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Between Research and Practice: How Choral Music Loses Boys in the "Middle"

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Almost every secondary choral teacher asks at one time or another, "How do I get boys to join or stay in my choral groups?" Just as I was embarking on my teaching career, the Choral Journal published a series of articles in which Leonard Van Camp explored issues facing choral music education in the United States, including a list of reasons for the continued decline in the number of boys who elected to sing in high school choral ensembles.¹ He commented, "I am convinced that we are, in fact, in the middle of a serious crisis."² Before reading these articles, I had assumed that the reason boys didn't sing in choirs was because of issues surrounding the voice-change process. Indeed, that was my personal experience-I stopped singing at the onset of puberty when my music teacher told me to mouth the words.

Van Camp earnestly offered a number of familiar recommendations and remedies, such as having separate choirs for boys and girls, encouraging more males to become music teachers, enlisting the support of adult male singers in the community, and providing teachers with information about the changing adolescent voice. Similar recommendations in our professional journals have addressed choral music's "missing males" problem for at least eighty years without much success.³

This is, of course, a generalization, and there are middle school choral programs that attract and retain equal numbers of boys and girls, but girls still vastly outnumber boys in a great majority of our middle school choral programs. This is perhaps most evident during contest season, when adjudicators are handed notes indicating "the guys" will sing the soprano line down an octave because there are too few to sustain their own voice part.

Meeting the Needs of Middle School Boys?

As a profession, we have a problem because we're collectively not meeting the needs of male adolescent singers. At least part of the difficulty lies in the very nature of the conversations we have about this problem. We have conversations about various issues we suppose to be the causes. These include boys who don't like to sing, competition with the allure of sports programs, block scheduling, the scheduling of after-school rehearsals, budget cuts, the influence of popular culture, and so forth.

We rarely, if ever, consider the possibility that changes need to take place within our classrooms, within our instruction, and within choral repertoire itself. Something is wrong. The children's choir movement in the United States has been producing remarkable choirs for a quarter century.

Choirs of elementary-age children regularly demonstrate high levels of musicianship and artistry, and they attract huge numbers of children. What happens to all those singers when they become middle schoolers? What happens to all those boys who used to be choral musicians?

Conversations about Boys' Learning

We need to begin having the conversations that others are having about boys and boys' learning. These conversations have taken place since at least 1695, when John Locke wrote about the failure of boys to concentrate on their Latin studies.⁴ But the current dialogue about adolescent boys and their school experiences seems to be at a fever pitch. Newspapers and magazine headlines grab our attention: "Where Have All the Guys Gone? Different Learning Styles Mean Young Men Are Being Left Behind in the Classroom," "Boy Trouble," "The Trouble with Boys," "The Myth About Boys," "The Gender Gap at School," and "The Problem with Boys."⁵

Other forms of media trumpet these concerns through broadcasts like "What It Takes to Be a Man" and documentaries such as *Raising Cain*, which is based on a best-selling book.⁶ For about ten years, book authors from many backgrounds have dominated public discussion, including psychologists, religious leaders, pediatricians, scientists, philosophers, parents, and teachers.

People are talking about the ways boys learn differently from girls. While there is a great deal of disagreement, at least the issues are being discussed. Unfortunately, we are not having these discussions within the choral music community. If the situation is going to change, middle school choral teachers need to become involved at all levels of the conversation and take action.

From Research to Practice

Philosophy, theory, and research all contribute to our understanding of effective pedagogical practice. This is clearly evident in the current national conversation about boys and boys' learning. Two distinct groups have embodied the broad discussion: those who are concerned with the etiology and sociology of masculinity, and those who are concerned with how schools can best prepare boys for the society they will inherit.⁷ Late in the twentieth century, the education profession recognized basic inequalities and injustices in the ways girls were educated, leading to research and policy decisions that positively affected the schooling experiences of girls. At the same time, concerns were raised about the learning of boys, though there are no indications that boys were negatively affected by the changes addressing girls' needs.⁸

Recent scientific research has fueled this discussion, yielding interesting information that could influence how middle school music educators address the problems of boys and choral music. For instance, we know that the brain is organized into different structural regions that undergo change during adolescence. Recent research concerning adolescent brain development investigates these changes and their influence on brain function, adolescent behavior, and differences in how boys and girls learn.⁹ A sampling of current research findings can be found in the sidebar, "Recent Research on Adolescent Brain Development," and suggested readings on this topic are given in the sidebar, "Suggested Readings on Adolescent Brain Development."

