based on instrument, teacher requirements, best practices established by state and national standards, and many other factors. Many teacher education programs, including at Ranger and Lakeside, mandate that choral education students undergo piano proficiency as part of their teacher preparation[5]. Individuals with a background in piano or another instrument may find piano proficiency exams more manageable when they enter college compared to those starting for the first time. Laura had the opportunity for piano and flute lessons from a young age, while voice lessons only became an option in high school. Josephine also began instrument lessons early on, starting with the viola in 4th grade through her school's orchestra lesson program. In 5th grade, when exploring fine arts offerings, she transitioned to clarinet lessons in the band program before making final course choices for middle school.

[5] This information is publicly available on each institution's website.

Neither Laura nor Josephine engaged in formal singing lessons outside of the elementary music classes provided by their respective schools. However, Laura did seek out private voice lessons beginning in her sophomore year of high school and continued throughout her college career. When asked from where or whom she learned about the voice, Laura replied "While my high school choir director was great and talked about the voice, I learned mostly from my high school voice teacher." Laura's cooperating teacher, Phoebe also had a similar response, "I learned mostly from past voice teachers."

Josephine was able to secure private voice lessons beginning in her first year of high school. She, too, credited her voice teacher for teaching her what she knows about the voice. She stated, "A lot of what I know, like if I were to teach somebody technique-wise and different warm-ups and different ways to think of things, I would say came from my voice teachers growing up." Despite being required to take vocal methods in college, Laura also leaned heavily on her prior experience saying, "I feel confident in my abilities to model appropriate vocal practices because of my previous training with private voice teachers and choral directors." While unable to account for all music education programs, both Laura and Jackie were required to take credits in applied voice instruction as part of their college degree programs; however, there were no prerequisites of voice study before entering those courses. Jackie was required to take 12 credits of applied lessons to satisfy the base requirements of her music degree, while Laura was required to take seven.

Choral Ensembles

Private voice lessons are not always an option due to availability and financial restraints. Many K–12 schools, both public and private, offer opportunities to participate

in ensembles as part of one's academic coursework. In Josephine's school district, there were three course choices in middle school that satisfied one's music requirement. These courses were band, choir, orchestra, and general music. Band and orchestra did not accept beginner instrumentalists after their 6th grade year. Choir, however, accepted new students at any time; therefore, 7th and 8th graders who were not in band or orchestra could only choose from choir or general music to fulfill their requirement. Additionally, in middle school, students were unable to be in two performing ensembles at once which forced them to choose between instrumental or vocal instruction. This is due to performing ensembles meeting during the school day as a curricular class, thus eliminating the ability to take two ensembles due to credit and scheduling constraints. In elementary, Josephine was able to be in the band, but also chose to participate in an extracurricular auditioned elementary chorus that was offered called All City Elementary Choir. However, when Josephine attended middle school, she chose to commit solely to band as there was not an extracurricular choir available to her. After tiring of her instrumental studies, she switched to choir in 8th grade. She was able to continue singing in school choral ensembles through high school, where additional extracurricular vocal activities were an option, such as musical theatre and madrigal singers.

Josephine took advantage of these offerings by being involved in musicals all 4 years of high school. Though Josephine was highly engaged in her high school's music offerings, she stated, "While I was involved in a lot and loved to sing, I didn't have the best relationship with my choral teacher." She explained that there was a strong sense of favoritism displayed by her high school choral director that ultimately prompted her

desire to become a choral educator: “I got to the point where I loved music and I was so involved, I loved teaching other people things and so I wanted to be the educator that looked at everybody… like I wasn't playing favorites.” It was interesting to discover that Josephine’s drive to become a music teacher was born not from an excellent choral experience, but rather one that from her perspective as a student was fraught with issues.

Laura also had challenging experiences with choral teachers. Laura said, “I didn’t have the best teacher in middle school choir, but I liked it enough that I stuck with it.” Laura began singing in her junior high choir in 7th grade. When discussing what she may have learned about the voice through her choral experience she lamented, “My junior high choir teacher wasn't the best, she didn't talk about the singing voice.” Laura’s experience with choral singing in middle school may have contributed to her perceived lack of knowledge surrounding some aspects of the adolescent singing voice.

Although Laura's and Josephine's journeys differed significantly, it is crucial to recognize that there is no “typical” path for educators, each navigating their unique experiences. Nevertheless, both Laura and Josephine encountered less-than-ideal choral environments that influenced their aspirations as future educators. However, the choral experiences of their adolescent years, regardless of whether they were positive or negative, were still at the forefront of their memory when discussing where their knowledge of the voice originated.

Gaps and Inconsistencies in Teacher Preparation Program

While prior experience is undoubtedly impactful to shaping one’s teaching practices, formal training preservice teachers receive in their preparation programs also

plays a significant role in shaping their future pedagogical practices. Kos (2018) pointed out that prospective teachers enter their preparation programs already having developed a "belief system" from their secondary school education (p. 560). The process of music education preparation courses is to expose students to new techniques and methodology for teaching music that reaches beyond their lived experiences. Kos (2018) posited, "It is the responsibility of music education faculty, and indeed one of the primary purposes of music teacher education, to guide that process" (p. 560). Therefore, it is crucial that teacher preparation programs provide a comprehensive experience, taking care to include in coursework all necessary skills that are required for choral teacher candidates to be successful in the adolescent choral classroom. This holds particularly true given the diverse levels of skills and personal experiences that students bring into teacher preparation programs.

To examine which topics students in the study felt confident to teach, and which areas of knowledge they felt might need additional education, I explored perceptions of their readiness to support adolescent voices by asking them to rate their proficiency in several areas. I also asked their cooperating teachers to rate the corresponding student teacher in the same topics.

A visual representation of ratings can be found here:

Table 1

Participants' Rating of Self-Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Josephine	7	7	6	8	9	8
Laura	7	2	1	7	4	7

Table 2

Cooperating Teacher Ratings for Student Teacher Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Bonnie	DNO	6	DNO	7	6	7
Phoebe	5	6	1	DNO	DNO	7

Note. "DNO" denotes "did not observe" the skill.

After interviewing the participants in this study, it became clear that there were fields of knowledge that both cooperating teachers and student teachers felt could be opportunities for additional growth, as well as fields in which student teachers felt more confident. Two topics emerged as common perceived areas of strength, they were: (1) Repertoire Selection and (2) Vocal Health. Three areas emerged as potential domains for growth, they were: (1) Changing Voices, (2) Vocal Anatomy, and (3) Teaching Practicum. In this section I specifically discuss areas for growth as perceived by participants.

Changing Voices

Both Laura and Josephine were required to take a methods course as part of their

academic requirements. Laura enrolled in a course titled Vocal Methods, she reflected, “There was little talk of adolescent voices in Vocal Methods; it was more about what the voice change is rather than how to teach to it.” Josephine took a Choral Methods class and observed, “I feel like it was more driven towards high school voices and not adolescents.” Considering their perceived need for additional opportunities to discuss changing voices, I asked them to rate their readiness to teach such voices in their own classrooms on a scale of 1–10, with 1 being the least prepared and 10 being the most prepared. It is important to note that, as the researcher, I purposefully did not specify gender when discussing the changing voice with participants. Throughout interviews and discussion, I was careful not to imply male or female to the topic of changing voices.

Laura rated herself a “2,” expressing, "I wish teacher preparation classes offered more discussion about changing voices, vocal anatomy, the disconnect between aural and oral practices, and resonance." In contrast, Josephine rated herself as a “7”, saying, “I chose this rating because I feel like I still struggle with how to address the male voice change. It is just something I feel is hard for me to truly understand because I am a woman.” I anticipated this number to be lower based on our earlier discussions and observations. However, Josephine emphasized her eagerness to enhance her skills in this area, expressing, “I would like to know a little bit more, so that I feel comfortable being able to address this and help the men in my classroom, so it is a smooth transition for them.” It is also possible that Laura and Josephine’s ratings might change if they were to spend more time instructing changing voices longer than one academic quarter (9 weeks) during student teaching, perhaps giving them more time to explore their own skill sets.

Laura identified changing voices as an area for personal growth and mentioned that she felt "most comfortable teaching treble voices." She linked this comfort with the treble voice to her own singing abilities and past studies. She emphasized, "I do not feel confident in my training to lead a student who is experiencing voice change." It is interesting to note that Laura equated voice change with only the male experience. Despite her lack of confidence, Phoebe rated her a "6." Phoebe further elaborated on Laura's readiness to instruct changing voices, noting, "She has good communication skills and great ways to illustrate, but her focus was much more on the teaching of pitches and rhythms." Phoebe also made connections to Laura's warm-up routine, highlighting the necessity for additional "limited range" exercises to accommodate changing voices. She commended Laura for the strides she has made in understanding a comfortable range in changing voices since the beginning of the placement. Phoebe emphasized the need to delve deeper into instructional technique, an understanding which will continue to develop through time and practice. She mused, “Where it didn't always go well was remembering to give ideas/reminders to those who struggle…” While observing Laura's teaching sample, I discerned what Phoebe alluded to. Laura displayed a remarkable level of positivity and commendation for the students' accomplishments. However, she less frequently highlighted areas where students could improve or provided them with strategies to do so.

