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An Investigation of Male Voice classification in the Small High School.

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An Investigation of Male Voice Classification in the Small High School

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by

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THESIS ACCEPTANCE

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Abstract

The purpose of this study was to investigate the practices of classifying male voices in the small high school mixed choir. All Class C choral directors of Nebraska were surveyed to obtain data concerning male voice classification determinants. Of the eighty-four surveys mailed, sixty-three were returned. The survey included: 1) identification of the classification determinants used by the director, 2) rank ordering the determinants used, and 3) thirteen statements that the director indicated a level of agreement or disagreement. Results indicated that directors used range, tessitura, and timbre as significant determinants of voice classification. The directors also ranked range as the most important determinant. Responses revealed that directors considered classification as a key ingredient for a successful choir and a difficult process due to the transitional nature of the adolescent male voice. Finally, directors believed that the potentially smaller base of male students in the small high school could affect the way a director might classify a voice.

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Chapter 1

Introduction

High school choral directors play an important role in helping male students improve their singing voices. A positive classroom atmosphere and a fundamental understanding of vocal techniques are essential to the success of the high school male singer. Vocal development at this age is extensive, rapid, and erratic (Swanson, 1977). Hence, the classification of male singers into the tenor, baritone or bass section of the choir requires careful and frequent instructor consideration (Wolverton, 1985).

High school choral directors establish goals for each school year based on a variety of factors. One factor is often the voice classification process (Wolverton, 1985). Voice classification determines the number, quality, and part capability of the chorus directly affecting the choice of music for the choir. Classifying a voice can help the director discover the abilities and vocal characteristics of that individual voice. These determinations will provide the director with the information necessary to set musical goals for the ensemble.

There are differences in perception among choral directors about how voice classification achieves balance (Wolverton, 1985). According to Wolverton (1985) some

students are placed in the incorrect section of a choir because of a director's intent on keeping the same number of singers in each section. He stated that directors assign students to voice parts for reasons other than the attributes of the voice. Other directors may not be as concerned with the number of voices in each section, but balancing the choir sound by encouraging students to listen to each other and regulate balance accordingly.

One difficulty in achieving balance is that males are often difficult to recruit and retain in many vocal programs which causes a shortage of male voices for the choral ensemble (Phillips, 1995a; Swanson, 1984, 1982). Most high school male students are going through the latter part of their voice change and are settling into a tenor, baritone, or bass voice (McIntosh, 1980; Phillips, 1992; Swanson, 1984). Many of these students have an immature voice that has not settled into the adult voice (Wolverton, 1985). Males may feel insecure about singing during the voice change, and consequently, switching voice parts frequently. This shifting from one voice classification to another can cause misuse and strain that often results in permanent vocal damage (Wolverton, 1985) This makes accurate voice classification extremely important.

All high school choral directors, despite their school size, deal with classifying voices. Understanding and

applying proper voice classification procedures are essential components for successful choral programs. Yet, even experienced vocal teachers frequently disagree over the classification given to some students (Cleveland, 1993b; Wolverton, 1985).

The purpose of this study was to investigate the practices of classifying male voices by directors in the small high school mixed choir. Specific questions to be investigated were: 1) What criteria or methods do small high school vocal music directors use to classify male voices? 2) Are range, tessitura, timbre, speaking voice, register breaks, and physical characteristics used individually or in combination to classify male voices? 3) What primary problems of male voice classification do music directors encounter? 4) Do small high school vocal directors seek to balance their choirs through voice classification? 5) Do smaller numbers of males in the small high school affect the choral director's voice classification decisions?

For this study, the definition of a small high school is based on criteria established by the Nebraska School Activities Association (1995). The term "small high school" will refer to a Class C school in the state of Nebraska. Class C schools have a student population of 75-150. This is based on the enrollment in grades nine, ten, and eleven

that has been submitted to the Nebraska Department of Education during the preceding school year. For this study, "high school" is defined as a school having grades nine through twelve.

To improve the study's interpretation, several musical terms require definition. "Bass" is the lowest of the male voices (Phillips, 1992). "Baritone" is higher than a bass but lower than a tenor (Phillips, 1992). The "tenor" voice is the highest of male voices (Phillips, 1992).