Implications for Practice

On the basis of this scientific research, some influential advocates for boys and boys' learning contend that a gender-neutral view of education is not in the best interests of either boys or girls. While research is rarely conclusive, it may help us improve how we teach young adolescents. When traditions don't seem to be particularly effective, research can suggest actions we can take instead.

Physician Leonard Sax highlights the superior auditory capabilities of girls compared to boys and the widening of this difference during the teenage years.¹⁰ This, Sax believes, explains why adolescent girls frequently feel their teachers are yelling at them while boys sit nonchalantly in the back of the room as if nothing is happening. Sitting in the back of the room, coupled with relatively poor hearing capabilities, may encourage boys' seeming indifference. In effective classrooms, boys who are engaged are nearly always sitting close to the teacher.

Research also suggests that stress promotes learning in males, whereas it inhibits learning in females. Thus, competition and timed classroom activities might be more successful with adolescent boys than with adolescent girls, contradicting the conventional idea that all middle schoolers find competition to be an ineffective motivator.¹¹

Many prominent authors who write about boys' learning recommend embracing the high activity level of boys and incorporating physical movement within lessons,¹² ranging from sixty-second stretch breaks to providing small objects boys can play with without distracting others. I have found that young adolescents need a change of activity, focus, or location in the room about every twelve or thirteen minutes.¹³ In general, adolescent boys need a great deal of physical activity and movement while learning; teachers need to channel this propensity into productive learning experiences rather than see it as a behavior problem.

Some research supports the idea that the characteristic differences in the learning styles of girls and boys may be universal. A meta-analysis of educational research concerning adolescent learners in five countries found males to be more kinesthetically and peer oriented than their female counterparts.¹⁴ Boys required more teacher intervention and support at the same time that they eschewed direct instruction techniques. Adolescent girls showed greater auditory ability than did adolescent boys. Overall, the study indicated that variation among individuals was of far greater importance than variations between sexes. So, there might not yet be enough evidence to support the division of boys and girls into separate schools, classrooms, or musical ensembles.

Still, many choral music educators agree that middle schoolers are best served by at least some separation, with the ideal being distinct choirs of boys and girls.¹⁵ Such arrangements might facilitate implementation of specific teaching strategies to address the unique needs of boys and girls. When separate ensembles or rehearsals are not possible, teachers might simply move their boys to one side of the risers rather than place them in the middle of the ensemble. Teachers report a decrease in behavior problems when adolescent boys and girls are physically separated.

Accommodating Boys

All boys should become knowledgeable about and comfortable with their changing voices, wherever they are on the continuum of change. Additional concerns would need to be addressed in choirs that use only rigidly voiced literature (SAB, three-part mixed voices) rather than flexible voicings for multiple combinations of voices. In all cases, adolescent boys confront the challenge of their changing voices simultaneously with the presentation of choral music notated in the bass clef. Without advance preparation, a young adolescent boy may assume that all pitches notated at the top of the staff are at the upper reaches of his vocal range, which is not true for bass clef. We need to proactively include bass clef instruction during the upper elementary years.

Choral music teachers may assume that adolescent boys don't like choral music. The truth is that adolescent boys do sing-just not always in school choral music settings. Much of this music making occurs outside of school, often in a haphazard, inefficient, and vocally unhealthy manner. These experiences are powerfully motivating, but they are not "music education," except in an extremely limited sense. We should engage these youngsters in school-based music education activities with teachers who are sensitive to the needs of developing adolescents.

Learning music with friends who share a focus on specific goals drives adolescent boys to be successful in music beyond school. This type of informal music learning is exciting and rewarding. Research indicates that developing adolescent brains are generally "wired" to seek intensity, arousal, excitement, and the rush of positive feelings that accompanies success.¹⁶

Adolescents also seek these qualities in their musical experiences. Middle school choral teachers can use this to great advantage by selecting repertoire that adolescents find relevant, challenging, and satisfying. This does not necessarily mean that we should use only popular music, but neither should we rule it out. Rather, choral teachers should teach musical skills through repertoire that has compositional integrity, vocal lines that are carefully crafted to match the texts they serve, and texts that speak to real-world issues adolescents find intriguing. See the sidebar on flexible voicing for suggestions concerning repertoire. We should invite our students to discuss how their developing musical skills are influencing their musical lives outside school. And we should be equally eager to hear what musical skills they would yet like to learn ... and then use that information to help guide future instructional decisions.