In reviewing the syllabus of Laura’s Vocal Methods class, the topic of changing voices was not explicitly mentioned as an objective of the course. Learning outcomes for the course were as follows:

1. Select age-appropriate musical materials of many genres, cultures, and backgrounds for use in the vocal music classroom.
2. Implement student-centered rehearsal strategies that foster independent musicianship.
3. Organize and present effective, culturally responsive vocal music lessons tied to student learning outcomes.
4. Respond to class needs by demonstrating an understanding of basic strategies for classroom management.
5. Plan lessons that include and elevate special learners, using specific teaching techniques related to physical, cognitive and emotional challenges.
6. Effectively and validly assess student work using a variety of processes and forms.
7. Demonstrate an awareness of the wide variety of facilities, scheduling, and instructional equipment and materials a learning community might offer.
8. Formally articulate personal attitudes and values related to the role of vocal music in the complete education of a student.
9. Demonstrate professionalism through academic language and professional dress in the learning community.
10. Plan public choral performances

Despite Laura's doubts, Phoebe rated her at a readiness level of 6. This could perhaps point to an attempt by Phoebe to fill this knowledge gap for Laura through her student teaching practicum.

Josephine pointed to an early middle school observation as the source of some of her knowledge surrounding the changing voice. She said, "I gained knowledge with the boys just because I feel like as a female it's hard to understand and help the adolescent male voice with the voice change." In contrast to Laura's methods course, Josephine's methods requirement, titled, "Methods of Teaching Secondary Choral Music," addressed changing voices in the (b) section of the following learning outcomes in the syllabus:

> Demonstrate an understanding of the vocal mechanism/vocal development and techniques for building choral sound including:
>
> a) how the voice works as an instrument
>
> b) adolescent/late adolescent voice classification, characteristics, maturational tendencies, ranges, and timbres, diction;
>
> c) teaching strategies designed to develop and maintain vocal health and proper vocal production at all levels, and the physical problems that may develop if the voice is used inappropriately;
>
> d) organization of the ensemble and training of singers to perform vocal/choral literature that is appropriate to the developmental level and setting.

In addition, the syllabus provided a list of "Focal Activities" that would be included in the class, most notably the following section that addresses voice change:

> Working with male voices
>
> - Better understanding the boys' changing voice

- Strategies for helping boys succeed and continue singing through the change
- Strategies for recruiting boys

While the male voice change is named specifically, the female voice change is not. That does not necessarily suggest it was absent from class discussions, since I am unable to confirm every topic covered outside of syllabi. The potential need for deeper discussion surrounding the female voice change emerged in student teacher interviews, where both exclusively discussed changing voices from the male or testosterone-based perspective.

Josephine's cooperating teacher, Bonnie, conveyed the sentiment that the preparation of teachers often overlooks middle school voices. She remarked, "I think that middle school singing is an area of knowledge that's maybe lacking for many student teachers. Many choral student teacher candidates are not required to complete a middle school placement at all." When questioned about specific areas of the adolescent voice that her past student teachers needed more support to develop, Bonnie highlighted that dealing with changing voices was, and continues to be, a consistent challenge for emerging teacher candidates. She explained, "Student teachers often struggle with where to place changing voices within the choir and how to model for them in terms of octave if they are a female teacher." Bonnie complimented Josephine for her courage in being willing to explore and experiment with the changing voices at Mirage Middle School. She noted, "Young teachers are often afraid to address changing voices, or even just boys' voices in general." Bonnie reiterated that she felt Josephine had been prepared for

her student teaching experience, but that it had not been the same case for many student teachers before her.

I implored Josephine to provide further details on her perceived understanding of changing voices, specifically whether she could discuss the physiology behind the voice change with her students. She hesitated, stating, "If you were to ask me at this moment, no." In Josephine's video teaching sample, a male voice consistently droned on a pitch much lower than the rest of the group. This 6th-grade chorus had a small group of seven male-presenting students, most of whom had unchanged voices. I asked Josephine about what she could hear as we watched her teaching sample, and she reflected, "It's kind of interesting hearing this because from where I normally am, I hear more of the girls' voices. It's interesting to hear the guys and how they're not quite getting up to the pitch." The realization that she may not be hearing or noticing issues within the changing voices may come as a surprise to Josephine, who had rated herself as being confident in this area.

We explored where Josephine acquired techniques for handling situations involving changing voices in a choral setting such as this when a student struggles to match pitch. Josephine pointed out that prior to student teaching she had only led choral rehearsals of her college peers who were mostly music majors. When considering her perceived limited observations and choral methods coursework, she asserted that she is primarily learning about supporting changing voices “on the job.” This may suggest that students like Josephine might benefit from additional support in practices related to this topic, perhaps prior to student teaching.

Transgender Voices

Laura rated her readiness for working with transgender voices as a "1." She stated, "This is an area I know nothing about. This topic was never discussed in any of my classes, nor have I done any personal research. This is definitely an area I need to research individually before becoming a teacher." Laura did not believe she had any transgender students in her current student teaching placement but admitted that she was not completely sure. Josephine, however, could vaguely recall the topic of transgender voices being briefly discussed "a little bit" in her methods course, even though she did not believe she had any transgender students at Mirage MS. Considering this, she rated her readiness to work with transgender voices as a "6". Josephine supported her rating by saying, "I chose this rating because I feel like I know how I would instruct trans voices, but I feel like it is not talked about as much as it needs to be." She mentioned her lack of formal instruction on the topic emphasizing, "I think out of my whole college experience there was only one instance where we talked about this, and it wasn't for long. I feel like in general this is a topic about the adolescent voice that needs to be talked about more." While Josephine expressed a sense of readiness to instruct transgender voices, she did not expand on what that instruction may include or look like. Another observation was that Josephine only spoke in terms of male/men when addressing voice change.

When discussing changing voices, it is important to recognize that the physiological changes that take place in a male as assigned at birth can also be medically induced via hormone therapies in female-born voices who identify as male and vice versa. Gender identities may inform choral educators' repertoire selections, part

assignments, and more. Sauerland (2022) emphasized, “Dependent on a person’s identity and sense of self, gendered expectations can afford a positive opportunity for a singer to explore their gender identity through music” (p. 187). Sauerland also pointed to five pedagogical topics for “gender-affirming vocal pedagogy” (p. 186). They are: “Recognizing gender implications, teaching vocal technique, embodying professional responsibility, nurturing self-advocacy, and providing socioemotional support” (p. 186). It is important to note that the methods class syllabi collected, while containing inclusivity statements, did not include transgender voices as a topic of the course. Granted, it is possible it could have been discussed under a more generalized topic of vocal anatomy.

Many choral programs have worked to change the gender language surrounding voice parts to be more inclusive (McKiernan, 2012). Again, this is an aspect of choral education that is new to the current generation of teachers and perhaps not yet included in student teachers’ preparation programs or professional development for in-service teachers.

Vocal Anatomy

In order to fully understand changing voices, one must have a firm grasp of vocal anatomy throughout different stages of development (Cooksey & Welch, 1998). Not only is it important for choral educators to possess content knowledge of vocal anatomy for their own singing success, but equally important for them to have pedagogical knowledge so they can facilitate student learning of such content (Shulman, 1987). Laura stated, "I think all singers should have a basic understanding about the logistics behind their

instrument.” While many students whose primary instrument is voice may be required to take a vocal pedagogy course, Laura was not. She shared that aside from her Vocal Methods course and applied lessons, no other required education course in her teacher preparation program taught about the voice itself. Laura rated her readiness to teach about vocal anatomy at a “4”. While her cooperating teacher, Phoebe did not observe her teaching vocal anatomy in her student teaching, she did admit, “...it is the worst part of my individual teaching, so she didn’t see much to model from…” Laura conveyed her intention to delve deeper into the study of vocal anatomy before incorporating it into her future teaching, stating, "I hope to engage in more individual research on this topic so I can effectively explain it to my students." It may be important to ponder what vocal knowledge a student teacher candidate should be expected to seek out on their own through research, versus what should be taught to them through the preparation curriculum.

Conversely, Josephine's program did include vocal pedagogy in its curriculum. However, she pointed out that the course was sequenced approximately two years before her student teaching experience. While it is impossible to program every course in close proximity to the student teaching experience, having such a gap between learning and practice may make it more difficult to remember content knowledge of the adolescent voice. Reflecting on this, she expressed, "I would say I learned a lot of the technical terms from vocal pedagogy that I had to take." Nevertheless, she stressed that the time devoted to vocal anatomy was minimal in the broader context of the entire program. According to her, "We just briefly touch on it as we take only a semester of vocal

pedagogy." While neither participant's methods course syllabi explicitly outlined vocal anatomy as a learning outcome, Josephine's course did specify "demonstrate an understanding of the vocal mechanism" as an expected proficiency. She clarified, "We didn't talk much about the voice itself in choral methods, more along the lines of situations that would arise…things like that." In other words, vocal anatomy and pedagogy may be an area of study that teacher preparation programs could provide additional support to.

Teaching Practicum and Classroom Observation

While student teaching is an invaluable experience for building one's knowledge and pedagogical techniques, it is not the only source of fieldwork in many teacher preparation programs. It is common to have a required amount of observation or practicum hours either as part of a course or in addition to a teacher candidate's coursework. One of the requirements for Laura's vocal methods course was to complete nine hours of classroom observation and journal about the experience. This could have been another opportunity to engage with adolescent voices and observe the pedagogy of seasoned teachers. Despite this, Laura came through this course during the height of COVID-19 and shared that she was unable to observe at the elementary or middle level, only having minimal observations in a high school classroom. Josephine also faced challenges relating to observations due to COVID-19, stating "Covid decreased the number of classroom hours that the program normally required. I saw some middle school prior to student teaching but it was a charter school[6]."

