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## Η μεταφώνηση των αγοριών και η χορωδιακή μουσική εκπαίδευση στις ΗΠΑ

### [Methaphonisi and Choral Music Education in the United States: Research and Philosophical Perspectives]

Patrick K. Freer and Antonis Ververis

The male adolescent changing voice, “methaphonisi,” has received considerable worldwide attention from researchers and educational philosophers during the past seventy years.<sup>1</sup> Despite the importance that “methaphonisi” has for foreign researchers, it seems that the Greek educational system has paid little attention to this phenomenon and its implications for educational practice. More specifically, in the books of music used by secondary schools, there is no reference to the term “methaphonisi.” The single exception is the teacher’s book of 6<sup>th</sup> grade of Elementary schools that has one reference to “metaphonisi” but without information about how a teacher copes with it in a classroom or a school choir.<sup>2</sup> When teachers don’t know the processes and implications of male adolescent vocal development, the situation often arises when boys perceive themselves as non-singers – a perception that may last throughout adulthood.<sup>3</sup> This phenomenon has been documented worldwide.<sup>4</sup>

Of special interest are Greece’s Music Secondary Schools in which all students regardless of vocal abilities and characteristics attend the subject “Choir” for two school hours every week. In the Curriculum of Music Schools its author presents in detail, the aims and the content of the subject, and additionally gives examples of exercises for teaching vocal technique.<sup>5</sup> However, the author seems to ignore completely “methaphonisi” which is not mentioned not even as a term. Choral music teachers in these schools also seem to ignore the male changing voice.<sup>6</sup> One study indicated that a limited number of teachers (11.6%) take into consideration the students’ stage of vocal development when they choose the repertoire they going to teach, with even the most experienced teachers seeming to ignore the factor of “metaphonisi.”<sup>7</sup>

It is possible that a study with the participation of teachers of General Secondary schools would give similar results, as teachers of General schools have the same training with their colleagues in Music schools. All music educators of our country no matter if they are graduates of university music departments or conservatoires, during their studies have attended a Choir class (subject) where they have been taught the basic principles of singing and the basic choral repertoire. In addition the graduates of the four Greek university music departments have done courses on conducting of Choirs or Music Ensembles.<sup>8</sup>

Research suggests that institutions that offer training to the music educators of our country (universities, conservatoires) should pay attention so that future teacher will be more sensitive concerning the needs and the abilities of adolescent voice.<sup>9</sup> Furthermore, the lack of scientific studies on how Greek students experience “metaphonisi” from a physiological and a psychological point of view highlights the need of conducting research in this field in Greece.

The purposes of this article are two-fold. One purpose is to present an overview of research, theory and philosophy concerning the male adolescent changing voice. The second is to examine how this scientific information has informed the practice of choral music education in the United States, with potential parallel applications in Greece. Implications for practice within Greek music education classrooms and future directions for research conclude the article.

### Why Work with Changing Voices?

Adolescence encompasses the years during which each individual forms his/her adult personality, basic values, and attitudes - those things that determine one's behavior.<sup>10</sup> A basic rationale for the inclusion of music in schooling is that we want each person's behaviors to include participation in music. When we desire that boys and men experience singing and participation in choral music, we need to provide young boys with the knowledge and skills to sing successfully through adolescence and into adulthood.<sup>11</sup> Research indicates that boys who view themselves as unsuccessful singers will only rarely seek choral music experiences in adulthood.<sup>12</sup> Studies in music reveal that boys view themselves as unsuccessful when they experience embarrassment while singing, are asked not to sing because of their changing voice, or are not given opportunities to sing in choirs. It is the boy's perception of these issues that is most influential in future decisions about participation in musical activities.<sup>13</sup> Adolescent boys undergo a more dramatic vocal maturation process than adolescent girls, and this may account for the declining number of adult males who sing in choirs worldwide – the so-called “missing males” phenomenon in choral music.<sup>14</sup>

Teachers need to be knowledgeable about the male adolescent changing voice so that they can develop effective vocal pedagogy techniques and define appropriate practice for adolescent singing and choral performance. Students, also, need to know about their changing voices so that they can understand the developing physiology and its impacts on their singing. Teachers and students both need to be knowledgeable about what vocal change involves and the challenges it presents.