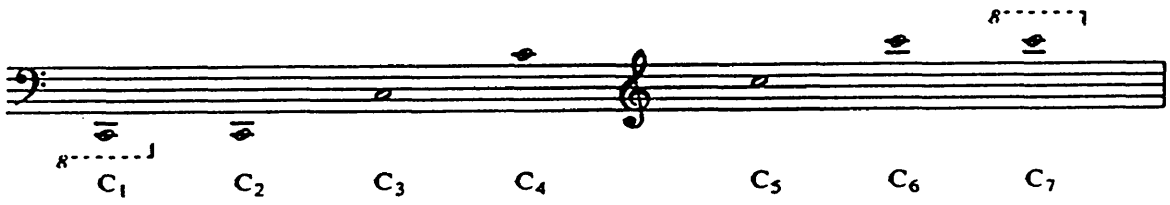
"Range" is the overall pitch variation between the high and low limits of the voice (Phillips, 1992). "The term 'tessitura' refers to the general lie of a vocal part, whether high or low in its average pitch" (Phillips, 1992, p. 56). "Register" is a series of consecutive tones with similar tone color and can be distinguished from the adjoining series of tones (Miller, 1986). "Break" is the shifting or lift from one register to another (Randel, 1986). "Timbre" is the color or quality of the voice that makes it different from others (Cleveland, 1993a; Vennard, 1967). The term "voice classification" is the assignment of students to a choral part name (i.e. T=tenor and B=bass).

"Changing voice" refers to the vocal realignment that takes place in the male voice (Phillips, 1995b). The changing voice occurs during the lengthening of the larynges and hardening of the cartilage. This causes a male voice to

increase in size and shape, lowering in pitch by about one octave (May & Williams, 1989; Swanson, 1977). There is a distinct change in the pitch and timbre of the male voice (Swanson, 1977). As the voice changes, it will pass through different classifications and must be monitored carefully (Cooksey, 1977). Voice changes take place in grades seven to nine, or ages twelve to fifteen years (Cooksey, 1977; May & Williams, 1989).

Pitch designations in this study will be based on the following:

Example 1



This study will provide information and assistance to high school vocal music directors. The focus upon smaller schools was to determine if a potentially smaller number of male students will have any bearing on how the director might classify a voice. Phillips (personal communication, June 26, 1996) believed that small school directors are affected by the smaller amount of males. Many of these directors may face the difficulty of finding enough males to

fill a section so balance can be achieved. This could have implications on the directors classification methods.

The purpose of this study was to gain insight in the male voice classification determinants used by Class C directors. Choral directors depend on pedagogical literature for guidelines in classifying voices (Wolverton, 1985). Learning how colleagues classify voices could be of great assistance to directors who may need reassurance that their methods and techniques are in the best interest and training of the student. This study investigated the criteria and difficulties that directors in similar size high schools used to classify male voices.

Chapter 2

Related Literature

Vocal Classifications

High school choral directors classify male voices into the two major categories - tenors and basses (McIntosh, 1980; Phillips 1992). Some directors sub-classify tenors and basses into first tenors, second tenors, baritones, and basses (Crowther, 1981; Hammer, 1984; Phillips, 1992). These subdivisions depend on the number of male voices, their.ability to sing with an ensemble, and the requirements of the music (Crowther, 1981). A director needs to teach, sing, and listen to students to gain expertise in proper classification of these voices (Cleveland, 1993b).

Between the ages of sixteen and eighteen the male voice will settle and emerge as a bass, baritone, or tenor (Swanson, 1977). High school male voices are subject to frequent vocal changes resulting from physical growth and maturation (Wolverton, 1985). Proper voice classification is crucial. Allowing a student to continually sing in the wrong classification could cause harm to the vocal mechanism (Cleveland, 1993a; Hammer, 1984; Vennard, 1967; Wolverton, 1985).

Testing a voice will help to place a singer into the right classification. The test may include singing vocal exercises, singing a prepared song, sightreading and so on.

Testing criteria includes using any one or all of the following determinants: range, tessitura, timbre, speaking voice, register breaks, and/or physical characteristics (Wolverton, 1985). The director assesses the individual voice and then categorizes the voice to a vocal part based on the results of the voice test.

Cooksey (1977) recommended testing male voices three or four times a semester. Such frequency will assure both the director and the student that the classification is correct. Adolescent male voices will need to be re-checked often to assure correct voice classification assignment (Wolverton, 1985). Vennard (1967) expected most males to be baritones due to their medium range. The "unusual" voices would be the extreme voices of bass and tenor (Vennard, 1967). According to Vennard (1967), tenor sections of choirs are often filled with high baritones. Other baritones consider themselves to be basses simply because they have not discovered their top tones and the potential with these tones (Vennard, 1967). The adolescent male tenor will begin to emerge in the ninth grade (Phillips, 1992). The tenor voice is the slowest to develop and few adolescent males sing it well (Phillips, 1992).

Classifying male voices may be conducted after the students have gained some vocal experience in rehearsals (Brahm, 1983; Miller, 1993). According to Brahm (1983), a

few class sessions help males to feel less inhibited about having their voices tested. Adolescent males need the confidence required for a successful voice test so to not become disenchanted with music altogether (Wolverton, 1985).

