

UNDERSTANDING THE DEVELOPING FEMALE

VOICE: A LITERARY REVIEW

by

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VOICE: A LITERARY REVIEW

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ABSTRACT

The purpose of this paper was to identify and discuss the published texts available on the developing female voice and the adolescent female voice change. Materials were gathered from various scholarly journals and published books to thoroughly summarize the current research on this topic. For the purposes of this paper, I will only be discussing publications based solely on the female voice or works where significant contributions were made to the whole of this topic. I will not be discussing publications that briefly acknowledge the female voice change or deny its existence at all. Current pedagogical research is heavily focused on the male voice change and, while that is an area of significance, there is a lack of focus on and understanding of the adolescent female voice change. It is important to note that the author of this work recognizes the transgender community and the unique challenges they face in their vocal development. However, for the purposes of this paper, this study will be operating in the gender binary.

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Introduction

In the last 50 years, the adolescent voice and voice change has become a topic of increased interest from researchers and choral educators alike. In 1977, the *Choral Journal* (associated with the American Choral Director Association) published John Cooksey's work defining the stages of the male voice change. Since then, there have been over 31 publications in the *Choral Journal* alone on the male voice change.¹ It is no secret that the rapid growth of the male larynx during adolescence makes for a drastic shift in the range and timbre of the male voice. The dramatic nature of that growth has drawn many researchers to study this change and, while it is a worthwhile area of research, the abundant nature of this research has caused the female voice change to be long overlooked.

In 1985, Lynn Gackle published her work on the phases of the adolescent female changing voice. This was the first article of its kind and only 5 articles had been published in the *Choral Journal* regarding the female voice change as of 2018.² Few have been published anywhere since, and this paper will examine published works from all available journals and publications on the adolescent female voice. The lack of research in this area is alarming and has created a plethora of issues for young female singers, especially in choral classrooms. Those

1. Sweet, Bridget. "Voice Change and Singing Experiences of Adolescent Females." *Journal of Research in Music Education* 66, no. 2 (2018): 133–49.

2. Sweet, "Singing Experiences," 134

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issues will be highlighted in this paper as an effort to inform choral directors and voice teachers of the mal practices and misconceptions in working with this vocal demographic.

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A Chronological Look at Available Research**Gackle**

In 1985, Lynn Gackle published “The Young Adolescent Female Voice (Ages 11-15): Classification, Placement, and Development of Tone”. This article pioneered female voice research as no article had ever defined stages of female vocal development. She began by addressing that the female voice change is not accompanied by an outward physical manifestation, like that of the appearance of the thyroid cartilage (Adam’s apple) in a male.³ She goes on to discuss the resources available on the male voice, and points out that prior to her research, “No point of reference concerning the development of tone existed except information about boychoirs and the boy's changing voice.”⁴ Finally, she describes the tone and timbre of the female changing voice and gives voice teachers and choral directors specific markers they can look for in a changing voice such as “suddenly, it has become difficult to sing high; it "hurts"; it is "easier" and takes less effort to sing in the chest voice (not only is more volume produced here, but also singing with the radio certainly lends itself to this register!).”⁵ This is the first time that a common theme in female vocal research is mentioned: the problem with utilizing popular singers as vocal models. This is discussed in later publications, in addition to several other common issues.

3. Huff-Gackle, Lynne. “The Young Adolescent Female Voice (Ages 11-15): Classification, Placement, and Development of Tone.” *The Choral Journal* 25, no. 8 (1985): 15–18.

4. Huff-Gackle, “Female Voice (Ages 11-15),” 15

5. Huff-Gackle, “Female Voice (Ages 11-15),” 15

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Gackle continues the article by defining stages of the female vocal development (see **Chart 1**). This had never been done before and revolutionized adolescent female voice research.

Chart 1

Stage	Age	Characteristics	Important notes
I	9-11	Pure, flute-like quality, pure head voice quality	At ages 8-10, girls and boys have nearly the same vocal color and quality.
II	Level 1 – 11-12	The voice tends to be breathy due to the mutational chink, hoarseness, sore throats, incomplete phonation in the passagio	Depending on other physical changes, this may not occur until 12 or 13
	Level 2 – 12-13	Range narrows	It is crucial to listen to the voice at least 2 or 3 times in this 4-to-6-month period. Voices may change in this short time.
III	Level 1 – 13-14	Clarity comes back into the sound, no major breathiness	Work range in both directions
	Level 2 – 14-15	Fuller and richer tone, vibrato may begin to enter	

Information from Lynn Gackle's "Characteristic Stages of Development in the Adolescent Female Voice" from "The Young Adolescent Female Voice (Ages 11-15): Classification, Placement, and Development of Tone" (1985).