### The Emerging Research Base

Researchers and choral conductors worldwide have identified several aspects of the boy's changing voice that are important for music teachers. It is known that the adolescent voice change occurs concurrently with other pubertal developments and that irregular patterns of voice change may cause unpredictability, particularly if boys are forced into unsuitable vocal ranges such as those specified by inappropriate choral repertoire or classroom songs.<sup>15</sup> In the years spanning young adolescence through early high school, many different stages of vocal development may exist in any group of young men, even those of the same age or in the same grade.<sup>16</sup> Different voices therefore mature at different rates, making it necessary for teachers to have knowledge of each individual singer.<sup>17</sup> Knowledge alone is not enough. Teachers need to continue emphasizing the fundamental components of vocal technique throughout the process of vocal change.<sup>18</sup>

The male adolescent vocal change is prompted by hormonal changes in the body that may begin as early as age 9 and are associated with puberty. During puberty, the male vocal folds increase in both length and thickness. The average increase in length of about ten millimeters lowers the range an octave or more. Of concern to the music educator is that the lengthening occurs at different rates in different boys.<sup>19</sup> The female adolescent voice also changes, but it changes more in quality than in range.<sup>20</sup> Because male adolescent singers experience changes in both range and the sensation of vocal coordination, music teachers need to take these issues into account when selecting repertoire and rehearsal methods.

A succession of vocal/choral pedagogues, all researchers in their own ways, progressively redefined knowledge of adolescent male vocal development, appropriate vocal pedagogy, and implications for ensemble singing: Duncan McKenzie, Irvin Cooper, Frederick

Swanson, and John Cooksey.<sup>21</sup> Their work collectively spanned six decades from about 1940 to 2000, a period in which choral music in public schools worldwide expanded to include both increasing levels of performance quality in high school choirs and the highest levels of musicianship for children and young adolescent singers.<sup>22</sup> It is of great concern that this choral tradition seems not to be as strong in Greece.

Irvin Cooper's work was primarily intended to assist general music teachers working with young adolescent singers, not "special performing groups such as choirs or ensembles."<sup>23</sup> His concern, at the outset, was to improve the quality of instruction in music reading by providing guidelines for the ranges of sight-reading and other singing exercises so that all students could be successful. It was within this context that he indicated a composite unison range of a fifth – in octaves – for all students, male and female, in a typical junior high general music classroom.<sup>24</sup> Cooper advocated the application of his suggestions to junior high choral ensembles. Cooper's ranges for boys at varying stages of change resulted from study of 114,000 males. These ranges included a designation of "cambiata" (changing voice), with a one and one-half octave range of f below middle C through C above middle C.<sup>25</sup> Cooper's approach has become widely associated with the term "Cambiata Concept." Cooper advised, however, that "the range criteria under discussion apply to singing activity in the general music class,"<sup>26</sup> and the fewer, selected students in choral ensembles would likely possess wider ranges with more individual variety.