When rehearsing mixed ensembles, addressing the learning needs of boys can be facilitated through teaching strategies that benefit all students, including opportunities for group work, interactions with peers, and personal support from the teacher. Adolescents need to experience autonomy, to develop independent musical skills, and to receive specific feedback about their progress. They also value knowledge about their changing bodies and their changing vocal physiology.¹⁷ Sharing the anatomical intricacies of the changing male voice-physiology and all-can fascinate boys while providing valuable information about their voices and what they will become.

Between Research and Practice: Philosophy

Few choral music teachers have considered the most efficient ways to provide research-based instruction for adolescent boys. Before teachers can apply research to practice, they first need to be grounded in a philosophical framework that guides their decisions about pedagogical and artistic choices. With the daily responsibilities of teaching, compounded by mandatory participation in contests and festivals, there is little time to consider the developmental needs of their students. Caring for boys who seem to dislike choral music becomes a distant goal. The focus shifts from effectiveness to efficiency, and the students who suffer most are boys.

Some teachers lose their philosophical orientation and emulate the practices of admired choral conductors, replicating the musical product of performance rather than the musical process of rehearsals. Middle school choral rehearsals can then become exactly what young adolescents don't need: undifferentiated, large-group instruction where everyone is arranged in rows and where conformity is highly valued. A boy faced with choral repertoire he doesn't like, a changing voice he doesn't understand, and instruction he finds boring will become a boy who proclaims he hates school music and disengages from choral music. Forever.

Forcing adolescent boys to conform to traditional methods of choral instruction is inconsistent with current knowledge about the neurobiology of adolescence. Some boys will respond to traditional approaches, but most will not. We need to align our methods with our beliefs about what choral music education is, who it is for, why it is essential, what it should encompass, and how it should be practiced in our classrooms. We cannot afford to reinforce the status quo in middle school choral instruction if we hope to meet both the needs of adolescent boys and our own philosophical goals.

If we are to change the decades-old "missing males" problem in choral music, we must focus on three issues: retaining the boys who experience success as elementary choristers, attracting new boys, and maintaining enthusiasm through the middle school years. To do this, middle school choral instruction must, at times, look very different from choral instruction appropriate for singers of other ages. see the sidebar, "A Few Suggestions for Working with Adolescent Boys," for an overview of techniques to help win boys back to choral music.

Moving Forward

As advocates for adolescent choral singing, we need to seek research-based teaching practices that will positively affect the experience of all our students, especially our boys. We need to ask adolescent boys what they do and don't like about choral music. In their responses, we may hear some things that cause us to reexamine what we do, how we do it, and why.

The current unfocused dialogue about choral music instruction at the middle level needs to be supplanted with a conversation that has a dual focus on research-based instruction and the achievement of high artistic standards. Middle school choral teachers can be the change agents who most positively influence the future of choral singing in America through the recruitment and retention of males in choral music. In working with students to explore research-based

methods of instruction that meet the needs of both adolescent girls and boys, we can minimize the barriers that keep boys from experiencing success in choral music and build them up to be musicians who can enjoy full participation in the choral art whenever and wherever they choose.

We can use research-based knowledge and instruction to attract and keep boys in middle school choir.

SIDEBAR: Recent Research on Adolescent Brain Development

Current research has provided information on adolescent brain development that can shed light on addressing the educational needs of both girls and boys.

- * Changes in adolescent brains begin before the hormonal changes commonly associated with puberty.^a Adolescence is a broad period of time encompassing sexual maturation (puberty) as well as cognitive, emotional, and social maturation.^b
- * The physical structure of the brain changes differently in girls than in boys.^c
- * Cognitive development doesn't necessarily occur in tandem with pubertal development. A 13-year-old boy who looks like a mature young man may be at the same cognitive level as another 13-year-old boy who looks quite immature.
- * Cognitive development during adolescence parallels age and experience rather than the timing of puberty.
- * Affective development during adolescence, including motivation and emotional response, parallels puberty rather than age or experience.
- * The area of the brain responsible for coordinating affect (emotion) and cognition is among the last areas to mature.^a
- * During childhood, emotional responses are centered in anatomical structures of the brain closely related to physical activity; during adolescence, there is a gradual shift in the control of emotions to areas of the brain more closely related to language use and higher-order thinking.^d This shift occurs earlier and more rapidly in girls than in boys.^e Thus, adolescent girls tend to express their emotions with words, and adolescent boys with physical action.^f
- * A moderate amount of stress enhances learning in males, whereas it limits learning in females.^g While there is some disagreement on whether this difference commences with or follows adolescence,^h physicians and teachers report that this difference is evident during the middle school years.ⁱ