She concludes this article by giving recommendations to choral directors on where to voice these students depending on which stage of development they are in. One suggestion is that “the voice going through Stage Two, Level I, should be placed wherever the greatest flexibility lies in the voice.”⁶ This article is an essential pillar of research on this topic, and only the beginning of Lynn Gackle’s contributions to what we understand of the female voice change.

6. Huff-Gackle, “Female Voice (Ages 11-15),” 17

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In 1991, Gackle continued her research in her article titled “The Adolescent Female Voice Characteristics of Change and Stages of Development”. In this work, she expanded on her points made in her 1985 publication and identified fears of choral educators working with adolescents, “music educators and choral conductors are often under-prepared for working effectively with the special needs of adolescent voices.”⁷ This comment highlighted the importance of this research. The more choral conductors and music educators have access to information on this topic, the less they will approach teaching this demographic with anxiety, and the more well-informed their teaching practices will be. She indicates that the largest problem in the preparation of these music educators is with inadequacies in their college education. Universities tend to overlook or speed through this conversation with their students, moving to more artistic and advanced topics that may be more useful in a high school or collegiate teaching setting. Knowledge on the developing voice, both male and female, is the foundation of teaching healthy singing practices to all ages and is crucial for every educator to understand.

The remainder of this essay is an expansion on Gackle’s points in her previous article. She begins by listing symptoms of the female voice change (see right). In addition, she notes that the student will feel

1. insecurity of pitch;
2. development of noticeable register breaks;
3. increased huskiness in the voice;
4. decreased and inconsistent range capabilities;
5. voice cracking;
6. hoarseness;
7. generally uncomfortable singing or difficulty in phonation.⁶

7. Gackle, Lynne. “The Adolescent Female Voice: Characteristics of Change and Stages of Development.” *The Choral Journal* 31, no. 8 (1991): 17–25.

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a loss of “ease” in her singing and that her voice may become breathy and thin due to “muscular immaturity, lack of control and coordination of the breathing muscles, and insufficient voice development.”⁸ Gackle then elaborates on her stages previously proposed in her 1985 article. She adds more descriptive language and the fundamental frequencies of the speaking voice (See **Chart 2**).

8. Gackle, “Characteristics of Change,” 18

Chart 2

Stage	Age	Speaking Voice (fundamental frequency)	Singing Characteristics
Stage I: Prepubertal	8-10 (11)	260 Hz - 290 Hz (C4 - D4); * Acceptable limits: 225 Hz - 350 Hz (A3 - F4)	Light, flute-like quality; - No apparent register breaks; - Soprano quality; - Flexible, able to manage intervallic skips; - Much like the male voice at the same age with the exception that the female voice is lighter in weight because the volume potential is generally not as great. Depending on other physiological changes (i.e., breast development, menarche) this stage could continue through age 12 or 13.
Stage IIA: Pubescence/Pre-Menarcheal	11-12 (13)	245 Hz - 275 Hz (B3 - C-sharp4); * Acceptable limits - 235 Hz - 290 Hz (A-sharp3 - D4)	Breathiness in the tone due to appearance of mutational chink, an inadequate closure of the vocal folds as growth occurs in the laryngeal area; - Register break appears between G4 and B4; - If not using lower (chest) voice, there is apparent loss of lower range - around C4 (Some girls have trouble producing

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			<p>chest voice at this time.).</p> <p>Symptomatic Signs:</p> <ul style="list-style-type: none"> - Difficulty or discomfort with singing; - Difficulty in achieving volume (especially in middle and upper range); - Breathy tone throughout upper range (head voice). - Fuller tone in lower/chest range; obvious flip into breathy, child-like, fluty voice at transition from lower to upper registers.
Stage IIB: Puberty/Post-Menarcheal	13-14 (15)	<p>225 Hz - 275 Hz (A3 - C-sharp4); 'Acceptable limits: 195 Hz - 290 Hz (G3 - D4);</p> <p>Huskiness is inherent, but the voice begins to change in weight and timbre.</p>	<p>Very critical time; After the Stage IIA, (Pre Menarcheal), tessituras can move up or down, or sometimes, can narrow at either end, yielding basically a five- or six-note range of comfortable singing.</p> <ul style="list-style-type: none"> - Register breaks still apparent between G4 and B4, and also at D5 to F-sharp5; - At times, lower notes are more easily produced, yielding an illusion of an alto quality; singing in this range may be easier and can be recommended for short periods of time; singing only in the lower range for an indefinite period of time can be injurious to the young unsettled voice because of the tendency to overuse the lower (chest) register. - Vocalization should occur throughout the vocal range, always striving to avoid any unnecessary strain in the lower or upper range. - Because the changes during this stage are sporadic and unpredictable, it is necessary to listen to individual voices frequently in order to assess vocal development. <p>Symptomatic Signs:</p>