Voice Registers

A basic understanding of vocal registers is important to the voice classification process. Vocal registers should perform as a combined unit that functions as one (Robinson, 1977). Vennard (1967) called this the "blending of registers" or helping students through the "passage" or "bridge" from one register to another (p. 73). The chest voice is the lower pitch range and has a rich, deep sound. Michelson (1993) referred to the chest voice as having a heavy quality because of the low notes associated with it. The term "chest voice refers to the location of vibratory sensation" in the lower range (Miller, 1993, p. 2). Miller (1986) compared the chest voice to the comfortable speaking range that would end at the primo passaggio. Although basses sing predominantly in the chest voice, they do use the head voice for higher tones and occasionally the falsetto (Vennard, 1967). Tenors sing in the chest voice up to F4, passing into head at least to A4 (Vennard, 1967). Phillips (1996) stated that many adolescent males view the head voice as not being "manly" in sound. This causes a lack of tenor voices because the males believe men only sing

in the chest (low) voice (Phillips, personal communication, June 26, 1996). This idea is easily corrected by allowing the males to hear men using their head voices (Phillips, personal communication, June 26, 1996).

Male high school students in high school are usually at the end of the voice change process that realigns the registers to a lower voice (Cooksey, 1977; Phillips, 1992). This may lengthen the vocal cords by fifty percent (Brodnitz, 1983). The voice change is known as "mutation" and is characterized by a drop of as much as an octave in pitch for males (Brodnitz, 1983). Male students should be encouraged to understand that this is a natural phenomenon (Phillips, 1995b).

Vocal Characteristics

There are several characteristics of the male voice. These characteristics reflect both similarities and differences. Heffernan (1982) considered tenors to have a light, clear sound with a pleasant vibrato. Miller (1993) believed that teachers assume that all tenors should be light in quality and high in pitch, yet tenors can be heavy and more dramatic than some basses. Tenors use a light voice as well as a heavy voice (Vennard, 1967). Gordon (1989) considered the ideal qualities in tenors as "lyricism and head voice," and undesirable tendencies as "blatant, pushed-up high notes with a pinched sound" (p. 152).

Gordon (1989) called the ideal qualities in baritones/basses as resonant supported tones, and undesirable tendencies as boominess and unwieldy sounds. Phillips (1992) described the difference between basses and baritones as changing registers at F3 and G3, respectively. Baritones should have a warm, lyric quality with control of the upper registers (Heffernan, 1982). Basses have a heavy, dark quality about their voice (Phillips, 1992). Phillips (1992) considered most high school "basses" as actually being baritones.

Swanson (1977) researched the attributes of male voices and made the following conclusions:

1. The tones are clear and resonant, with no harsh overtones or muffled sounds.
2. The head tones are well developed and unforced.
3. The chest tones are full and rich, but not pushed and strident.
4. The two registers are so smoothly blended that the passage from one to another cannot be easily detected.
5. Tones are so well focused that the voices are heard in the farthest reaches of a large auditorium.
6. There is enough control so that the loudest tones are full and resonant with no trace of stridency or harshness, while the soft tones float effortlessly.

> The transition from soft to loud or loud to soft is so gradual there is no perceptible point of transition.
>
> 7. All the voices blend so that no individual voices can be singled out (p. 33).

The problem in using descriptive words to illustrate vocal quality is that the terms are subjective and non-quantifiable (Wolverton, 1985). It is difficult to classify a voice with absolute assurance when the one basis for classification is the quality of the voice. Terms such as "lyric," "flutelike," "deep" and "full" are difficult to measure objectively, but they are used (Cooksey, 1977).

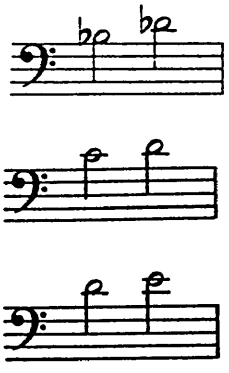
Certain points in the musical scale of each singer are referred to as breaks, lifts or passaggi (passage). These cause a change in the timbre of the voice (Hammer, 1984; Miller, 1993; Wolverton, 1985). Hammer stated that "the passaggio is that group of notes on which the voice seems to change in quality, or breaks, or becomes weak and breathy" (1984, p. 109). Passaggio is used to describe the pivotal points of the voice with the first called primo passaggio, and the second, secondo passaggio (Miller, 1993). Miller (1993) considered the first pivotal point as the break for the head voice and the second as the break for the falsetto voice. The point below the primo passaggio is referred to as the chest voice. Directors need to work with male

singers in blending the chest voice with the lighter head voice (Hammer, 1984).

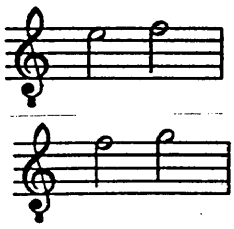
The transition points are different for the various voice classifications. Differences in location of the passaggi reflect differences of structure and timbre between the bass and tenor voices. Male singers who approach the end of their comfortable speech range reach a point where they often involuntarily raise the chin and the larynx (Miller, 1986). The corresponding pitch is the primo passaggio. An interval of a fourth above the top of the comfortable speaking range is usually where the voice will either break or resort to a sudden falsetto, this is the secondo passaggio. Above this second pivotal point lies the legitimate head voice, a range extending a fourth or fifth in most male voices (Miller, 1986).