McKenzie felt that Cooper's cambiata range was too high for newly changing voices and those experiencing very gradual change.<sup>27</sup> McKenzie identified the changing male voice as an "alto-tenor" with an approximate octave range of g below middle C to G above.<sup>28</sup> While some seventh and eighth grade boys might be able to sing lower pitches, McKenzie regarded the bass voice as a rarity.<sup>29</sup> McKenzie's focus on downward vocalizations to aid in the smooth transition between head and chest registers found favor with many music teachers who saw similarities between his approach and traditional Bel Canto vocal technique.<sup>30</sup> McKenzie recognized that changes in the speaking voice of adolescent boys were indicators of the onset of changes in singing range.<sup>31</sup> He referred to this new speaking voice as the "youth sound," neither man nor child.<sup>32</sup> It was at this stage that boys were able to sing the octave range of the Alto-Tenor. McKenzie found that boys who became basses often progressed through the change more quickly than did eventual tenors.<sup>33</sup> All boys experienced each of the stages identified by McKenzie, later setting into their adult range during the teen years.<sup>34</sup> McKenzie advocated having boys sing in the most comfortable part of their range (the tessitura) while avoiding the extremes of the lower and upper ranges.<sup>35</sup> In a 1987 survey, teachers identified as producing "performance successful" choirs in the United States indicated that they employed McKenzie's techniques and approach toward vocal classification.<sup>36</sup> One influence of McKenzie's work was the identification of a specific vocal range that composers and arrangers of choral literature could use as a guide toward accommodating the majority of boys with changing voices. McKenzie, though, noted that his alto-tenor plan was intended to address the singing of students in general music classes and that other approaches might be "more suitable for choirs."<sup>37</sup>

Fredrick Swanson's research with adolescent male singers was influential because of its resulting vocal pedagogy techniques, many of which have proven to be highly effective in choral settings.<sup>38</sup> Swanson felt that existing models of vocal change that prescribed an orderly progression through multiple stages were erroneous. He wrote, "Each changing voice follows its own individual and unique pattern as it moves from the boyish treble to the adult singing voice."<sup>39</sup> Swanson's focus was the timbral effects of the changing voice as it descended in pitch

and, consequently, forced boys to make decisions about whether and how to sing in different vocal registers.<sup>40</sup> Swanson specifically disagreed with Coopers' assertion that the voice change process was gradual and that bass voices were rare in adolescent choirs. These disagreements were publicly argued in the pages of the *Music Educators Journal* during the early 1960s.<sup>41</sup> In retrospect, these fascinating discussions heralded a shift from observational research techniques to the gathering of empirical data about the male changing voice.

In the mid-1970s, John Cooksey began to collect and conduct research in an effort to determine what actually happened physiologically and acoustically to the boy's voice throughout the change process. Cooksey built on previous research in Czechoslovakia and Austria and theorized that there are several distinct vocal development stages through which young men all progress.<sup>42</sup> First published in 1977, Cooksey's five stages of adolescent male voice change have been substantiated by numerous studies involving thousands of young men from several continents.<sup>43</sup> Subsequent research has correlated the Cooksey stages with the universally-accepted stages of male adolescent pubertal development identified by James Mourilyan Tanner.<sup>44</sup> The "Tanner Stages" continue to influence research about adolescent males, singing, and the Cooksey stages of vocal maturation.<sup>45</sup>

Main findings of Cooksey's research indicate that each boy progresses through the stages (identified by range, tessitura and timbre) at different rates, lingering in some stages and passing rapidly through others. Some young men will experience smooth transitions between stages, while others will encounter more abrupt transitions. This research indicates that each boy will move sequentially through each stage before eventually settling into a more mature vocal range and timbre during his late teens and early 20s.<sup>46</sup>

The most important characteristics of these six stages are: 1) each stage lowers progressively in pitch; 2) the range (all pitches the boy can sing) is always wider than the tessitura (the pitches the boy can sing most comfortably); 3) the tessitura remains constant at about a sixth in each of the voice stages, though that sixth is different in each stage making unison singing a difficult prospect for choirs with boys in multiple stages of change; 4) the middle stages are the most difficult for boys because they represent the time of most vocal instability; 5) the emergence of the falsetto voice denotes the midpoint of the change process; 6) adolescent male voices should not be expected to sound like adult male voices.<sup>47</sup>

The six stages of the boy's changing voice, identified by John Cooksey, are shown in Figure 1 as adapted by Patrick Freer. As young men progress through the stages of vocal development, the lower limit of the range descends rapidly and then stabilizes; the upper limit follows the descent more gradually. This effect is analogous to a toy "slinky" descending a staircase. This could be why the voice may seem to change overnight, although these apparently sudden extensions of the lower range are simply a continuation of the change process.<sup>48</sup>