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			<ul style="list-style-type: none"> - Hoarseness without upper respiratory infection; - Voice cracking; - Difficulty or discomfort with singing; - Lack of clarity in the tone.
Stage III: Young Adult Female/Post-Menarcheal	14-15 (16)	210 Hz - 245 Hz (G-sharp3 B3); 'Acceptable limits: 185 Hz - 260 Hz (F-sharp3 - C4); - Timbre approximates that of adult female; - More richness appears in the voice quality	<ul style="list-style-type: none"> - Overall range capabilities increase. (At times, range does not decrease during the time of mutation. One characteristic of a quality singing voice is that it encompasses a large range. This does not imply that any voice is an alto at age 15-16 simply because those tones are within the young singer's capability) - Greater consistency occurs between registers; voice breaks are more apparent at passaggio D5 - F-sharp5 (more typical of adult voice) ; - Breathiness appears to decrease; - Tone, though not as full as mature adult, is deeper and richer; - Ease returns in the singing process; - Vibrato appears in the voice; - Volume, resonance, and vocal agility increase.

Information from Lynn Gackle's "Characteristic Stages of Development in the Adolescent Female Voice" from "The Adolescent Female Voice Characteristics of Change and Stages of Development" (1991).

These stages provide vocal educators with clear, detailed parameters on what they can expect from their young female students during their voice change. The breathiness and huskiness educators are always fighting against with their young students is part of the natural voice change before the age of 15. Work to eliminate these characteristics before the vocal folds have matured enough can cause weighty singing, artificial vibrato, over singing, and vocal pathologies. Gackle concludes this article by discussing range and vocal classification. She reiterates her earlier statement that young girls should never be identified as an alto at this age. Although it is most accurate to categorize these voices as soprano, no adolescent voice is truly a soprano or an alto. It is important to avoid these premature labels to keep away from limiting

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young females to one voice part too early, disrupting their register development.⁹ Gackle's work was and is critical to the beginning of equitable research on the adolescent voice change and it inspired many other researchers to dive into the developing female voice.

It is important to remember that during adolescent voice change, all voices should be categorized as light soprano or rich soprano. (There are no real sopranos or altos — in the adult sense of the terms — at this age. Never confuse a prominent lower register with true adult alto quality.)

Sipley

In 1994, another scholar entered the conversation on the adolescent female voice. Kenneth Sipley wrote “Improving Vocal Self-Image and Tone Quality in Adolescent Girls: A Study” where he addressed both the anatomical changes occurring at this time and the self-image and feelings the students possessed about their own voice change. This was the first time someone added the emotional element of a voice change to the pool of research. Sipley began his article much like Gackle: acknowledging the disparity between research on the male voice change and female voice change. He notes that the male voice change is so dramatic that it has overshadowed the experience of the adolescent female and that in recent years, researchers have begun to investigate the changes occurring in the female voice.¹⁰ He goes on to discuss the anatomy of the female voice change and echoes many of Gackle's points. For example, he mentions that the mutational chink is responsible for breathiness. The mutational chink is the name for the space between the posterior 1/3 of the vocal folds. This commonly occurs in young

9. Gackle, “Characteristics of Change,” 20

10. Sipley, Kenneth. “Improving Vocal Self-Image and Tone Quality in Adolescent Girls: A Study.” *The Choral Journal* 35, no. 3 (1994): 35–38.