[6] In this area of Southeastern Wisconsin, charter schools are looked at as being synonymous with

Practicum hours may include observation, but oftentimes also provide opportunities for students to teach short segments of a class. This allows the teacher candidate to practice their lesson planning by focusing on a short activity with a targeted learning outcome. While Josephine engaged in creating a minimal number of practice lesson plans throughout teacher preparation courses, she emphasized she had, "not really any experience with adolescent voices prior to student teaching." Similarly, Laura could not recall any lesson planning practice or practicum time teaching students prior to her student teaching placement. While Laura was required to also take an elementary methods class, she stated that, "singing was not a focus."

While Josephine's practicum experience may have been derailed by COVID-19, the syllabus for her Methods of Teaching Secondary Choral Music course does specifically outline a suggested "target" of 20 observation and teaching hours with the following directives:

Observe two different choral teachers at the secondary level in the first two weeks of class, other than the ones that you will be doing clinical placement with, over several weeks as directed, then document, reflect on, and analyze the teacher's style/behavior and student response. Include in your analysis your observations of

- the person's teaching method and strategies,
- learner response,
- teacher's manner,

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selectivity. As such, there is a connotation that perhaps charter schools are composed of a population that achieves more academically and behaviorally. The reality, however, is that some charter schools base enrollment on a lottery system, not necessarily taking academic achievement into account.

- use of piano,
- conducting effectiveness,
- classroom management style.

Be sure to …

a) Observe the amount of time devoted to teaching that is not just a particular song — i.e., vocal technique, music reading, music fundamentals, and fostering student understanding of a number of concepts and connections within the period, etc.
b) See how pieces of the lesson are integrated. So, if warm-ups and sight reading are employed, is there an obvious connection between the warmups/sight reading and the music being worked on? If vowels were emphasized in the warm-up period, are they given attention as actual literature is studied?
c) Observe how the director improves the choir's sound within a group setting.
d) Discuss the rehearsal techniques used.
e) Focus on the interaction that take place — teacher and students, students and teacher, students with each other.
f) Consider what you are observing through the lenses of diversity, equity, and inclusion and why you assess the environment in this way.

The “teaching assignment” portion of this practicum target is done in conjunction with the student teaching portfolio course. That is, the hours satisfy both the requirements of this course as well as the fieldwork requirements of the portfolio course, which requires 40–60 hours of practicum. The directions for this portion of the practicum requirement are as follows:

1. Vocal Assessments. Working with two different students in your placement (you will ask your mentor teacher to assign you students for this purpose), conduct a voice assessment at least twice during the semester. Assess student progress (as well as changes in singing that may be the result of maturation) and write a brief summary for each assessment.
2. Warm-ups. Lead 4–5-minute warm-ups in a choral class. Provide a written plan for these along with a brief post self-evaluation report.
3. Teach a minimum of two sectional rehearsals.
    a) You should have specific instructions regarding what you are to cover and the time allocated for your sectional.
    b) You should take into consideration teaching necessary to address students with documented learning differences in the class as applicable. (ask mentor teacher about this)
    c) You should study and mark your score beforehand to reflect an understanding of form, musical considerations, potential trouble

spots, diction, harmonic matters, analysis of vocal concerns, conducting issues, etc.

d) Do a brief written assessment of your sectional and what you were able to accomplish. This will necessarily address both student learning and your work in teaching the sectional.

4. Teach full rehearsals that will be co-planned and co-presented with your mentor teacher. Each of these experiences requires:

a) You should do a complete lesson plan that includes "verbatims"

b) You should take into consideration teaching necessary to address students with documented learning differences in the class as applicable. (consult with mentor teacher)

c) You should study and mark your score beforehand to reflect an understanding of form, musical considerations, potential trouble spots, diction, harmonic matters, analysis of vocal concerns, conducting issues, etc.

d) You should do a brief written assessment of your rehearsal and what you were able to accomplish. This will necessarily address both student learning and your own work in teaching the rehearsal.

e) You should detail the next steps for this ensemble, even if you will not actually be leading the next rehearsal. If you were teaching the next rehearsal with this group, what would you do?

Josephine rated her readiness to instruct both vocal health practices (8) and vocal anatomy (9) very highly. She stated, “Vocal health is something very important to know about and make sure your students know about.” She went on to explain,

> I picked this rating because this was focused on during a class I took. Also, my vocal teacher took a sabbatical for a year to get a degree in vocal pedagogy with a research study on vocal health, so when she came back she gave us a lot of tips and tricks in regard to vocal health.

Josephine also described her knowledge on vocal anatomy as extensive, and one of her main strengths. She supported her readiness rating explaining,

> I picked this rating because we had a whole semester on this in college and I have a lot of knowledge about vocal anatomy. If there are things I need to look up for a refresher, I have a couple books that I have in regard to vocal anatomy.

As noted earlier, Josephine stated that her vocal anatomy course occurred several years earlier and occasionally had trouble recalling all the information covered.

Realizations During Student Teaching

Throughout the discussions with participants, various moments of realization surfaced regarding self-confidence and preparedness to support adolescent voices. Once educators step into their own classrooms, they may find that receiving feedback on their ongoing skill development does not occur frequently. As Conway (2012) highlighted, “Preservice education is just the start of the lifelong learning of music teachers, and yet teacher educators often have little opportunity to interact with music teachers after they

begin teaching" (p. 332). Consequently, it becomes crucial to consider participants' perceptions of their readiness, irrespective of their cooperating teachers' assessments of proficiency in a particular skill set. It was from my discussions with both student teachers that three sub-themes emerged, which I categorized as follows: (1) Understanding of content, (2) Pedagogical techniques, and (3) Awareness of student needs.

Understanding of Content

The initial sub-theme that quickly materialized centered around content knowledge. Laura identified several areas where she perceived gaps in her own understanding, particularly when it came to determining comfortable ranges for adolescent voices. Expressing her concern, Laura stated, "I was never taught how to figure this out." She attributed this knowledge gap, in part, to the fact that the bulk of her education classes focused more on generalized practices rather than music-specific details. Josephine echoed this sentiment when she expressed her desire to observe her cooperating teacher go through the process of assigning voice parts to students. She said she asked her cooperating teacher, "how does she assign voice parts and what does she listen for when doing voice testing?" Josephine, who conducted her student teaching in the second quarter of the school year, missed the opportunity to witness the organizational practices at the beginning of the year, including voicing. In contrast, Laura was actively involved in this process with Phoebe because she completed her choral student teaching placement during the first quarter. Regardless of the timing, Josephine felt strongly that the topic of adolescent voices should have a prominent place in teacher preparation coursework. She emphasized,

> I wish we would have talked about the adolescent voice more in general in my teacher preparation classes. I feel like we did not talk about it as much as we could have. I also feel like a big topic that we could have focused on more in my classes on the male voice change and how to best help my students during that process. I feel like the adolescent voice is a big topic in teaching and it just wasn't talked about enough.

Aligning with research by Caires et al. (2012), it is important for teacher preparation programs to communicate with teacher candidates and explore their perceptions of the student teaching experience to uncover areas support may be needed, such as what Josephine has described above.

Laura highlighted her uncertainties regarding vocal anatomy, sharing, "I know little about the vocal tract. I would like to understand the physical and anatomical reasons behind healthy vocal practices." She further clarified that while she has some basic knowledge of vocal anatomy, this knowledge is still not sufficient to comprehend all the complexities of how the voice functions. When asked about her comfort level in teaching the basics of vocal anatomy to students, Laura responded, "Due to my lack of knowledge, I would not feel confident teaching a lesson about vocal anatomy to young singers." In addition to teaching students about their vocal anatomy, a more complete understanding of vocal anatomy could also possibly affect Josephine's pedagogical choices.

Josephine shared Laura's trepidation in addressing vocal anatomy with students saying, "Obviously, I'm going to have to talk about it eventually with students…so I would take the time to relearn it." However, she felt that the area most in need of growth

was her piano skills, going as far to say that they might limit her ability to teach outside of an elementary setting. She said, “I feel like it is because of my piano skills that I couldn’t teach high school. I did teach the University Chorale sometimes, but I had a pianist and I just had to run rehearsal.” She felt that this could hinder her abilities to lead warm-ups and part learning from the piano in a school choral setting, where a rehearsal accompanist is rarely provided.

When I asked Bonnie about the areas she believed student teachers needed the most support with in terms of content knowledge when beginning a placement, she responded, “I think a lot of basic skills are lacking. I think sometimes with singers, especially if you didn’t grow up playing an instrument, that theory, music reading, rhythm work, and piano skills are lacking.” She remarked that possessing these skills enhances their listening aptitude and their ability to identify pitch issues. An example she gave was if a student teacher is focused so much on their piano playing or perfecting rhythms, they may miss wrong pitches coming from the choir. Phoebe echoed this when she said, “Student teachers lack the knowledge needed to isolate/identify errors and fix them. They listen for pitches but don’t hear wrong things, which leads to the kids learning it wrong.” She also attributed the tendency to dismiss pitch errors to a simple eagerness to move on with their lesson rather than breaking things down or asking students to do something again.