Hammer (1984) used the following guidelines to determine which section the male singer should be assigned:

Example 2



1. Bass II or low (contra) basses: passaggio break about $E^{\flat}3$ to $D^{\flat}4$.
2. Bass-baritones: passaggio break about C4 to D4.
3. Lyric baritones: passaggio break about D4 to E4.



4. Tenor II: passaggio break about E4 to F4.

5. Lyric tenor: passaggio break about F4 to G4.

Miller (1985) used the following passaggio points to determine classification:

	Primo	Secondo
Bass II	$A^{\flat}3$ - A3	$D^{\flat}4$ - D4
Baritone	$B^{\flat}4$ - B4	$E^{\flat}4$ - E4
Tenor II	C4 - D4	F4 - G4
Tenor I	E4 - F4	A4 - $B^{\flat}4$

Discovering the passaggi pivotal points of the voice, and avoiding classification based chiefly on how high or how low a singer can sing at some early stage of vocal development, is wise classification procedure (Miller, 1986)

Hammer (1984) considered the singer's vocal timbre as the determining factor in voice classification. A particular timbre quality would suggest that there is a timbre for each voice classification (i.e., a tenor timbre, a bass timbre, etc.) and as a singer's ability develops, his vocal range would eventually be appropriate for his timbre (Cleveland, 1993b). The difference in timbre at the register change may be important in classifying adolescent voices (Miller, 1986).

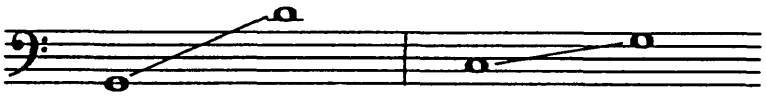
The vocal range of high school males can vary because of physical maturity and the amount of vocal training. This could unfairly "qualify" a voice for more than one classification (Cleveland, 1993a). Yet, students should be assigned to the classification that best represents their range. Phillips (1992) provided good examples of male high school vocal ranges: (refer to examples 3-5)

Example 3

Tenor: Range B 2 - F4 Tessitura: E 3 - B 3

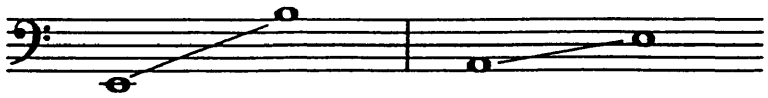
Example 4

Baritone: Range G2 - D4 Tessitura: C3 - G3



Example 5

Bass: Range E2 - B3 Tessitura: A2 - E3



Vennard (1967) considered a trained male adult voice to have a range of two octaves. A bass should be from E2 to E4, a baritone a third higher, and a tenor should sing to a C5 (Vennard, 1967). When range is allowed to serve as the chief consideration in vocal classification, many male vocalists are mistakenly classified (Miller, 1985). Vennard (1967) believed voices should not be classified entirely by range because many singers have a wide range. He continued by stating the "important criterion is tessitura, that is, that part of the range in which the voice performs best, both as to sound and as to ease" (p. 79).

Research has revealed many determinants used for voice classification. There also appears to be just as many opinions as to which determinants should be used together and which should be used separately. Heffernan (1982) considered range and tone color as the principal factors that determine voice classification. Miller (1993) stated the range is not always a reliable indicator of

classification, as some tenors may sing lower than a baritone, or some baritones may sing higher than a tenor. Hammer (1984) believed that the best means of classifying voices is by timbre, range and the passaggio of each individual. Phillips (personal communication, June 26, 1996) believed the best classification determinant to use was the register breaks. Crowther (1981) determined voice classification on timbre, tessitura, break, and range. Cleveland (1990) said that voice classification is based on the range (most important), quality (timbre), and tessitura of the voice. One potential problem with using timbre, tessitura, or register breaks is that only empirical evidence attests to the usefulness of voice classification without any explanation of present or future classification of the singer (Cleveland, 1993a).

Some directors consider the physical characteristics of the student to help determine voice classification. The physical structure of the student, usually seen by large laryngeal protrusions which are identified with some tenors, may be helpful but not reliable (Miller, 1993). Voices are housed in physiques that, to some extent, dictate categorization. However, general vocal environment and the specific vocal training a singer encounters will provide the decisive factors in determining voice category and range (Miller, 1986).

The pitch of the speaking voice may give some classification clues (Miller, 1993). Cooksey (1977) stated that the speaking voice "is generally a major or minor third above the lowest terminal pitch of the singing range" (p. 45). Although there is no objective method to measure the optimum speaking voice, listening to it could give a clue to the individual's voice classification.