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female singers due to muscle weakness and causes a breathy sound. In addition, Siplely goes on to condemn the use of popular singers as vocal models because it limits the young singer's range and styles they can sing long-term.¹¹

The remainder of this article is a study where a class of eighth-grade students were divided into four groups and given different treatments over a period of eleven weeks. The first group was given no training from the investigator; The second group was given instruction through vocal exercises; The third group was given only information about vocal development, and the fourth group was given the vocal exercises from group two and the information from group three. Then, the students were given a survey about their feelings on their voice that included questions such as "When I sing high my voice feels..." and "The voice part I sing best is..."¹² The findings of this study were that "receiving combination of exercises and knowledge led the female choristers to a positive attitude shift, including: (a) Exercises and knowledge combined made the singers more comfortable when beginning a song or phrase;¹⁵ and (b) A program of vocal exercises combined with knowledge about the vocal mechanism eliminated the perception of tension in young singers."¹³ Finally, Siplely warns against prematurely assigning young females to voice parts such as "Soprano" or "Alto". He recommends dividing the choir into balanced sections and labeling the sections something unrelated to voice parts or vocal ranges. The result of this method is that the singers will not consider themselves either voice

11. Siplely, 35

12. Siplely, 36

13. Sweet, Bridget. "Choral Journal and the Adolescent Female Changing Voice." *The Choral Journal* 56, no. 9 (04, 2016): 53-64.

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part until after their voices have settled.¹⁴ This is another point that is prevalent throughout all research on the developing female voice. Assigning young females to a voice part so early hinders their vocal development and it is worth questioning why classifying adolescent choirs in this system (SA, SSA, etc.) is still the chosen method in choral classrooms. Siple's research also illustrates that knowledge on their own voice and vocal condition empowers students to have a more positive outlook on their voice change. Coupled with vocal exercises, this knowledge gives the student a real explanation for why their voice may be giving them problems. It allows the student not to blame themselves, but to understand that they are in the middle of a biological phenomenon that is out of their control. This article is a call to choral educators to explain these changes to their students, instead of deciding that it may be too complex for them to understand.

Williams

In 1996, Bonnie Blu Williams wrote her article titled "An Investigation of Selected Female Singing- and Speaking-Voice Characteristics Through Comparison of a Group of Pre-Menarcheal Girls to a Group of Post-Menarcheal Girls". The purpose of this study was to compare the fundamental frequency of the speaking voice, singing voice quality, vocal range, and self-perceptions of the speaking and singing voice between groups of adolescent girls. Much like her predecessors in this area of research, she began her article by addressing the lack of research on this topic as it compares to research on the male voice change. She notes some reasons that the female voice change is more subtle and overlooked. For example, the female

14. Siple, 37

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growth spurt “generally occurs from 10.5 to about 13 years of age for girls, which is approximately two years earlier than for boys.”¹⁵ According to Williams, another reason the female voice change is so subtle compared to the male voice change is because “Boys' vocal cords become about 1 cm longer thus causing the dramatic drop in the singing range and the lowering of the speaking voice. Girls' vocal cords lengthen only about 3 to 4 mm thus lowering their range by about one-third of an octave and extending the

	pre-menarcheal	post-menarcheal
Fundamental Frequency (in Hertz)		
Conversation	218.3	206.3
Reading	225.3	214.8
Physiological Vocal Range (in Hertz)		
<i>mah</i> high	709.1	690
<i>mah</i> low	200	181.2
<i>moo</i> high	711.8	600.8
<i>moo</i> low	199.8	185.9
<i>mah</i> high with visual cues	822.6	838.3
<i>mah</i> low with visual cues	178.3	167.7
<i>moo</i> high with visual cues	920.2	825.3
<i>moo</i> low with visual cues	185.8	178.9
Singing-Voice Quality		
Key of choice		more breath
Key of F major		more breath

upper limit by three or four tones.”¹⁶ Williams' study examined two groups of girls (ages 11-15) who participated in various singing and speaking exercises. She found that there was a decrease in the fundamental speaking frequencies found in these subjects, as well as that after her first period, an adolescent female will experience more vocal issues (voice cracks, breathiness, huskiness, etc.) than before her first period (see below).

Finally, Williams mentioned that there was no significant difference in the physiological measures of the subjects, indicating two things 1) female vocal maturation occurs gradually and

15. Williams, Bonnie Blu. "An Investigation of Selected Female Singing- and Speaking-Voice Characteristics through Comparison of a Group of Pre-Menarcheal Girls to a Group of Post-Menarcheal Girls." *Journal of Singing - the Official Journal of the National Association of Teachers of Singing* 52, no. 3 (01, 1996): 33-40.