Furthermore, Bonnie expressed a desire for student teachers to enter a placement with the understanding of how to use their own voices as a healthy classroom model. She emphasized the need as a teacher to be able to healthfully teach large groups of students,

as the tendency can be to shout over them. Although Bonnie could not recall specific instances of Josephine teaching about vocal health and anatomy, she pointed to this area as one of strength. Bonnie rated Josephine's readiness to address vocal health and anatomy at a "6," stating, "While I really haven't witnessed her talking about it, I do see her using her voice appropriately and using the correct terminology, so I would feel she is ready to teach students about it." Bonnie emphasized the significance of maintaining one's own vocal health in teaching, underscoring the potential for fatigue if one is not mindful of personal habits.

Pedagogical Techniques and Resources

Possessing a thorough grasp of content and effectively conveying that understanding to others through teaching are two distinct skill sets (Shulman, 1986). Teachers must possess a strong command, not only of pedagogical techniques but also of the ability to differentiate those techniques to cater to a diverse range of learners. In essence, they must have the capability to instruct the same skill using various approaches. For Josephine, this proved to be a challenge. On the piece they were working on in her video sample, *Circle 'Round the Moon*, the choir was split by Soprano/Alto, with all boys singing with the altos. The altos were struggling to maintain their harmony, especially when the two parts were moving in parallel thirds. I observed her using hand motions to signify when she wanted the pitch to stay the same versus move and she would verbally redirect students to adjust their pitches when they were incorrect. However, she mostly relied on repetition to try to fix the pitch issues. I asked Josephine if she felt that they had accomplished what she set out to do over the course of this lesson. She lamented,

> No, because I really wanted to get that section solidified where it was strong on each part, but I noticed no matter what I did it just wasn't working. I feel like you can only work on something so long and no matter what I'm trying, if it's not working it's better to just move on.

I found this musing to support the earlier observation made that perhaps Josephine is grounded in content knowledge but is still at the initial stages of understanding in the area of pedagogy. Moving on from a problem area in rehearsal may be the last resort when one has exhausted their pedagogical knowledge.

Josephine suggested that her knowledge of pedagogical techniques may still be emerging. She expressed, “It's hard for me to come up with different ways to fix a problem. I know of ways that helped me, but I need to work on finding other ways to fix the same problem for students.” Phoebe also pointed to pedagogical knowledge as an area that is typically challenging for student teachers. She said of Laura, “While her patience is exceptional, I don’t know if she has a big bag of tricks yet with exercises or ideas on how to get them singing consistently with good support, or matching pitches.” According to Phoebe, it is that bag of tricks that a teacher pulls from when supporting adolescent vocal development.

Laura also mentioned her sparse bag of tricks when she cited a recent rehearsal she led. She said, "I was warming up the concert choir tenors and basses and I didn't even know what pitch to start on." She explained that it was moments like this that she felt she was, “least prepared to address pitch matching issues in tenor/bass voices.” Phoebe expanded on this proclaiming, “Student teachers struggle with knowing good keys to start

warm-ups in and how to be flexible to rewrite parts, as needed, in order to keep the non-matching kids moving in the right direction." Phoebe posited that student teachers often rely on the hope that the issue of non-matching or singing in the wrong octave will eventually "resolve itself." Conversely, effective teachers will possess a multitude of techniques and resources readily available to address and resolve challenges. At times, this requires a teacher's creative ability and willingness to think beyond conventional boundaries.

Laura stated that her understanding of the breath and her ability to use breathing techniques in her instruction was one of her strengths. She cited her own work with previous teachers to improve her breathing habits as the main reason for her ease in teaching it to others. I did observe this in her teaching, as she spent time within her warm-ups focusing on breath work. However, another instance of breath work I observed in Laura's teaching sample was in a moment of her instructing students to take a more effective breath. She said, "fill your barrel" and "use your big muscles like your diaphragm." Physiologically, it is not possible to isolate the movement of the diaphragm specifically, but you can trigger its ascent and descent by engaging the abdominal muscles. This might have served as an opportunity for Laura to show this strength by helping students to explore the physiology of respiration, one of the main tenets of singing, through more diverse pedagogical techniques.

One area of pedagogical technique that both student teachers felt confident in was teaching vowel shapes. Josephine connected this strength back to her own music education experience saying, "I think I am the most comfortable addressing tall

resonance and vowels because it was something that I had struggled with in the past." Laura demonstrated her ease with addressing vowel shapes in her teaching sample video. She often stopped to ask students for a taller, more vertical mouth shape. Despite this effort, she did not achieve the sound she wanted from the vowel changes. She admitted, "I lack proficiency in being able to develop or change singers' tone quality. I know what sound I want, but I just can't put that into words." Phoebe reflected upon why pedagogical knowledge is often still emerging for student teachers. She postulated:

> I think incoming student teachers just aren't around the adolescent age group or that ability range enough before they come into student teaching. Perhaps some time to coach a couple adolescent voices at a school WITH a person from their college to give ideas and insights would be very helpful.

Bonnie also considered the extent of exposure that student teachers had to adolescent voices before embarking on their student teaching experiences. She mentioned,

> I guess I would encourage more colleges to feel that the middle level is important for student teaching. There should be some experience in the middle level required for all student teachers because this age group presents a whole new set of challenges.

It is important to note that Laura will not complete a middle school placement as part of her student teaching experience. Her placement that follows Timber Ridge High School will be at an elementary school. Both Laura's and Josephine's programs require one semester of student teaching, which converts to one quarter (9 weeks) in each of two

placements. Josephine fulfilled her elementary school placement prior to Mirage Middle School, thus eliminating a high school placement opportunity. Despite not completing a student teaching placement at each level, both participants will still be licensed to teach K–12 in the state of Wisconsin. This requires them to have knowledge of content, pedagogy, and students at each grade level.

Awareness of Student Needs

Identifying and understanding students' needs is an integral part of being an effective educator. The student teacher genuinely embodies the title, serving not only as a student to their cooperating teachers but also as a teacher to their students. Bonnie reflected on Josephine's learning needs as her student. In our discussions about student teachers and their knowledge, she mentioned, "I haven't really been asking these questions and they'd be interesting questions to ask my student teachers to find out what they are learning before they get to me." She continued to ruminate on the idea saying, "I really don't know how much or little they are specifically learning before student teaching." Neither Bonnie nor Phoebe mentioned having any kind of communication with the student teacher preparation programs other than when a college supervisor attends to formally log an observation.

For Phoebe, her goal was not only to assist Laura in identifying issues but also to instill the confidence to address students individually. She said, "She got better at understanding what the issues were but didn't, in my opinion, want to single anyone out to really address issues at times." Phoebe specifically emphasized the need for confidence in addressing changing voices without inadvertently causing embarrassment. She

reflected, “Certainly we don't want to scare anyone away, but if basement dwellers get comfortable there, it's harder to get them up where they CAN sing and do belong.” as important factors affecting adolescent males' engagement in choral singing. Phoebe stressed that while Laura demonstrated exceptional patience, it was persistence that she needed to focus on improving. She quipped, “There ARE ways to single out students without being demeaning.” Freer (2015) noted that, adolescent males’ attitudes, and thus likelihood to remain in choir, was highly dependent on their rapport with the teacher. He pointed to the “teacher's personality and interest in adolescent males, the employment of appropriate pedagogical techniques for boys with changing voices, and an educational philosophy that compels the instruction of young men across all phases of vocal and identity development” (p. 105) Laura required extra support from Phoebe in navigating this area to strike a balance, rather than being hesitant to address a musical problem out of fear of jeopardizing rapport with a student.

Student teachers’ knowledge of individual learners will support the building of rapport, successful classroom management, and PCK. Laura described her surprise at the musical needs of her students, saying “I did not realize the degree to which some singers lack the ability to match their voice to the pitch they hear.” This realization shed light on Laura’s own abilities to respond to such needs. Laura explained, “I do not have the tools to lead a student through this struggle or provide tips to improve the connection.” Laura was also shocked to find how many students did not know how to read music. She stated, “I started taking piano when I was in second grade, so I am fluent in music reading.” She went on to proclaim her surprise to find that high school students didn’t have the same

background, saying, “They open up a score and they're like, what are these notes on the page, many cannot read music at all!” Score reading and music literacy is an added teaching responsibility beyond just teaching pitches to the choir. Laura exclaimed, “I didn’t know how much I would have to teach!” This sentiment aligns with Bonnie's previously mentioned perspective on understanding the existing content knowledge of a student teacher.

Summary

Several factors can influence a person's preparedness for student teaching, such as their prior musical experience and their training within their college program. In the cases discussed, both Josephine and Laura reflected on similar backgrounds in their upbringing, which involved instrumental and voice lessons, along with participation in choral ensembles. Their trajectories started to diverge when it came to their individual teacher preparation programs. The requirements and content of each program's methods classes seemed to differ. Further complicating matters were the effects of COVID on field experience and observation requirements. To further explore the student teachers’ perceptions of readiness to support adolescent voices, data from this study were categorized into three main themes: (1) The Impact of Personal Experience on Teaching, (2) Gaps and Inconsistencies in Teacher Preparation, and (3) Realizations During Student Teaching.