Vennard (1967) suggested letting the voice classify itself by beginning in the middle of a vocal range and developing the voice upward or downward. He further stated that the technique will aid a director by perfecting voices in the comfortable range and then applying the technique to the extreme part of the range.

Vocal Classification Challenges

Phillips (1995a) believed that students present vocal challenges that often cause choir directors to feel encumbered with guiding them safely to their adult voices. This is often caused by directors who are not sure how to work with the male singing voice. Allen (1986) encouraged that a choral program should be based on instruction in breathing, tone quality, range, posture, blend, and voice classification.

Miller (1992) believed that improper classification of male voices is common. Directors should be cautioned not to think of choral needs when classifying males, but to

consider what is best for the adolescent (Hammer, 1984; Swanson, 1982). Heffernan (1982) stated that "tenor voices can tire easily, for they are singing much of the time in the top quarter of their range" (p. 39). The excessive strain of singing at the top of the tenor range could cause a premature decline of the voice (Brodnitz, 1983). The tendency of adolescent males is to oversing, push, sing with a dark sound, or sing with a heavy tone so they can sound more like "real men" (Michelson, 1993; Miller, 1993).

Tenors and baritones are often misclassified because of registration and vocal range indicators (Miller, 1993). Brodnitz (1983) believed that many tenors are in reality "pseudo-tenors" who sing tenor because directors are reluctant to lose them to the baritone section (p. 25). Miller (1993) provided these indicators that a "tenor may have been incorrectly classified as a baritone:

1. Upper-middle voice may feel heavy and difficult to move.
2. Fatigue sets in quickly.
3. The timbre of pitches near the secondo passaggio does not match other areas of the voice.
4. The throat feels it is closing when 'cover' is attempted in upper-middle and upper voice.
5. The voice is more flexible when less dramatic sounds are produced.

6. When more vocal freedom prevails, the baritone timbre takes on a tenorial character.

7. Casual vocalization into upper range is much easier than maintaining the middle tessitura.

8. Coaches and contest judges who regularly deal with professional male voices always ask, 'Are you sure you are not a tenor?'(p. 134)."

Summary

Based on previous research, there seems to be disagreement among vocal authorities regarding the methods of classification. Wolverton (1985) revealed in his study that vocal authorities use range, passaggio, register change, quality, tessitura and optimum speaking pitch as factors for determining classification. Yet there is no empirical data as to the importance or relationship of each. The related literature presented different methods of classifying adolescent male voices. Many questions remain regarding the techniques of male voice classification, particularly with regard to the small high school. The purpose of this study was to investigate the practice of classifying male voices in the small high school choir.

Chapter 3

Procedure

Subjects

The study's subjects were all of the vocal directors in Class C high schools in Nebraska (N = 94). This school classification was selected based on its student population which reflect the following considerations: 1) A Class C size school has a student population of seventy-five to one-hundred-fifty students. 2) A school of this size generally has have a vocal ensemble with male voices where voice classification is necessary. 3) A school of this size also generally has a non-auditioned ensemble.

Schools that participated in the survey are members of the Nebraska School Activities Association, Class C. The Nebraska School Activities Bulletin (1995) revealed ninety-four schools eligible for participation in this study. The participating schools represented various geographic locations which provide a diversity of cultural and socio-economic backgrounds. All subjects were presumed to be state certified since they were teaching at a state approved school. No other criterion such as gender, race, or educational background were considered for this study.

Survey Development

This study utilized a survey format consisting of a checklist of classification determinants, a rank order list,

and a series of statements which the subject indicated a degree of agreement or disagreement. The checklist, rank order list and statements reflected criteria and information often cited in related literature as techniques for classifying male singing voices.

The survey was divided into two parts with Part I divided into two sections. Part I, Section A consisted of a checklist of classification determinants. In Part I, Section A, subjects placed a checkmark by each voice classification determinant that they use. The subjects were asked to check only the determinants that apply to their teaching situation. In Part I, Section B, the subjects were to rank the same voice classification determinants in the order of importance by placing a number 1 before the item that was most important, a 2 for the next item and so on. Subjects were asked to rank only the determinants that they used in their ensemble instructions and to leave blank any items not used.

Part II of the survey contained thirteen statements in random order concerning voice classification. The subjects expressed their degree of agreement or disagreement with each statement by circling a number on a five-point Likert Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. A five-point Likert scale was used to allow the subjects freedom to rate their

degree of agreement or disagreement and to be neutral if they had no opinion regarding the statement.

Survey Pilot Study

A pilot study was conducted to evaluate the survey tool and accompanying procedures. The pilot study followed the same procedures and survey tool as proposed for the full investigation. Ten directors were randomly chosen from the original Nebraska Class C high school pool as pilot participants and were not included in the later full investigation. This left eighty-four subjects to participate in the full investigation.