16. Williams, 33

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	pre-menarcheal	post-menarcheal identified
Singing voice		
Inconsistencies in singing	less often	more often
Sore throat from singing	less often	more often
Sounds husky or breathy	same	same
Sounds like an adult voice	less often	more often
Not very strong or loud	more often	less often
Speaking voice		
Breaks, cracks, suddenly stops	less often	more often
Sore throat from speaking	less often	more often
Inconsistencies in speaking	less often	more often
Different throughout day	less often	more often
Not very strong or loud	more often	less often

2) much of the vocal mutation occurs before the age of eleven. Williams' research illustrates that the focus of research must shift to a few years younger than the years that would be examined for the male voice change.

Miller

Richard Miller is one of the leading experts in vocal pedagogy. In 2000, Miller wrote his book *Training Soprano Voices* where he detailed a complete method for training every type of soprano voice. While the book is valuable in its entirety, this paper will be specifically looking at chapter three: "Making a Beginning". In this chapter, Miller discusses the enrollment of young girls in voice lessons and the guidelines a young singer must follow to maintain healthy singing technique and avoid vocal damage or bad singing habits in the future. Miller writes that individual voice instruction should begin whenever the singer desires it. He notes that usually around age fourteen, a young girl will begin to desire to perform and that is when instruction should begin. He believes that, unless there is discomfort, there is not a reason a child cannot begin to sing before or during pubertal change.¹⁷ Miller recognizes the female voice change by saying, "As with the male larynx, the larynx of the female continues to undergo mutation after

17. Miller, Richard. "Making a Beginning." Essay. In *Training Soprano Voices*, 29–31. New York: Oxford University Press, 2000.

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puberty, but far less radically,”¹⁸ and he goes on to outline several principals for the young singer to adhere to:

I.	She remains chiefly in the middle range, avoiding both low and high tessitura extremes, with only occasional modest exploration of upper and lower ranges
II.	She not attempt high-decibel intensity levels
III.	She not sing too long at a time

Information from Richard Miller’s “Training the Soprano Voice” (2000).

Continuing with the same point as previous researchers, Miller warns against the singing of popular music by adolescent voices. He specifically references pop music, contemporary religious music, and show choirs as being reliant on “heavy vocalis-muscle participation.”¹⁹ Miller believes that if a child wishes to sing in those styles, the goal should not be to change their mind, but to teach them how to sing those styles in a healthy manner and minimize vocal strain and damage. The remainder of the chapter discusses the beginning soprano as an adult and will not be discussed here. Nevertheless, the recognition of a female voice change in a source as widely used and trusted as this one, was a large step in the visibility of this topic.

Burdick

To contrast Miller’s classical training perspective, in 2005 Barbara Burdick wrote “Vocal Techniques for Music Theater: The High School and Undergraduate Singer.” She begins with an introduction of the “belt voice” and she identifies it as being an extension of the speaking voice mode into a higher range. She identifies the developing singer as being ages fourteen to twenty-

18. Miller, 29

19. Miller, 30

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two, and she notes that there is

controversy in the profession over if

belting can be taught healthily to this

age group.²⁰ She says, "In this

writer's experience, the belt voice can

be taught in a healthy manner if

teachers understand the physiological

and perceptual differences between

the belt and the chest voice, and learn techniques to produce it."²¹ In Burdick's study, she had a

fifteen-year-old female perform a series of vocal exercises in both a belt and head voice through

an EMG to measure muscle involvement. Electrodes were placed on the sternocleidomastoid,

digastric, and sternothyroid/sternohyoid. In the belt examples, the digastric was most active and

the least active in the head voice examples. "This result could support the theory of a higher

laryngeal position in belt, as the digastric is attached to the hyoid bone."²¹ Burdick continues

with the study of the belt in both a trained and untrained singer, comparing laryngeal positions

and muscle activity. Finally, she concludes that in adolescent singers it is important that teachers

do not try to force the student's folds together to achieve the belt sound, as some breathiness is



Example 1.



Example 2.



Example 3.

20. Burdick, Barbara. "Vocal Techniques for Music Theater: The High School and Undergraduate Singer." *Journal of Singing - the Official Journal of the National Association of Teachers of Singing* 61, no. 3 (01, 2005): 262.

21. Burdick, 262

22. Burdick, 263

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normal due to the “mutational chink.”²³ She concludes her article with exercises that can be used to promote healthy belting technique (see examples 1-4). Due to the increased popularity in singing in musical theater and pop styles, it is more important than ever that a healthy belt and pop technique is being studied. In this writer’s experience, this is the style adolescent female students are generally most eager to sing and voice teachers and choral educators are responsible for ensuring it is

happening in a healthy way.