During our discussions, Josephine and Laura shared insights into their perceived areas of strength and areas for growth in teaching the adolescent voice. I discovered two areas, (1) Repertoire Selection and (2) Vocal Health, that the student teacher candidates

perceived as areas of particular strength. Areas perceived as emerging skills were (1) Changing Voices, (2) Vocal Anatomy, and (3) Teaching Practicum. As I observed their teaching samples, interviewed their cooperating teachers, reviewed their teacher preparation program requirements, and analyzed the syllabi of their methods courses, I found that their comments resonated well with their documented experiences. In the following chapter I will discuss these findings as they relate to future research and impacts on the field of music education.

Chapter Five

The purpose of this study was to explore the preparation of secondary choral educator candidates in Wisconsin, with specific regard to supporting adolescent voices. In this qualitative research study, guided by the principles of Pedagogical Content Knowledge (Shulman, 1986), I engaged in semi-structured interviews with student teachers and their cooperating mentor teachers at two schools. In this study, cases were bound by the university that each student teacher attended. Each case included a student teacher candidate and their cooperating teacher. To look more broadly at the state of Wisconsin, I sought to include more than one case; therefore, I chose a collective case study approach. Additionally, I collected syllabi from the participants' methods class and conducted a think-aloud interview using a video teaching sample provided by each participant. I aligned the collected data with the framework of Pedagogical Content Knowledge (PCK) as proposed by Shulman (1986) to highlight any emerging themes.

Choral music educators originate from diverse backgrounds, each forging a unique path of accumulated experiences that shapes their identity as both a musician and a teacher. Although choral educators teach about the same instrument, the voice, their comprehension of it may vary according to their past experiences and training. These experiences may encompass participation in school, church, or community ensembles, private lessons, and their respective college teacher preparation programs. Hence, an exploration of where teacher candidates acquire such knowledge and the role played by teacher preparation programs in imparting such knowledge could offer insights into the field of music education, revealing potential gaps and areas for growth. Findings may

inform curriculum planning for post-secondary choral education degree programs.

Due to the differences in degree program requirements and teacher licensure across states and institutions, preservice educators may undertake varying coursework, resulting in differing levels of pedagogical content knowledge. While governing accreditation bodies, such as the National Association of Schools of Music, establish standards, there are still multiple degree programs and pathways that institutions of higher learning can construct, all ultimately leading to the same licensure for teacher candidates. Moreover, candidates attending a university that offers a choral specialty will likely be seeking licensure to work with adolescent singers (May et al., 2017).

Pedagogical Content Knowledge (Shulman, 1986) served as the theoretical framework for this study. Pedagogical Content Knowledge (PCK) is the fusion or integration of pedagogy and subject content knowledge (Shing et al., 2015). Content knowledge, in this case, is knowing and understanding the adolescent voice. Pedagogical knowledge is knowing and understanding how to teach. A third, and equally important knowledge is that of the learner themselves. The amalgamation of these understandings results in PCK, or the ability to know and understand how to teach the adolescent voice. Proficiency in only one of these areas, such as content knowledge, as Millican (2003) pointed out, "does not guarantee that a person will be successful in conveying that knowledge or skill to others" (p. 45). Therefore, it is the combination of the two that form PCK.

This qualitative study enlisted a collective case study design. The musical and educational experiences of participants were explored through semi-structured

interviews, analysis of choral/vocal methods course syllabi, and the collection of a video teaching sample. The data were triangulated to highlight emergent themes. Findings of this study may be used to inform curriculum planning in postsecondary choral education degree programs.

Research Questions

The research questions addressed in this study were as follows:

1. Where, if at all, do preservice choral educators in Wisconsin report they gained their knowledge of the adolescent voice?
2. To what degree do preservice choral educators in Wisconsin perceive they are prepared to support adolescent voices in the secondary classroom?
    a. In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they are knowledgeable?
    b. In what specific areas of the adolescent voice, if any, do preservice choral educators perceive they need additional knowledge?
3. To what degree do cooperating teachers in Wisconsin perceive that preservice choral educators are prepared to support adolescent voices?

In what follows, I examine each of the research questions and provide discussion related to the findings of this study. I then give implications specific to each research question. I have chosen to pair these together because I believe there are implications that are directly related to each research question.

Knowledge of the Adolescent Voice

A specific objective of this study, as indicated in the first research question, was to pinpoint the origins from which Wisconsin preservice choral educators felt they were acquiring content knowledge related to adolescent voices. Several sources for such knowledge were identified through the analysis of participant interview data. In this study, the sources of knowledge were categorized into (1) prior experience of participants and (2) their teacher preparation program experiences. Data in this study indicated that participants' prior experiences involved engagement in school music classes, choral ensembles, and private voice and instrument lessons. Concurrently, their teacher preparation program experiences comprised field observations, methods classes, ensemble participation, and applied voice lessons. However, it is important to point out that the participants had differing methods classes, one based in vocal methods, and the other choral methods, which could have encompassed varying content knowledge. For example, when comparing the learning outcomes of the vocal methods course syllabus to the choral methods course syllabus, changing voices, vocal technique, sight reading, and piano skills are listed for choral methods but not vocal methods. Whereas, academic language, planning for special needs learners, and planning public performances were covered in the vocal methods syllabus and not in choral methods.

Furthermore, Chandler's (2012) study revealed differing educational backgrounds among methods teachers, indicating that not all instructors in choral/vocal methods classes originated from a vocal or choral background. This could also account for the difference in content knowledge acquisition of their students. For example, someone with

an instrumental background may have little awareness of the changing voice if they did not sing through that change themselves. In addition, as noted earlier, the syllabi of the methods courses taken by the participants also presented differences, further illustrating the divergence in the topic areas addressed across programs that ultimately lead to a common licensure.

Participants identified the aforementioned experiences in methods classes, private lessons, and K–12 school ensembles and university ensembles as their primary sources of knowledge about the adolescent voice. While participants may have gained content knowledge from seemingly common activities, such as both having sung in a high school chorus, it does not imply identical knowledge acquisition. The participants recounted distinct high school chorus experiences, with one recalling fond memories and the other highlighting a somewhat negative experience. However, neither participant recalled specific knowledge about the adolescent voice being imparted through that experience. Instead, they simply remembered their adolescent involvement in the act of singing in a chorus. Gebhardt (2016) underscored the significance of these early choral experiences in shaping adolescent singers, as they play a crucial role in fostering in them an awareness of their voices. Despite both participants' engagement in such adolescent choral experiences, both identified their private and collegiate voice lesson teachers as the main sources of voice pedagogy knowledge.

Implications for Teacher Preparation Programs

It is crucial for those delivering the content of teacher preparation programs to comprehend preservice educators' knowledge of adolescent voices, both prior to their

entry into the program and upon their completion of the program. This understanding is essential for effectively addressing any gaps in such knowledge by amending coursework and degree program requirements. Programs may elect to add onto field work requirements or perhaps expand methods classes beyond a single semester to cover more content. In some cases, it is not feasible to add additional fieldwork or expand methods classes. It may be a matter of addressing knowledge gaps within the current coursework rather than expecting additional coursework. When considering the data collected in this study, it appears that the participants began their teacher preparation programs with a differing set of prior skills and knowledge that they acquired through their own experiences. Yet, both participants were accepted into a course plan of seemingly standard scope and sequence, without regard to any prerequisite knowledge. There is an assumed similar history despite individuals in preservice programs having widely varying experiences.

In the case of this study, it was discovered that Josephine had only led a full choral rehearsal using her own collegiate peers before entering her student teaching experience leading adolescent voices. Instructing a room filled with experienced music majors is vastly distinct from leading a choir of middle school students. MacLeod and Walter (2011) pointed out that many respondents to a survey "cautioned against the use of peer teaching labs" (p. 9). Instead, respondents recommended increasing "internship opportunities" (p. 9), as these are opportunities to work with adolescents rather than other adults. Josephine and Laura experienced extremely minimal exposure to the age levels they would be teaching prior to their student teaching placements, both in observation

and in practicum. While, in this instance I may somewhat attribute this to the effects of COVID-19, I can still observe such disparities in practicum hour requirements in current syllabi and program descriptions.

Student Teacher Perceptions of Preparedness

Another important facet of PCK is that of pedagogical knowledge. Increasing one's pedagogical knowledge supports the transfer of content knowledge to others, thus facilitating the learning process. The second research question explored the participants' sense of readiness to put their PCK into practice through the teaching of adolescent singers. This question encompassed two sub-questions to identify the areas that participants felt most and least knowledgeable. Participants were asked to rate their overall preparedness to work with adolescent voices on a scale of 1–10, 1 representing the least prepared, and 10 representing the most prepared. Data collected in this study show that the two participants rated themselves on the higher end of the scale, Josephine choosing to represent her readiness as an "8", and Laura as a "7". Participants were asked to break down these ratings by specific topic, as discussed in-depth in chapter four. For the purposes of this discussion, I will include Table 1 here again as a visual reminder of these ratings:

Table 1

Participants' Rating of Self-Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Josephine	7	7	6	8	9	8
Laura	7	2	1	7	4	7

In analyzing the data, the first thing I noticed was the disconnect between what Josephine scored herself in each individual category, versus the commentary she provided. Josephine indicated her uneasiness in working with the changing voice many times during our discussions, yet she rated herself highly in her preparedness to teach them. Killian (2003) found that, while teachers may be aware of issues surrounding the voice change, many employed pedagogical techniques in the classroom that were not successful in supporting such changing voices. I observed this disconnect in Josephine's teaching sample, where she was frequently unaware of what the male changing voices were doing within the rehearsal, often not hearing when they were struggling to match pitch until I pointed it out. This resulted in students rehearsing the same section of music multiple times incorrectly, without being made aware of the error or offered an alternative approach. In addition, when asked to identify the area of knowledge she perceived as an area of growth, Josephine replied "the male voice change and how to best help my students during that process." The literature (Cooksey & Welch, 1998; Freer, 2015; Gebhardt, 2016; Harries et. al., 1998; Killian, 1997; Killian, 2003) emphasized the magnitude of the voice change on male singers and the importance of evidence-based

instruction during this time to maintain vocal health, mental health, and retention of male voices in choir. It is possible that, while Josephine felt confident in her awareness and knowledge of the voice change, her pedagogical knowledge of what to do when faced with such an issue in the classroom was lacking. This may link back to her rehearsal experience being mostly with her college peers where the adolescent changing voice was not observed.