* Recent meta-analytic estimates suggest that self-esteem is as much of a problem for adolescent boys as it is for adolescent girls.^j

* The auditory ability of females is superior to that of males. There is evidence to suggest that this difference is present at birth and widens beyond adolescence through adulthood.^k

* Males and females of all ages respond to visual cues differently, with females having an advantage in interpreting visual social cues.^k

* An individual's experiences during adolescence help shape the structures and functions of the developing brain.^l

* A developmental "window" exists until the onset of puberty (around age 9) during which the brain accumulates knowledge with extraordinary ease. At the earliest onset of puberty, this ability to accumulate knowledge lessens, and the focus of the brain shifts to strengthening preexisting knowledge and deleting knowledge that is no longer deemed necessary—the "use it or lose it" principle. Adolescents who stop participating in making music lose many of the musical abilities they gained in childhood and become adults who report they "can't sing" or "can't read music."^m

* The growth of brain cells involved in higher-order thinking normally peaks in males at age 12,ⁿ exactly the age that boys experience the climax of the voice-change process.ⁿ

Notes

a. Ronald E. Dahl, "Adolescent Brain Development A Period of Vulnerabilities and Opportunities," *Annals of the New York Academy of Sciences* 1021 (2004): 15, 17-18; Irwin Feinberg et al., "The Adolescent Decline of NREM Delta, an Indicator of Brain Maturation, Is Linked to Age and Sex But Not to Pubertal Stage," *American Journal of Physiology, Regulatory, Integrative and Comparative Physiology* 291 (2006): R1724-29.

b. Cheryl L. Sisk and Julia L. Zehr, "Pubertal Hormones Organize the Adolescent Brain and Behavior," *Frontiers in Neuroendocrinology* 26 (2005): 163.

c. Rhoshel K. Lenroot et al., "Sexual Dimorphism of Brain Developmental Trajectories during Childhood and Adolescence," *NeuroImage* 36 (2007): 1065-73.

d. Jay N. Giedd et al., "Sexual Dimorphism of the Developing Human Brain," *Progress in Neuro-Psychopharmacology & Biological Psychiatry* 21 (1997): 1185-1201.

e. Rebecca E. Blanton et al., "Gender Differences in the Left Inferior Frontal Gyrus in Normal Children," *NeuroImage* 22 (2004): 626-36.

f. Nancy Brisbon and Christopher V. Chambers, "Neurocognitive Development in Adolescent Males or Adolescent Boys Are from Pluto," *Primary Care: Clinics in Office Practice* 33 (2006):

223-36.

g. George C. Patton and Russell Viner, "Pubertal Transitions in Health," *Lancet* 369 (2007): 1132-33.

h. Tracey J. Shors, "Stressful Experience and Learning Across the Lifespan," *Annual Review of Psychology* 57 (2006): 67.

i. Leonard B. Sax, *Why Gender Matters* (New York: Doubleday, 2005).

j. Janet Shibley Hyde. "The Gender Similarities Hypothesis," *American Psychologist* 60, no. 6 (2005): 590.

k. Andrew P. Bayliss et al., "Sex Differences in Eye Gaze and Symbolic Cueing of Attention," *The Quarterly Journal of Experimental Psychology* 58A, no. 4:632-33, 647.

l. Fulton Crews, Jun He, and Clyde Hodge, "Adolescent Cortical Development A Critical Period of Vulnerability for Addiction," *Pharmacology, Biochemistry and Behavior* 86 (2007): 189-99; Roshel K. Lenroot and Jay N. Giedd, "Brain Development in Children and Adolescents: Insights from Anatomical Magnetic Resonance Imaging," *Neuroscience and Biobehavioral Reviews* 30 (2006): 718-29.

m. Judith W. Herrman, "The Teen Brain as a Work in Progress: Implications for Pediatric Nurses," *Pediatric Nursing* 31, no. 2 (2005): 144.

n. John Cooksey, *Working with Adolescent Voices* (St Louis: Concordia, 1999).