Gackle

2011 was an important year in the history of research on the developing female voice. This was the year that Lynn Gackle published her book, *Finding Ophelia’s Voice, Opening Ophelia’s Heart*. In this book, Gackle expands on her previously published articles and gives a thorough guide to the adolescent female voice, accompanied by additional strategies, lessons, and exercises. The newest addition to her research was a section of the book dedicated to interviews with adolescent females about their voices. For example, one student said “I remember when I could not sing as high, purely, and freely as I had in the past. There was hesitation because I knew my voice wouldn’t allow me. I felt a slight ‘musical identity’ crisis because I could no longer produce those soaring notes I once could; somehow like

23. Burdick, 266

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I wasn't good enough anymore."²⁴ This book expands the scope of Gackle's original research from voice classification and developmental phases to emotion and self-identity (a topic that had long been researched in male voice changes). *Finding Ophelia's Voice* has become the leading resource for the female voice change. No other publication has covered every facet of this change (anatomy, voicings, emotion, tone and range changes, etc.) like this book has.

Sweet

The final author I will be discussing is Bridget Sweet. In 2015, Sweet wrote an article titled "The Adolescent Female Changing Voice: A Phenomenological Investigation". The purpose of this study was to examine the female voice change from the perspective of middle and high school choral students. Sweet begins by discussing the growth of the female larynx during puberty, noting that "As the male and female larynxes enlarge during puberty, the male larynx grows anterior-posterior (front to back), resulting in anterior protrusion of the larynx (also known as "the Adam's apple"); the female larynx enlarges more in height and width, resulting in a slightly round shape."²⁵ She goes on to say that, as a result of this growth, the muscles in the larynx are weakened and unable to close the posterior portion of the cartilage. This leads to the huskiness and breathiness that has been noted by nearly every researcher prior to Sweet. She continues by discussing similarities between the female and male voice changes and she has a

24. Gackle, Lynne. *Finding Ophelia's Voice, Opening Ophelia's Heart: Nurturing the Adolescent Female Voice: An Exploration of the Physiological, Psychological, and Musical Development of Female Students*. Heritage Music Press, a Lorenz Company, 2011.

25. Sweet, Bridget. "The Adolescent Female Changing Voice: A Phenomenological Investigation." *Journal of Research in Music Education* 63, no. 1 (2015): 71.

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section of this article dedicated to the male voice change. Following this, Sweet details the female voice change, noting “Regardless of scientific evidence of female laryngeal growth during puberty [...], female voice change has been comparatively underrepresented in music education publication [...] and nonexistent in U.S. publications of qualitative research. As a result, much of the existing literature on female voice change cited in the current research is dated because of a lack of focus on this topic.”²⁶ This calls attention to the lack of research available, as well as to the larger issue: due to the lack of research many vocal educators are ill prepared to teach singers experiencing a voice change. Sweet continues by recognizing the premature labeling of young singers as soprano or alto and the damage this causes as discussed in previous publications. She adds her own experience by discussing her perspective as an “adolescent alto”: a girl who was labeled as an alto from a young age and never sang another voice part even into adulthood. Her solution to this issue is to change the student’s “voice parts during their time in [...] class. “On this song you will sing alto; on the next three songs you will sing soprano” versus “You are an alto; you are a soprano.””²⁷ Simply by changing this verbiage, educators would be avoiding the limits set on adolescent students who always sing the same voice part.

In her study, Sweet collected data from fourteen female students who attended a magnet fine arts school. Each student completed a written response to several questions, followed by an interview discussing those responses. Sweet found that all fourteen students shared similar

26. Sweet, “A Phenomenological Investigation,” 73

27. Sweet, “A Phenomenological Investigation,” 73

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experiences: “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.”²⁸ Singers admitted that when singing becomes difficult, they sometimes cope with that in unhealthy ways (straining and forcing). One student even noted that when her voice gets tired, she ignores it because she just wants to “get it right.”²⁹

The next portion of Sweet’s research discusses the emotional impact of the voice change on young female singers. The writer notes that emotions in the moment strongly encouraged or discouraged a student’s involvement in singing:

Researcher: You used the word *helpless* [in written response]. “It makes me feel helpless between the parts.”