Josephine identified vowels and warm-ups as the areas she felt most knowledgeable in when teaching the adolescent voice. This is important because Spurgeon (2004) specifically identified choral directors' approaches to vowel unification as a potential cause for vocal distress in adolescent singers when the director does not possess a strong background in vocal pedagogy. In Josephine's case, she felt confident in her understanding of vocal pedagogy, however she was more conflicted with her feelings of confidence regarding the pedagogy of the male changing voice. As noted in chapter 4, I observed that she was confident in her delivery of warm-ups, however she mostly avoided the male changing voices in that there were no warmups geared specifically to them. In addition, she did not address any of the challenges they may have been facing throughout the warmup. She used language and gestures that encouraged vertical space of vowel placements but did not use specific descriptions of resonance or tone quality that she was trying to get them to achieve. It would seem that the changing voice of both males and females is an important topic of vocal pedagogy, but having the knowledge of the phenomena may not be enough to support the teaching of it. This may indicate an emerging skill level in the pedagogical knowledge aspect of PCK. A more profound

understanding of pedagogical knowledge of the adolescent changing voice could potentially influence her choices for warm-up routines and instructional practices in the future.

Conversely, Laura's ratings stood out to me, but in the reverse manner of Josephine's. Laura highly rated her overall readiness despite her low ratings in several of the individual categories. Her highest ratings fell within the categories of repertoire and vocal health. This may suggest that these are categories that Laura feels are most important to being a successful choral educator. However, she admittedly felt less confident to address changing voices in the choral setting, stating, "I wish teacher preparation classes offered more discussion about changing voices…". Additionally, she doubted her knowledge in the areas of transgender voices and vocal anatomy.

Separating these areas of knowledge into their own rating categories was important in order to pinpoint and clarify participants' thoughts on the topics; however, in looking at them from a broader lens, they are highly dependent on one another. Such a dependence may suggest a disconnect in participant thinking when rating individual categories, seeing as some categories may be important to one another, therefore one category perhaps should not be rated higher than another. A specific example may be Josephine's rating of "9" for vocal anatomy, yet she assigned only a "7" to voice change. Voice change is an anatomical occurrence, thus falling under the heading of vocal anatomy. This may suggest a lower score for readiness to teach vocal anatomy, considering that understanding the voice change is a large piece of the whole. Similarly, Laura rates herself as a "2" and "4" for voice change and vocal anatomy, respectively.

These are two categories that are highly important to teaching the adolescent voice, yet her overall readiness score remains high at a "7". This may suggest that participants place a different level of value on individual categories in terms of what is important to them being a successful choral director.

The third piece of knowledge required for PCK is that of the learner themselves. Not all learners, or voices in this case, are alike. Not all voice changes stem from the same progression of hormonal growth. While Josephine and Laura rated themselves on opposite ends of the scale when describing their readiness to instruct transgender voices, it seemed that both had similar experience, neither noting any classroom engagement with transgender voices. Josephine's high rating of her readiness to teach the trans voice, despite any classroom experience, may again point to her possessing content knowledge but lacking in pedagogical knowledge. Garrett and Palkki (2021) stressed the need for choral educators to be prepared to work with transgender students and make modifications for them within the choral ensemble as they would for any student requiring differentiated instruction. Again, this is a critical issue affecting adolescent voices that play a significant role in determining the preparedness of future choral educators to work with adolescent singers. As was true with changing voice preparation, it is important for student teachers to spend as much time as possible with adolescent singers to gain the experience they need to support transgender voices.

As the researcher, I took care to avoid gendering the term "changing voice" so that it was not implied to be solely a male or female experience. Despite this, participants only referred to the male experience when discussing the adolescent voice change.

Researchers (Gackle, 1991; Sweet, 2015, 2018) state that both males and females experience adolescent voice change, yet there is far less scholarly research available on the female perspective. This gap in research may suggest that a lack of PCK on the topic exists. It was also discovered that methods syllabi reviewed in this study solely referred to boys changing voices. Therefore, teacher preparation programs may consider adding more on the female voice change to their current curriculums to better support emerging educators.

Implications for Teacher Preparation Programs

I discovered several potential considerations for choral teacher preparation programs through the analysis of data. The first is that students do not know what they do not know. In other words, there may be a level of unawareness when it comes to what a choral educator needs to know to be successful in the secondary setting. Some studies suggest that the perceptions all student teachers have about their knowledge may be important to explore further. In the case of art student teachers, Zimmerman (1994) stated:

> Research about knowing subject matter content, how that subject matter content is put into practice in art teacher preservice education programs and the impact of outside influences need to be explored through a carefully constructed agenda rather than through idiosyncratic studies that are not generalizable to other contexts (p. 86).

If one does not know that a skill set or base of knowledge on a topic exists, or is necessary to explore, they may have a false sense of proficiency in that area. Teacher

preparation programs might benefit from implementing something akin to a placement exam upon entrance to the program to measure one's prior knowledge of vocal anatomy and pedagogy.

When choral educators arrive in their own classroom jobs, they may find they are able to reflect more deeply upon their preparation. Ballantyne & Packer (2004) found that participants were not satisfied with the training they received in their secondary music teaching classes and described their knowledge as "greatly lacking" (p. 310). Findings from this study found several areas that student teachers felt well prepared to engage with in their own classrooms, while also identifying areas for growth. Teacher preparation programs may choose to revise their curriculums based on this knowledge, perhaps working collaboratively with recent graduates who are serving in the field to survey their perceptions regarding their preparedness. This may provide invaluable insight to teacher preparation programs that would inform more extensive coverage of areas that students have identified as needing additional support.

Finally, there is a misconception, or complete lack of knowledge specifically surrounding the female adolescent voice change. Gackle (1991) bluntly called out teacher preparation programs for being "woefully inadequate" in their attempt to address the female changing voice (p. 17). More recent studies have suggested this problem still exists. Sweet (2015) pointed out that since Gackle's (1991) Publication, only five articles in the Choral Journal had addressed female voice change. Sweet (2015) went on to explain that this lack of research is in stark contrast to that of the male voice change.

> "In 1977, the Choral Journal (the American Choral Director Association's flagship Publication) first published John Cooksey's stages of adolescent male voice change. Since that time, 31 articles and two special issues have addressed the adolescent male changing voice" (Sweet, 2016).

PCK might address this problem as two-fold, in that if the content knowledge of the female changing voice is still emerging, then the pedagogical knowledge surrounding it may also need to be strengthened. Teacher preparation programs might include such discussions in courses such as vocal pedagogy and/or methods classes that are specific to choral teaching to build the PCK of this important topic among choral educators.

Cooperating Teacher Perceptions of Preparedness

The third and concluding research question examined in this study explores the perspectives of cooperating teachers regarding the readiness of their student teacher candidates to instruct adolescent voices. Cooperating teachers were asked to score the student teachers in the same categories that the students had rated themselves in. Table 2 is included again here as a reminder of their responses:

Table 2

Cooperating Teacher Ratings for Student Teacher Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Bonnie	DNO	6	DNO	7	6	7
Phoebe	5	6	1	DNO	DNO	7

Note. "DNO" denotes "did not observe" the skill.

It is immediately evident that there is some disagreement between student teacher candidates' self-perceptions of preparedness with that of their cooperating teachers. While the overall preparedness scores were closely aligned, the ratings in the individual topic categories differed. Both Josephine and Laura scored their readiness to select appropriate repertoire at a "7", their cooperating teachers, however, did not feel that they were able to observe this skill during the student teaching placement. Phoebe mentioned that she had done most of the repertoire selection prior to Laura arriving to student teach. Despite this, Phoebe still assigned a rating of "5" to Laura's readiness to select repertoire. This may have been based simply on their prior conversations about repertoire that I did not observe. It is possible for students to perceive readiness without demonstrating it. Additionally, Laura's methods course syllabus specifically indicates appropriate repertoire selection as a learning outcome for the class. Likewise, Bonnie stated that their repertoire had also been preselected for a district festival before Josephine began teaching. Josephine's methods course syllabi also listed appropriate repertoire selection as a learning outcome of the course. Therefore, Laura and Josephine solely rated themselves on their readiness for repertoire selection based on their content knowledge from their teacher preparation program.

Repertoire is a main component of the choral curriculum. Deyton (2018) characterized repertoire selection as the foremost task for a choral educator. Researchers (Cooksey & Welch, 1998; Deyton, 2018; Kotara, 2013) found that repertoire had a direct effect on the singing technique of changing voices. Therefore, it is important that student teacher candidates build confidence in their ability to choose appropriate repertoire for

adolescent voices. Specifically, gaining such confidence by working collaboratively with their cooperating teacher to select the repertoire that they will be teaching throughout their placement. Due to student teaching placements taking place at multiple junctures within the school year, it is not always possible for student teachers to work collaboratively with their cooperating teachers to select repertoire, thus missing out on an opportunity to gain knowledge in this area.