FIGURE 1 HERE  
Stages of the Boy's Changing Voice

When the musculature that operates the vocal folds changes position rapidly, boys' voices are sometimes said to "crack," although this term is not at all accurate. Pitches produced by the vocal folds result from interactions of muscles that synergistically lengthen the vocal folds to produce higher pitches (the cryothyroid muscles) and those that shorten the vocal folds to produce lower pitches (the thyroarytenoid muscles). Basically, when a boy's voice "cracks," he

has just experienced a sudden shift in the musculature instead of the smoothly controlled muscular coordination he was expecting.<sup>49</sup>

The “cracking” in adolescent boys’ voices is largely a result of laryngeal muscles growing at different rates, coupled with some thickening of the vocal folds.<sup>50</sup> These sudden adjustments are related to the developing musculature around the larynx and are part of normal vocal maturation. This effect can be somewhat minimized by encouraging boys to sing prior to and throughout the voice change, helping boys adjust to the new vocal techniques required by their developing vocal musculature, and encouraging them to sing with their “new voice” as well as their falsetto when it becomes available to them.<sup>51</sup> Boys who develop the skills of mixing the head and chest registers prior to the voice change are often more successful in mixing the registers that occur during and after the change.<sup>52</sup> Actually, it may be advantageous to refer to the ways singers experience muscle usage rather than describing “registers.” The terms “heavy mechanism” (chest voice) and “light mechanism” (head voice) are increasingly preferred by voice scientists, voice teachers, and singing coaches.<sup>53</sup>

### Male Changing Voices and Classroom Singing

One of a music teacher’s most important tasks is the selection of song literature and choral repertoire for young adolescents. Many songs are not suitable for singing by all students because the vocal range is too wide. For example, the unison singing range for an average group of young adolescents ages 10 through 14 encompasses only the interval of a sixth—roughly from G to E in octaves.<sup>54</sup> So, songs with a limited range must be chosen and placed into keys that allow for singing by the entire group. Students with changing voices often enjoy highly rhythmic singing and fast tempos. If songs with these characteristics are selected, try to find songs where the melody moves by steps rather than by skips. These will be easier to sing because they will require less abrupt muscular adjustments of the developing vocal mechanism as pitches are changed. Teachers also need to be cautious about the girls’ developing voice since energetic singing may cause girls to sing too loudly. A gentle, somewhat breathy tone quality is expected for young adolescent girls.<sup>55</sup>

A viable option for classroom singing is to arrange vocally sung accompaniments for songs that incorporate the ostinati and bourdons common when using Orff-type instruments. These accompaniments often have simple melodic figures and are very repetitive. Teachers might assign their students to compose vocal ostinati that work well with various types of voices in their class. These pieces should incorporate limited-range ostinati, with the key of the piece determined by that ostinato and the boys who can sing it. In other words, fit the song to the singers, not the singers to the song.<sup>56</sup>

### Research, Philosophy, and the Choral Ensemble

The philosophical decision to keep boys singing during the voice change process was nowhere more evident than in boy choirs. The European boy choir models were among those emulated in the United States as the a cappella choral movement took hold in the first half of the twentieth century. When these followed a strict British cathedral choir model, boys were removed from the choral ensemble either at a certain age or at the onset of vocal change.<sup>57</sup> One of the boldest moves came from the conductor of the American Boychoir, James Litton, at the height of the choir’s popularity in the early 1990s. The choir had numerous recording contracts for commercial work and was making regular appearances in the nation’s premiere concert halls. Upon becoming aware of the research of Cooksey and others, Litton removed the requirement

that boys leave the American Boychoir at the onset of vocal change. Instead, he developed a flexible system of repertoire selection that matched the repertoire to the boys rather than matching the boys to pre-determined repertoire.<sup>58</sup>