The pilot study was conducted over a two-week period. Upon its completion, each director had an opportunity to offer written suggestions for survey improvement. After reviewing the returned pilot surveys, it was determined that only minor grammatical corrections to the survey items and instruction clarifications were needed. These changes were made for the full investigation.

Full Investigation

The full investigation occurred over a one-month time-frame. The revised survey (see Appendix B) and cover letter (see Appendix A) were mailed to each Class C vocal music teacher (N=84) in Nebraska not participating in the pilot study. Participants were asked to return the survey in a provided pre-addressed postage-paid envelope. Each returned

survey was checked against the postmark to determine the directors returning the completed survey. This presented a problem as individual towns do not stamp mail with their own postal mark but send it to be postmarked at the larger postal stations. As a result, after a two-week period the follow-up letter and survey were sent to all subjects that did not have a confirmed postal mark (see Appendix C). The subjects were to respond only if they had not returned the original mailing. At the conclusion of the additional two-week period, data analysis was conducted on the collected surveys.

Data Analysis

Analysis was conducted via a Statistical Package For The Social Services and utilized assistance from the Department of Computing and Data Communications at the University of Nebraska at Omaha. The survey answers were transferred by the author to computer scan sheets for analysis. Both qualitative and quantitative procedures were used. The analysis and interpretation of the survey were completed using chi-square procedures at the nominal data level. The purpose of the analysis was to compare the survey categories regarding similarities and differences in the respondent's answers. Chi-square is a mathematical process that calculates the discrepancies between the frequencies observed and those which were expected by the

researcher (Williams, 1986). The procedure helped determine the differences in how the responses were distributed across the survey sample.

Chapter 4

Results

Of the original eighty-four directors surveyed, sixty-three were returned (75%). The data analysis sought the extent of any significant differences between the choral directors responses by using a non-parametric chi-square procedure. The analysis level for significance was at the $p < .05$.

The first part of the analysis corresponds with Part I, Section A of the survey. Table I shows the number of voice classification determinants used by choral directors. The frequency of responses for this study were range - 62, tessitura - 56, timbre - 41, speaking voice - 26, register breaks - 39, physical characteristics - 9, and other - 4. These responses indicated what the directors used to determine voice classification. The number of responses left unchecked by the directors gave an interesting perspective of those who did not use a particular determinant. Range was left unchecked by only one director, tessitura by 6, timbre by 22, speaking voice by 37, register breaks 24, physical characteristics by 54 and other by 59.

The chi-square analysis for the determinants used by choral directors (see Table I) yielded statistically significant values for range ($p < .000$), tessitura ($p < .000$), timbre ($p < .017$), physical characteristics ($p <$

.000), and "other" ($p < .000$). Two of the determinants were not statistically significant: speaking voice ($p < .166$) and register breaks ($p < .059$). The results indicated that the directors overwhelmingly used range as a determinant in voice classification. Range was closely followed by tessitura and timbre as significant determinants. Although speaking voice and register breaks are used, their usage was not statistically significant. However, the determinant of register breaks was close to significant ($p < .059$).

The determinants of physical characteristics and "other" are significant determinants in that they were not used. This indicates that directors do not use physical characteristics and miscellaneous variables to any significant extent in determining voice classification. "Other" was the name of the determinant variable used to allow directors to include any additional classification variables not included in the survey. It is interesting to read the comments of the four subjects who marked "other" as a determinant (see Appendix D). Most of these comments could be answered by the usage of the determinants of range, tessitura, timbre, speaking voice and register breaks in a voice test process.

Table I

Classification Determinants Used (N = 63)

Determinant Variables	Responses Checked	Responses Unchecked	Chi-Square	df	p
Range	62	1	59.063	1	.000
Tessitura	56	6	40.323	1	.000
Timbre	41	22	5.730	1	.017
Speaking Voice	26	37	1.921	1	.166
Register Breaks	39	24	3.571	1	.059
Physical Charact.	9	54	32.143	1	.000
Other	4	59	48.016	1	.000

The rank order of the responses to Part I, Section B of the survey are reported in Table II. Range and tessitura were ranked as the most important classification determinants followed by register breaks, timbre and speaking voice. The frequency of responses revealed that 33 directors considered range as the most important determinant of voice classification and 23 as second in importance. The determinants of physical characteristics and "other" were ranked lowest. These results concurred with the results of Table I that range is the most important determinant of voice classification, followed by tessitura, timbre, register breaks, speaking voice, physical characteristics and other.