In addition to the numerical ratings, Bonnie and Phoebe added additional thoughts to the discussion of student teacher preparedness for working with adolescent voices. Bonnie found this line of questioning intriguing, mentioning that she had not given much thought to what student teachers know or do not know when they enter her classroom for their student teaching. Building on this, she also revealed that she had not considered the content covered in teacher preparation courses. She expressed interest in exploring these aspects further by asking future incoming student teachers about their experiences leading up to student teaching. Similarly, Phoebe reflected on experiences that she believed student teachers would benefit from, however she noted that these added experiences may be hard to staff, such as college supervised coaching of adolescent voices. According to Phoebe, it may be helpful for teacher candidates to work with adolescent voices one on one in collaboration with a professor or supervisor to gain more tools for working with this age group. A frequently occurring comment that surfaced in discussion with both Phoebe and Bonnie was that student teachers simply need more time working in real classrooms with real students. Such experience may account for the difference in a student teacher being rated with an overall readiness of “7”, as they were

in this study, versus a potentially higher score.

Implications for Teacher Preparation Programs

Because I have had prior experience with hosting student teachers, I was not surprised by Phoebe's and Bonnie's desire to have closer communication with teacher preparation programs. I echo that sentiment, recognizing the need for more information about what student teachers are taught before arriving in their placements. Given their potentially limited exposure to classroom teaching before placement, a cooperating teacher becomes the primary source for ensuring that gaps in knowledge are addressed by the end of the placement. However, if there is a skill set, as highlighted in this study, that a cooperating teacher does not have the opportunity to observe, they may not be aware that a gap in knowledge exists. A more collaborative and communicative relationship between preservice programs and cooperating teachers might help alleviate this issue. While cooperating teachers may hear from the college supervisor a few times per placement to coordinate evaluations, such communication often does not occur until a student is already in the crux of their experience.

It might also be valuable to assign mentor teachers to teacher candidates upon their acceptance to the degree program, providing them with mentorship that spans the entire process rather than just the culmination. This practice could connect teacher candidates with real life experiences earlier and allow teacher preparation programs and cooperating teachers to work cohesively over a longer period. Thus, this may aid in strengthening candidates' perceptions of readiness to support adolescent voices among other benefits.

Implications for State Licensure

In addition to the teacher preparation program implications that followed each research question, I also believe that there may be implications for state licensure boards. While teacher preparation programs might consider individually expanding upon the field experiences offered to candidates, it may also be impactful to discuss formal changes in state licensure requirements. Perhaps, going as far as requiring a placement at each level that one is being licensed in. As a reminder, a student teacher candidate in Wisconsin only needs to complete placements at two of the three age levels (Elementary, Middle School, High School) to gain licensure in K–12. NASM's comprehensive list of standards for essential competencies is justified, but it prompts the question to state licensure boards about the time and experiences required to develop such competencies throughout the duration of a degree and/or licensure program.

Reflecting on Theoretical Framework

I used Pedagogical Content Knowledge (Shulman, 1986) as a lens through which to examine Wisconsin pre-service educators' preparedness for supporting adolescent voices. This framework allowed me to consider each student teachers' content knowledge, pedagogical knowledge, and learner knowledge, as well as their sources of such knowledge. This theoretical perspective was fitting for the purposes of this study as it allowed me to observe where gaps existed in knowledge. It brought to the surface the disconnect between each facet of knowledge in Josephine's case. Josephine was found to have a strong basis for content knowledge but not pedagogical knowledge. This was evident in her teaching sample where she struggled to implement pedagogical techniques

to address challenges that she identified within the choir. Her content knowledge allowed her to identify the problem, but her pedagogical uncertainty prevented her from fixing the problem successfully.

Limitations and Areas of Future Research

Only two student teachers and two cooperating teachers were interviewed in this study, thus the results are not generalizable beyond these specific scenarios. It is also important to point out that this study does not, and cannot, uncover every single topic that was discussed over the course of one's teacher preparation program. In addition, I was not present in the classroom engaging in daily observation of the participants. Therefore, further research may consider analyzing not only the topics covered in choral teacher preparation curriculum, but the retention rate of such knowledge over the course of the program. It is possible that the knowledge that participants indicated were lacking was covered in some aspect of their studies and simply not retained. Future research may aim to discover more optimal periods of time to dedicate to a topic before it can be committed to memory and absorbed into practice. Finally, when considering ratings of preparedness, it is important to consider that how one participant views a numerical rating may be different from another. Hence, a "7" may hold different meanings from person to person.

Teacher Candidate Perspectives

One of the main objectives of this study was to understand preservice teachers' perceptions of their knowledge of the adolescent voice and identify the sources of such knowledge. Identifying gaps in PCK can inform the curriculum in both teacher preparation programs and professional development for in-service educators. Future

researchers might collect entrance interviews/questionnaires from incoming students to measure their content knowledge regarding the adolescent voice upon acceptance to the program. They may also choose to specifically inquire about experiences with transgender voices. This appears to be an area that pre-service educators may lack field experience in. As such, pre-service educators' PCK for supporting transgender voices may need strengthening. If teacher preparation programs strive to improve the overall pedagogical knowledge of pre-service choral educators, it is also possible that they will be able to support all voices, regardless of gender identity. Strong choral pedagogy translates to strong pedagogy of all voice identities. Sauerland (2022) pointed to the importance for teachers to stretch their understanding beyond vocal pedagogy alone when supporting trans voices. It is imperative for teachers to understand transgender singers' lived experiences and "how they see themselves in the world" (p. 2) to fully support their singing experience. Sauerland's (2002) book, *Queering Vocal Pedagogy,* is an invaluable resource for voice educators who wish to learn more on the topic of supporting transgender voices.

Furthermore, teacher preparation programs might also collect similar data upon each candidate's exit from the program for comparison. To take that data collection one step further, it would be interesting to follow up with those teachers in their employment positions to see if and how their knowledge of the adolescent voice has changed after several years on the job. Triangulating this data could provide valuable insights for implementing meaningful changes in teacher preparation programs to better equip teacher candidates for a successful career working with adolescent singers in the choral setting. It

may also encourage a closer look into in-service educators' understandings of the adolescent voice as the needs of this age group are constantly evolving and may require professional development on the topic.

Findings of this study also point to a significant gap in research surrounding the female adolescent voice which may be leading to a deficit in PCK for those in the field. Future researchers may consider delving deeper into this area to better inform how teacher candidates are being prepared to instruct the female adolescent voice during such changes.

Cooperating Teacher Perspectives

Future research may benefit from delving deeper into the perspectives of the cooperating teachers who work with teacher candidates in their culminating experience. It is these professionals who are giving of their time and expertise to train future generations of teachers, and their insights into such a process are valuable to teacher preparation programs and to the broader field of vocal and choral music. They spend a great deal of individualized time with teacher candidates, observing their work, noticing their strengths and weaknesses, discussing their self-perceptions, and experiencing their skill sets firsthand. As mentioned earlier, Bonnie had not given much thought to student teachers' prior knowledge, however with a new awareness of such, she, and all cooperating teachers, may be the first to identify patterns in knowledge gaps of students coming from the same program of study. Learning more about what they see and hear from the next generation of educators will strengthen our understanding for what they need in terms of support and education, thus heightening the quality of education that

their students will receive. Specifically, working to strengthen the PCK of the adolescent voice may have a positive impact on the singing techniques and retention of adolescent singers in choir.

Conclusions

Preservice educators acquire their content knowledge from a variety of sources prior to, during, and following their engagement in a teacher preparation program. Accrediting bodies and state licensure boards work to set forth a common set of suggested standards and competencies for teacher preparation programs to base their degree program curriculums on. Institutions then make their own interpretations of those standards to build their degree programs, coursework, and licensure paths for choral teacher candidates. Each institution is bound by a plethora of rules they must adhere to when developing degree tracks, which makes it difficult to simply add new coursework in response to a perceived need; however engagement in the identification of students' prior PCK surrounding the adolescent voice, as well as collaboration with cooperating teachers to discover any areas for growth in such PCK, might better inform the scope and sequence of existing coursework within teacher preparation programs as well as requirements set forth by state licensure boards. Although this study had a limited scope and does not provide a universally applicable dataset, its objective was to explore the preparation of preservice choral educators to support adolescent voices, foster discussion surrounding the data, and make recommendations for future research on the topic.

At the end of the day a choral educator's primary job is to meet the needs of every human that fills the seats in front of them. Therefore, the most important takeaway from

this study is that learning the content, pedagogy, and needs of the individual singers are imperative to supporting adolescent voices through what can be a difficult transition in their vocal development. As someone who struggled with vocal health and perhaps had not acquired the PCK of my own adolescent voice that I should have through my prior experiences, these findings will undoubtedly inform my future teaching of pre-service educators. I will strive to emphasize the importance of having knowledge of content and pedagogy, as well as an awareness of individual student needs. In addition, I will carefully instruct the topic of changing voices to include both the male and female perspectives as well as supporting gender identity through sound vocal pedagogy within the choral classroom.