Kate: Yeah. I usually carry most of my friends in singing and I’m usually a very loud singer and not afraid to sing really loud. But on some of those notes that I can’t sing, it makes me feel like, “Wow, I’m not doing anything to help when I should be” and then I . . . actually hearing my voice and making sound come out and when I’m afraid if it’s going to crack, I always tone down my voice and shy away and that’s not helping. (Kate, eighth grader)

In addition, the students seemed to be self-deprecating when phonation problems occurred:

Maria: So I was trying to sing it and all of a sudden when I get to the high point, I just lost my breath and I couldn’t go that high. And then the song comes back down and I tried to sing again and I couldn’t go back up that time. So it was just like, “what’s wrong with me?” I tried to but it just wouldn’t come out.

Researcher: So you had a hole in your range where you couldn’t hit those notes?

Maria: Yeah. And I’m just like “what’s wrong with me?” (Maria, ninth grade)

28. Sweet, “A Phenomenological Investigation,” 78

29. Sweet, “A Phenomenological Investigation,” 79

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Finally, many students felt humiliated and isolated after experiencing voice ‘cracking’:

Alysa: Yeah, ‘cause I don’t, ‘cause I . . . ‘cause nobody else’s voice does that. Like

I haven’t heard it.

Researcher: Are you sure?

Alysa: Um, other than boys, no. I’ve only heard guys’ voices do that.

For many of these students, once they realized their peers were experiencing similar issues and fears, they felt a lot better. One student indicated “I notice the other girls’ voices crack, so I don’t feel as bad (Alysa, written response).”³⁰ Sweet’s article is proof that the female voice change is a real and significant experience for young singers. It illustrates that young female singers are aware of the vocal shifts occurring and having discussions about this shift in choral classrooms would improve these feelings of humiliation and isolation.

In 2018, Sweet completed a similar study on collegiate women, surveying their experiences vocally since they were eleven years old. This study, “Voice Change and Singing Experiences of Adolescent Females”, followed a near-identical methodology to her 2015 study. One difference, was the portion of the interview where participants were asked what they would say to their adolescent selves if they could go back in time. One participant noted:

I’d definitely go back to my high school self and tell her to advocate more for what’s appropriate. If you’re not feeling like you can sing it, don’t be the Soprano 1 diva and be like, “*Oh yeah!* I’m singing the B-flat!” Tell someone that doesn’t feel right. (Ashley)

In addition, many women indicated feelings of having to sacrifice their own vocal health for the betterment of the group:³¹

30. Sweet, “A Phenomenological Investigation,” 81

31. Sweet, “Singing Experiences,” 142

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Well the needs have always seemed different to me in the choirs than *we* like, right? So the choir . . . the needs of the choir dictate. It was more like I was serving the choir as opposed to it serving me. I mean what would we all be, second sopranos, right? Someone is going to have to sing Alto II. (Lucy)

It is not uncommon for choral directors to assign students to voice parts they are uncomfortable singing because “we need more [insert voice part here]!” or because the student “has those notes”, regardless of if the student feels comfortable in that part or not. It is important for both the student and the director to be flexible in voice part assignments, especially in adolescent choirs. Voice part assignments should be fluid and no one should feel locked in to any one place. Communication between the singer and director is crucial to maintain a healthy relationship between the student and the voice part they are assigned to sing.

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Conclusion

The adolescent voice change is a topic that alludes and confuses many vocal instructors and choral directors. In the last 50 years, research efforts on this topic have dramatically increased, providing music educators with evidence-based techniques for teaching this voice type. While advancement in this area is undoubtedly a positive aspect, most of this research is heavily focused on the male voice change and the female voice change is underrepresented and overlooked. Furthermore, the existing research seems to not have reached the forefront of music education, leaving many teachers in the dark as to appropriate teaching practices for this demographic. The current research has a few common threads: 1) the adolescent female voice will be breathy and husky due to muscle instability and the lack of vocal fold closure at this age (it is important not to try to force the folds together to avoid vocal injury and heavy muscle involvement), 2) It is crucial that young female singers are not assigned to a voice part too early in adolescence, as this can limit their range and register usage as they develop and 3) The singing of popular music can hinder register development and cause muscle overuse. The efforts made by the authors in this paper have significantly improved the landscape of music education for adolescent female singers. It is the responsibility of all music educators to utilize the sources mentioned in this paper to inform our teaching practices and make these resources more visible to our colleagues. This writer is hopeful that research in this area will continue and expand upon what we understand about this voice type.

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