SIDEBAR: Suggested Readings on Adolescent Brain Development

* Brisbon, Nancy, and Christopher V. Chambers. "Neurocognitive Development in Adolescent Males or Adolescent Boys Are from Pluto," *Primary Care: Clinics in Office Practice* 33 (2006): 223-36. A look at male cognitive development from the viewpoint of a physician who is also the parent of a teenage boy.

* Dahl, Ronald E. "Adolescent Brain Development: A Period of Vulnerabilities and Opportunities," *Annals of the New York Academy of Sciences* 1021 (2004): 1-22. A very accessible source that places current scientific knowledge about brain development within the broad processes of adolescence.

* Giedd, Jay N. "Structural Magnetic Resonance Imaging of the Adolescent Brain," *Annals of*

the New York Academy of Sciences 1021 (2004): 77-85. A physiological discussion of structural differences in the adolescent brains of males and females.

* Herrman, Judith W. "The Teen Brain as a Work in Progress: Implications for Pediatric Nurses," *Pediatric Nursing* 31, no. 2 (2005): 144-48. A concise review of brain development from childhood through adolescence; includes implications that teachers may find helpful.

* Sisk, Cheryl L, and Julia L Zehr. "Pubertal Hormones Organize the Adolescent Brain and Behavior," *Frontiers in Neuroendocrinology* 26 (2005): 163-74. A review incorporating current research about how hormones direct adolescent development.

* Steinberg, Laurence. "Cognitive and Affective Development in Adolescence," *Trends in Cognitive Sciences* 9, no. 2 (2005): 69-74. A review of recent research in the brain development of cognition and affect (emotion) with a view toward how these processes are related.

SIDEBAR: What Is Flexible Voicing?

Publishers have several ways of indicating voicings in choral music for use with young adolescents. One of the most helpful comes from composers who write pieces that work with virtually any combination of voices. In these pieces, voices are labeled "Voice I, Voice II," and so forth. These voice parts can very often be sung in either bass or treble clef ranges, making them suitable for mixed choirs. Middle school choral teachers will want to change keys to fit the specific voices in their choirs when using these pieces.

There are three typical categories of flexible voicing pieces:

* Rounds and Canons. Be sure to check for a unison range that all students can sing (usually a sixth) and then change the key as necessary. An example of a canon that works well is "Friendship Song," a Czech canon arranged by Doreen Rao (London: Boosey & Hawkes, 1991).

* Unison Songs. Because the typical middle school choir will have only a few notes common to all (about a sixth from G to E in octaves), finding unison songs is difficult. One example is the third of the "Three Yoruba Native Songs of Nigeria," arranged by Henry Leek (Fort Lauderdale, FL Plymouth Music, 1994). The other two songs in the set are great, though the ranges are somewhat broader than a sixth. Be sure to add percussion and movement to these!

* Multi-Part Songs. These allow for true flexible voicing because any voice can be assigned to any part in either octave. An often-overlooked standard is "The Black Snake Wind," arranged by Mary Goetze (London: Boosey & Hawkes, 1984). Two other outstanding options: "Niska Banja," a Romani dance arranged by Nick Page (London: Boosey & Hawkes, 1989), and "Two Japanese Songs" arranged by Elliot Z. Levine (New York: Shadow Press, 1997).

For a comprehensive listing of repertoire for mixed ensembles, see Rebecca R. Reames and

Matthew Warren, "Recommended Literature: Middle-Level Mixed Choirs," Choral Journal 47, no. 5 (November 2006): 76-88.

SIDEBAR: A Few Suggestions for Working with Adolescent Boys

- * Educate boys about their changing voices, both physiologically and musically, and introduce them to the bass clef in the upper elementary years.
- * Avoid rigidly voiced literature, and seek out repertoire with flexible voicings for multiple combinations of voices.
- * Be aware that boys like intensity, arousal, and excitement in their music, and plan repertoire accordingly. Look for texts that speak to real-world issues.
- * Ask boys in the choral program what they like and don't like about choral music, and use their responses to plan your repertoire and instruction. Ask boys who used to be in choir what would draw them back.
- * Accommodate boys' high activity level and offer multiple opportunities for physical movement during lessons.
- * Separate boys from girls when possible, either in distinct choirs, in sectional rehearsals, or by positioning boys to one side rather than in the middle of the choir.
- * Take advantage of research suggesting that competition and timed activities promote learning in male students.
- * Offer opportunities for group work, interaction with peers, personal support from the teacher, student autonomy, and the development of independent musical skills.