Despite advances in research and pedagogy, concern remains about the participation of males in choral music. This well-documented concern has persisted for over a century with an ever-widening ratio of male to female participation rates.<sup>59</sup> More pertinent to the discussion of choral music's missing males, however, is a recent finding that one in eight United States parents report their child involuntarily stopped singing because they were no longer eligible for their particular chorus due to their changing voice.<sup>60</sup> It is reasonable to suggest that this lack of choral opportunity disproportionately affects young adolescent male singers. Recent research indicates that this problem is evident within Greek schools, wherein the ratio of female to male choral participation is 85:15 in public schools, 82:18 in private schools, and 77:23 in music schools.<sup>61</sup>

### Changing Voices and Choral Repertoire

Choral teachers working with young adolescents frequently select repertoire more appropriately written for other types of ensembles. This is understandable, particularly because of the wealth of high-caliber repertoire for treble and SATB choirs. The problem is that most treble repertoire is not suitable for developing adolescent voices because it does not include parts for the many stages of the male changing voice and it often includes a tessitura (not range) too high for the female changing voice. This can be seen most easily in choirs where the boys sing the melody "down the octave" in a most unsatisfactory attempt to participate.<sup>62</sup> Singing most treble melody lines an octave lower than written will be too low for these boys.

In the United States, many publishers and composers attempt to incorporate the results of research about the changing adolescent voice, but these efforts are recent enough that the music publishing industry has not yet effectively developed time-honored standards of quality literature.<sup>63</sup>

### What Boys Suggest

The recent growth of narrative research in music education has afforded researchers the opportunity to ask boys why they participate in choirs, why they may have once participated yet withdrew, or why they never considered joining in the first place.<sup>64</sup> Narrative research conducted in the United States has produced a wealth of information about what boys suggest choral teachers might do to attract and retain adolescent males. Research suggests that adolescent boys seek musical experiences where their skills match the challenges;<sup>65</sup> in-class competitions and learning-based games;<sup>66</sup> physical knowledge of their own voice change process;<sup>67</sup> the acquisition of skills rather than the perfection of a particular repertoire selection; skill-based feedback from peers and/or teachers; and challenging, highly-rhythmic, multi-voiced repertoire.<sup>68</sup> In these activities, boys want to focus on the development of vocal skills, vocal technique, and music reading skills rather than repeatedly drilling the pitches and rhythms of a small number of repertoire selections.<sup>69</sup> Although most boys enjoy the goal of singing choral music accurately and well, they want to learn skills that can transfer to other musical situations – often beyond choral music.

One frequent recruitment strategy is to have older boys perform for younger boys as role models. Adolescent boys do indicate that this strategy is effective, but they repeatedly suggest that the greater benefit occurs when a "generation" is skipped and boys at least four or five years older serve as the role models.<sup>70</sup> It may be that young boys seek ideas of who they can become if

they pursue the right strategies and school activities. This conception is similar to the “possible selves” construct beginning to be explored within motivational research in music education.<sup>71</sup> This research indicates that adolescent boys and girls begin to hypothesize about their future selves, including those they wish to become or fear becoming. They can then plan strategies to achieve or avoid the realization of those possible selves.<sup>72</sup> It appears that boys seek role models of these possible selves, but it is most effective for those models to be at least four or five years older.

Boys do need their teachers to be role models in many ways, however, and one of the most important is as a vocal model. Adolescent boys do not indicate a preference for male or female choral music teachers, but they do ask for teachers to provide vocal models of males who could sing the notes they would be expected to sing.<sup>73</sup> When female teachers sing in their lower register in well-intentioned efforts to model the pitch for boys with changing voices, the result is that boys will often either sing an octave lower – imitating the vocal technique rather than the pitch – or not want to sing at all. In these instances, boys report feeling as though female teachers emasculate the pitches young men are so proud of finally being able to sing with their newly changing voices.<sup>74</sup> Boys also state that they are willing to experiment with their upper pitches or falsetto voices, but only once they gain confidence singing the lower pitches.<sup>75</sup>

These points are all suggestions from boys about how music teachers can utilize what research indicates about how adolescents think, grow, learn, and mature. One unifying link unites each of these suggestions: boys want to be treated as the young men they are becoming.