Appendix A: Consent Form

Protocol Title: An Exploration of Wisconsin Choral Educator Preparation for Supporting Adolescent Singers
Principal Investigator: Rita N. Gentile
Description of Study Population: Student Teacher Candidates, Cooperating Classroom Teachers
Version Date: July 11th, 2023

To: *Music Teacher*
Re: Informed Consent Form for Research Study

Invitation to Participate

You are being invited to participate in a research study that will be conducted as part of my doctoral studies in Music Education at Boston University. The purpose of my research study is to explore the preparation of secondary choral teacher candidates with specific regard to working with adolescent voices. We are asking you to take part in this study because you are a student teacher or cooperating classroom teacher participating in an accredited choral licensure program in the state of Wisconsin.

Participants who take part in this research study will be in this research study for a maximum of 9 weeks. During this time, I will conduct two interviews via Zoom with the student teacher and one interview with the cooperating teacher, lasting approximately 45–60 minutes each**.** A brief third interview with the student teacher will be conducted via email. Participants taking part in this study will share one self-recorded teaching example, lesson plans, or any other artifacts that can aid the research study.

There are no risks involved when taking part in this research study.

Introduction

Please read this form carefully. The purpose of this form is to provide you with important information about taking part in a research study. If you have any questions about the research or any portion of this form, please ask me. Taking part in this research study is up to you. If you decide to take part in this research study and accept the conditions outlined, I will ask you to check the relevant boxes and sign page 3 of this form. I will give you a copy of the signed form.

What should I know about a research study?

Participation in research is voluntary, which means that it is something for which you volunteer. It is your choice to participate in the study, or not to participate. If you choose to participate now, you may change your mind and stop participating later. If you decide not to participate, that decision will not result in any penalty or loss of benefits to which you are otherwise entitled.

How long will I take part in this research study?

You will be in this research study for approximately 9 weeks. An initial Zoom interview will be conducted with the student during weeks 1–2, a second Zoom interview in week 8 will focus on a video teaching example provided by the participant, and a follow up email interview will occur in week 9. The cooperating teacher will be given one Zoom interview in weeks 8–9. All Zoom interviews will last approximately 45–60 minutes and will be scheduled at the convenience of the participant. During the interviews, we will discuss your background and education surrounding the adolescent voice, where you may have gained your knowledge on the topic, and your perceptions of your current teaching as you reflect on the video example you provide. All interviews will be recorded via Zoom for transcription purposes. If you do not wish to be audio or video recorded during the interviews, notes will be taken by hand. Transcriptions of all interviews will be provided to you to review for accuracy. Your classroom students will not be recorded at any time, as the camera angle should be focused on the student teacher for the requested teaching sample.

Loss of Confidentiality

I will protect your privacy by using pseudonyms (fake names) and your information will not be shared with a third party. Your information will be stored in a password-protected computer.

Will I get paid for taking part in this research study?

You will not be paid for taking part in this study.

What will it cost me to take part in this research study?

There are no costs to you for taking part in this research study.

Sincerely,

Rita N. Gentile
DMA Candidate in Music Education, Boston University
[redacted]

Dr. Bridget Sweet
Associate Professor of Music, University of Illinois-Urbana Champaign
bsweet@illinois.edu

Dr. Kelly Bylica
Assistant Professor of Music, Boston University
kbylica@bu.edu

CONSENT FORM

I consent to the use of unidentified quotes obtained during the study in the dissemination of this research.

☐ **YES** ☐ **NO**

I agree to let the researchers make copies of my lesson planning materials for this study.

☐ **YES** ☐ **NO**

I agree to participate in the following (check all that apply):

☐ **INTERVIEWS**

I agree to be (check all that apply):

☐ **Video-Recorded** ☐ **Audio-Recorded** ☐ **Neither audio nor video-recorded**

Statement of Consent

I have read the information in this consent form and have had the nature of the study explained to me. I have been given the chance to ask questions, my questions have been answered to my satisfaction, and I agree to participate in the study.

SIGNATURE

_____

Name of Study Participant

_____ _____

Signature of Study Participant Date

I have explained the research to the research participant and answered all their questions. I will give a copy of the signed consent form to the participant.

_____

Name of Person Obtaining Consent

_____ _____

Signature of Person Obtaining Consent Date

APPENDIX B: Interview Questions

Student Teacher Interview Questions #1:

1. Tell me how you got to this point as a musician?
    - Did you take voice or instrument lessons?
    - Did you sing or play an instrument in an ensemble/s?

2. Tell me what you think about when you consider the adolescent singing voice?
    - From where or who, do you feel you gained your knowledge of the singing voice?
    - From where or who did you gain your first experience with the singing voice?

3. What is your prior experience with working with adolescent voices before this placement?
    - Did you complete observation/practicum hours in the classroom? Tell me about that.
    - Did you design/execute lesson plans for adolescent voices? Tell me about that.

4. Was the adolescent voice a topic in any of your classes throughout your preparation for student teaching?
    - Which class or classes?
    - To what extent?
    - Do you remember any specific topics that you discussed related to the adolescent voice?

5. What do you feel are the most important things to consider when planning and delivering instruction for adolescent voices?

6. Do you see yourself working with adolescent voices? Why or why not?
    - If not, is it a preparation issue or a lack of interest?

7. What are you hoping to learn/observe about the adolescent voice from your cooperating teacher before you take over the classroom?

8. What do you feel most comfortable addressing with adolescent voices? Why?
    - Where did you learn about that?
    - What do you feel the least confident in addressing? Why?

9. Is there anything that you'd like to discuss that we haven't talked about yet?

Student Teacher Interview Questions #3:
Now that you have completed your placement….

1. Do you feel prepared to work with adolescent voices in your own classroom?
    - Rate your readiness on a scale of 1–10 (1 being not ready at all and 10 being most ready)
    - Tell me why you chose that number?

2. In what areas of the adolescent voice do you feel most knowledgeable?
    - In what areas do you feel least knowledgeable?

3. In hindsight, are there any adolescent voice topics you wish you would have discussed in the teacher preparation classes leading up to your student teaching experience?
    - If yes, what specific topics?

4. Rate your readiness in these specific areas(1 being not ready at all and 10 being most ready):
        - Readiness to select appropriate repertoire (1–10)
            - Why did you select that number?
        - Readiness to instruct changing voices (1–10)
            - Why did you select that number?
        - Readiness to instruct trans voices (1–10)
            - Why did you select that number?
        - Readiness to instruct vocal health practices (1–10)
            - Why did you select that number?
        - Readiness to teach about vocal anatomy (1–10)
            - Why did you select that number?

5. Is there anything that you'd like to discuss that we haven't talked about yet?

Cooperating Teacher Interview Questions

1. How long have you been a choral teacher?

2. Looking back on your pre-service days, from where or who do you remember gaining your knowledge of the voice from?

3. What do you feel are the most important things to take into consideration when planning and delivering instruction for adolescent voices?

4. Have you mentored choral student teachers prior to this placement?
    - If yes…. In your experience, what areas of the adolescent voice do you find student teachers' most prepared to address? What areas do you feel they have the least knowledge?

5. Do you feel that your current student teacher was knowledgeable about the needs of the adolescent voice at the start of his/her placement?
    - What were their specific strengths/weaknesses in working with adolescent voices that you initially observed?
    - Have those strengths/weaknesses changed by the completion of their placement?
    - What knowledge or experience, if any, do you wish they would have had prior to starting this placement?

6. If only taking into consideration their knowledge of and ability to teach the adolescent voice, is your current student teacher prepared to successfully instruct their own choral classroom? Why or why not?
    - If you had to rate their overall readiness to instruct adolescent voices on a scale of 1–10 (1 being not ready at all, and 10 being most ready) what would you rate them, why?
    - What about in these specific categories:
        - Readiness to select appropriate repertoire (1–10) or did not observe
            - Why did you select that number?
        - Readiness to instruct changing voices (1–10) or did not observe
        - Readiness to instruct transgender voices (1–10) or did not observe
        - Readiness to instruct vocal health practices (1–10) or did not observe
        - Readiness to teach about vocal anatomy (1–10) or did not observe

APPENDIX C: Tables

Table C1

Participants' Rating of Self-Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Josephine	7	7	6	8	9	8
Laura	7	2	1	7	4	7

Table C2

Cooperating Teacher Ratings for Student Teacher Preparedness

Participant	Repertoire Selection	Changing Voices	Transgender Voices	Vocal Health	Vocal Anatomy	Overall Readiness
Bonnie	DNO	6	DNO	7	6	7
Phoebe	5	6	1	DNO	DNO	7

Note. "DNO" denotes "did not observe" the skill.

APPENDIX D: IRB Determination Letter

Gmail Rita Gentile

Gentile 7095X Signed Determination Letter
3 messages

Pena, Yamelly Esther <penay@bu.edu> Thu, Jul 6, 2023 at 10:32 AM
To: "Gentile, Rita" <rgentile@bu.edu>
Cc: "Bylica, Kelly" <kbylica@bu.edu>

Hello Rita,

Thank you for submitting your Determination application. Based on the completion of this form, it was determined this study does not require IRB review. I have attached the signed Determination form for your records.

Best regards,

Yamelly

Yamelly Pena, MA (she/her)

Sr. IRB Analyst

Institutional Review Board

Boston University (Remote)

Charles River Campus

BU 25 Buick St, Room 158

Boston, MA 02215

penay@bu.edu

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