More about Middle School Choral Groups

For more information about working with middle school choral groups, watch for a new edition of Patrick K. Freer's book, *Getting Started with Middle School Chorus*, originally published by MENC in 1998. It will be available in spring 2008.

NOTES

1. Leonard Van Camp, "The Choral Crisis and a Plan for Action (An Open Letter to My Colleagues)," Choral Journal 28, no. 5 (1987): 15-20; Leonard Van Camp, "Current Status of

U.S. Secondary and College/University Groups and Male Participation: Part I, The Survey," *Choral Journal* 29, no. 4 (1988): 5-10; Leonard Van Camp, "Current Status of U.S. Secondary and College/University Groups and Male Participation: Part II, Analysis and Suggestions," *Choral Journal* 29, no. 5 (1988): 5-13.

2. Van Camp, "Choral Crisis," 15.

3. Julia Koza, "The 'Missing Males' and Other Gender-Related Issues in Music Education: Evidence from the Music Supervisors Journal (1912-1924)," *Journal of Research in Music Education* 41, no. 3 (1993): 212-32.

4. John Locke, *Some Thoughts Concerning Education*, ed. John W. Yolton and Jean S. Yolton (New York: Oxford University Press, 2000). Originally published in 1695.

5. Michael Gurian, "Where Have All the Guys Gone? Different Learning Styles Mean Young Men Are Being Left Behind in the Classroom," *Buffalo News* (Buffalo, NY), December 25, 2005; Richard Whitmire, "Boy Trouble," *The New Republic*, January 23, 2006, 15-18; Peg Tyre, "The Trouble with Boys," *Newsweek*, January 30, 2006, 44-54; David Von Drehle, "The Myth About Boys," *Time*, August 6, 2007, 38; David Brooks, "The Gender Gap at School," *New York Times*, June 11, 2006; Tom Chiarella, "The Problem with Boys," *Esquire*, July 2006, 96-138.

6. Lichtenstein Creative Media, "What It Takes to Be a Man," *The Infinite Mind*, radio broadcast on station WABE in Atlanta (June 10, 2006), available online at www.lcmedia.com/niind430.htm; *Raising Cain: Exploring the Inner Lives of Americas Boys*, DVD, hosted by Michael Thompson (PBS Home Video, 2005).

7. Marcus Weaver-Hightower, "Crossing the Divide: Bridging the Disjunctures Between Theoretically Oriented and Practice-Oriented Literature about Masculinity and Boys at School," *Gender and Education* 15, no. 4 (2003): 407-23.

8. Marcus Weaver-Hightower, "Dare the School Build a New Education for Boys?" *Teachers College Record*, published February 14, 2005, www.tcrecord.org, ID 11743.

9. Laurence Steinberg, "Cognitive and Affective Development in Adolescence," *Trends in Cognitive Sciences* 9, no. 2 (2005): 70.

10. Leonard B. Sax, *Why Gender Matters* (New York: Doubleday, 2005).

11. Rick A. Stamer, "Motivation in the Choral Rehearsal," *Music Educators Journal* 85, no. 5 (1999): 26-29.

12. Michael Gurian, *Boys and Girls Learn Differently: A Guide for Teachers and Parents* (San Francisco: Jossey-Bass, 2001); Dan Kindlon and Michael Thompson, *Raising Cain: Protecting the Emotional life of Boys* (New York: Ballentine Books, 1999).

13. Patrick Kenneth Freer, "Rehearsal Discourse of Choral Conductors: Meeting the Needs of Young Adolescents" (EdD diss., Teachers College-Columbia University, New York, 2003), 164.

14. Andrea Honigsfeld and Rita Dunn, "High School Male and Female Learning-Style Similarities and Differences in Diverse Nations," *Journal of Educational Research* 96, no. 4 (2003): 195-206.

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16. Ronald E. Dahl, "Adolescent Brain Development: A Period of Vulnerabilities and Opportunities," *Annals of the New York Academy of Sciences* 1021 (2004): 9.

17. Patrick K. Freer, *Success for Adolescent Singers: Unlocking the Potential in Middle School Choirs*, DVD series (Waitsfield, VT: Choral Excellence, 2005).

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