#### The Male Changing Voice and Musicianship

Choral conductors often assume that the vocal limitations that are experienced by some boys during voice change indicate a concurrent limitation in musicianship. That is not the case. While the voice change may temporarily render a boy unable to fully express his musical skills, those skills are still very much part of his musical identity and capability. Teachers attempt to assist these boys by selecting simple literature with unappealing melodic lines and static rhythmic figures. This only adds to the frustration of boys who were likely singing far more complex repertoire before the onset of vocal change. These boys come to view choral music as emasculated or feminine.<sup>76</sup> Research indicates that adolescents want to be challenged to increase their skills by singing difficult yet attainable repertoire.<sup>77</sup>

Many rehearsal strategies common in choral rehearsals for young adolescents emulate those of older choirs without regard for how boys think and learn. One result is that many boys are perceived as having behavior problems when they either don't respond to instructional activities or engage in physical activity as a form of self-stimulation to prevent boredom.<sup>78</sup> Adolescence is an extended period of increasing growth, strength and physical coordination. This involves the vocal mechanism just as it involves the rest of the boys' body. Yet, choral teachers don't often provide the detailed physiological descriptions of the voice change process that fascinate boys.<sup>79</sup> Boys experiencing frustration in choral music tend to be drawn away, attracted to where their developing growth and strength is celebrated – sports. It is within these activities that boys learn about sport-specific anatomy and physiology from their coaches. Choral music teachers need to be “coaches” of singing and musicianship, leading boys to understand the physical changes within their vocal mechanisms, what will happen next in the change process, and what outcome can be expected.<sup>80</sup>



## Implications and Future Directions

Even with the emergence of scientific research about the male voice change, practical application has not been universal, even in the United States where the research is readily available and communication between choral music teachers is frequent.<sup>81</sup> Many music teachers in the United States only select treble repertoire for their boys, even for those unable to sing treble pitches. Other music teachers insist that all boys sing low notes more appropriate for older males, regardless of their ability to sing those pitches. There are three likely causes for the discrepancy between research and practice: 1) colleges and universities often do not adequately prepare future music teachers to understand the vocal pedagogy and instructional techniques appropriate for working with the male changing voice; 2) the choral profession does not recognize choirs with changing voices as legitimate musical ensembles; and 3) choral music teachers themselves do not recognize or value the musical capabilities of the adolescent male singer.

There are exceptions to these situations. Some choral music teachers do understand the unique characteristics of young adolescent males and their changing voices. Some choral ensembles incorporate changing voices and produce exemplary musical performances. Some professional organizations, such as the American Choral Directors Association, have begun to highlight choirs of young adolescents at their conventions and in their professional journals. But, it seems clear that all of this success depends upon the knowledge and musical sensitivities of the individual choral music teacher.

Our suggestions follow from this research and how it has been employed in the American choral context. For teachers in Greek schools, we recommend becoming knowledgeable about the male voice change; the emotional, social and physical characteristics of young adolescents; and the basic processes of vocal pedagogy and singing technique. For associations of music teachers in Greece, we offer two recommendations: 1) provide both practical and theoretical workshops for teachers, led by teams of international and domestic experts in choral music education for young adolescent male singers; and 2) provide both practical and theoretical resources (print, web and video) to which teachers can refer. For colleges and universities, we offer three recommendations: 1) incorporate research-based information about the male changing voice within choral methods courses; 2) build the capacity for graduate students to conduct basic research concerning vocal techniques and instructional strategies appropriate for young adolescent male singers while reflecting the unique characteristics of Greek culture and music; and 3) provide the resources necessary (print, web and video) to provide aural and visual images of the pedagogy and musical results possible when working with boys and their changing voices.

Finally, we recognize that the most effective stimulus for change will be the opportunity for choral music teachers to see expert clinicians work with choirs of young adolescent singers. We recommend that groups of young adolescent singers, representing a variety of experiential and achievement levels, be formed to serve as demonstration choirs led by domestic and international experts in choral music education and the male changing voice.

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