Table II

Ranking Order Responses (N = 63)

Determinant Variables	Ranking Order (from most important to least important) #1	#2	#3	#4	#5	#6	#7	Total
Range	33	23	4	1	1	0	0	62
Tessitura	15	25	17	4	0	0	0	61
Timbre	3	7	10	19	8	1	0	48
Speaking Voice	2	3	5	11	20	2	0	43
Register Breaks	9	4	20	14	2	0	0	49
Physical Charact.	0	0	1	2	2	20	1	26
Other	1	0	1	1	0	0	1	4
Total	63	62	58	52	33	23	2	

One discrepancy occurred in the rank ordering. Directors were instructed to only check and rank the determinants they used. This should result in the total number of responses for each determinant equally corresponding for both sections. They do not. There are two possible reasons: 1) The directions were not clear enough on the survey; or 2) The directors did not read the directions carefully enough. The following table gives the breakdown of the discrepancy:

Table III

Discrepancy in Responses Between Sections A and B in Part I

Determinant Variable	Section A	Section B
Range	62	62
Tessitura	56	61
Timbre	41	48
Speaking Voice	26	43
Register Breaks	39	49
Physical Characteristics	9	26
Other	4	4

The chi-square computations for the classification determinants rankings are reported in Table IV. The analysis revealed that significant differences existed between the frequency of the expected rankings and the actual rankings. The classification determinants that were significant included: range ($p < .000$), tessitura ($p < .002$), timbre ($p < .000$), register breaks ($p < .000$), speaking voice ($p < .000$), and physical characteristics ($p < .000$). The significant values added further credence to the usage indicated by the directors in their determinant rankings. The only non-significant ranked determinant was "other" at $p < .809$. Due to the low number of subjects selecting physical characteristics and "other," these variables should be viewed with caution regarding their statistical significance. However, it is believed that for the purpose of this study this further indicates that the determinants of physical characteristics and "other" are not significant factors in determining voice classification.

Table IV

Classification Determinants Ranked (N = 63)

Determinant Variables	Number of Responses	Chi-Square	df	p
Range	62	69.935	4	.000
Tessitura	61	14.738	3	.002
Timbre	48	25.000	5	.000
Speaking Voice	43	35.558	5	.000
Register Breaks	49	22.122	4	.000
Physical Charact.	26	84.385	6	.000
Other	4	3.000	6	.809

Table V reports the frequency of director responses to the thirteen statements from Part II of the survey. The corresponding number represents the number of directors choosing that particular response. The actual frequency of results to statements 1) Classification of high school male voices is a continuous and difficult process throughout the school year and 2) Since the high school male voice is often in a state of transition, it is difficult to classify this voice indicated that directors felt classifying male voices is a difficult task. The results for statement 3) High school males are often incorrectly classified indicated that directors were overwhelmingly in agreement, yet many took a neutral stand on the statement. The responses to statement 4 revealed that correct classification is a key ingredient for the successful choir with only 3 directors disagreeing with the statement. Statement 5 revealed that directors lack sufficient time to correctly classify voices. Statement 6) Choir directors should consider the needs of the male voice over the needs of the entire choir was predominantly disagreed with as directors indicated that the focus of attention should be on the choir not the individual voice. The results to statement 7 disclosed that directors have male voices that often oversing with their voices to achieve an adult sound.

The response to statement 8 indicated that directors do not think it is a good solution to use altos on the tenor part. Statement 9 indicated a division of opinion among the directors with almost as many being neutral as in agreement or disagreement. Statement 10) Achieving vocal balance in a mixed choir is accomplished by classifying the same number of voices for each vocal part indicated directors were in agreement that balance is not according to the same number in a section.

The responses to statement 11 indicated that directors differ regarding criteria used for classification with a majority in agreement with the statement. In statement 12) Because there are fewer male voices to choose from in the small high school, it will affect how a director will classify a voice directors responded in agreement. Responses to statement 13 Some choral directors assign students to voice parts for reasons unrelated to the various determinants of the voice were overwhelming in agreement with only 5 directors who disagreed but 19 who took a neutral stance.

Table V

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Classification of high school male voices is a continuous and difficult process throughout the school year.	0 (0%)	13 (21%)	8 (13%)	34 (54%)	8 (13%)
2. Since the high school male voice is often in a state of transition, it is difficult to classify this voice.	1 (2%)	13 (21%)	8 (13%)	30 (48%)	11 (18%)

Table V (continued)

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. High school males are often incorrectly classified.	0 (0%)	7 (11%)	18 (29%)	31 (49%)	7 (11%)
4. A key ingredient for successful high school mixed choirs is correctly classifying the male voice.	0 (0%)	3 (5%)	7 (11%)	41 (65%)	12 (19%)
5. High school choir directors lack sufficient time to correctly classify voices.	1 (2%)	10 (16%)	7 (11%)	24 (38%)	20 (32%)

Table V (continued)

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6. Choir directors should consider the needs of the male voice over the needs of the entire choir.	4 (6%)	29 (46%)	11 (18%)	16 (26%)	3 (5%)
7. High school male voices will often over-sing (pushing their voice beyond its' capabilities) to achieve an adult sound.	1 (2%)	17 (27%)	11 (18%)	30 (48%)	4 (6%)

Table V (continued)

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8. Using altos to sing the tenor part is a good solution to supplement a tenor section.	12 (19%)	22 (35%)	12 (19%)	16 (26%)	1 (2%)
9. Classifying a baritone as a tenor can be used to achieve vocal balance.	1 (2%)	22 (35%)	21 (33%)	17 (27%)	1 (2%)
10. Achieving vocal balance in a mixed choir is accomplished by classifying the same number of voices for each vocal part.	31 (49%)	32 (51%)	0 (0%)	0 (0%)	0 (0%)

Table V (continued)

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11. Small high school directors differ as to the criteria used in determining voice classification.	4 (6%)	16 (26%)	14 (22%)	23 (37%)	6 (10%)
12. Because there are fewer male voices to choose from in the small high school, it will affect how a director will classify a voice.	1 (2%)	19 (30%)	3 (5%)	34 (54%)	6 (10%)

Table V (continued)

Frequency of Classification Statement Responses (N = 63)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
13. Some choral directors assign students to voice parts for reasons unrelated to the various determinants of the voice.	0 (0%)	5 (8%)	19 (30%)	36 (57%)	3 (5%)

The statistical data for the thirteen survey statements is reported in Table VI. The chi-square statistics indicated a significant difference between observed and expected frequencies among directors' responses for all the statements. All but two statements were significant at the $p < .000$ level and the other two at the $p < .001$ level. The significant chi-squares suggested a strong attitude toward the statements.

Table VI

Comparison of Survey Statements Using Chi Square.

Statement	Chi Square	df	p
1. Classification of high school male voices is a continuous and difficult process throughout the school year.	52.317	4	.000
2. Since the high school male voice is often in a state of transition, it is difficult to classify this voice.	36.603	4	.000
3. High school males are often incorrectly classified.	46.762	4	.000
4. A key ingredient for successful high school mixed choirs is to correctly classify the male voice.	86.444	4	.000

Table VI (continued)

Comparison of Survey Statements Using Chi Square.

Statement	Chi Square	df	p
5. High school choir directors lack sufficient time to correctly classify voices.	28.806	4	.000
6. Choir directors should consider the needs of the male voice over the needs of the entire choir.	35.651	4	.000
7. High school male voices will often oversing (pushing their voice beyond its' capabilities) to achieve an adult sound.	42.317	4	.000
8. Using altos to sing the tenor part is a good solution to supplement a tenor section.	18.667	4	.001

Table VI (continued)

Comparison of Survey Statements Using Chi Square.

Statement	Chi Square	df	p
9. Classifying a baritone as a tenor can be used to achieve vocal balance.	36.065	4	.000
10. Achieving vocal balance in a mixed choir is accomplished by classifying the same number of voices for each vocal part.	94.540	4	.000
11. Small high school directors differ as to the criteria used in determining voice classification.	18.984	4	.001
12. Because there are fewer male voices to choose from in the small high school, it will affect how a director will classify a voice.	61.048	4	.000

Table VI (continued)

Comparison of Survey Statements Using Chi Square.

Statement	Chi Square	df	p
13. Some choral directors assign students to voice parts for reasons unrelated to the various determinants of the voice.	71.206	4	.000

Many directors offered written comments regarding why they chose their answer in Part II of the survey (see Appendix D). Most comments were clarifications of their classification process. Perhaps the most interesting responses were the requests for copies of the study. There appears to be a great interest as to how colleagues are working with the classification of male voices.

At the conclusion of the survey a matter of information statement was included that said: Check the principal focus of study of your music degree. Four responses were possible: voice, piano, band instrument, and string instrument. The results revealed that Class C directors had a predominately vocal training emphasis (see Table VII). This was included to receive a better understanding of the vocal training and the knowledge that directors had about voice classification. This could relate to the ease and comfort some directors felt in classifying voices or the uneasiness they might have felt.

Table VII

Director's Major Emphasis of Study

Focus of Music Degree	Number of Responses	Percentage
Voice	27	42%
Piano	6	10%
Band Instrument	12	19%
String Instrument	0	0%
Voice & Piano	6	10%
Voice & Band	7	11%
Piano & Band	3	5%
Voice, Piano & Band	2	3%

Chapter 5

Discussion and Summary

The purpose of this study was to investigate the practices of classifying male voices by choral directors in the small high school mixed choir. This was accomplished by surveying Class C choral directors in Nebraska. Based on the results, directors considered range, tessitura, timbre, speaking voice, register breaks, and to a limited degree, physical characteristics and other individualized practices as the primary determinants of male voice classification.

The results coincided with the wide variety of classification methods that were previously discussed. Heffernan (1982) considered range and tone color as the principal factors that determine voice classification. Hammer (1984) believed that the best means of classifying voices is by timbre, range and the passaggio of each individual. Phillips (personal communication, June 26, 1996) believed the best classification determinant to use was the register breaks. Crowther (1981) determined voice classification on timbre, tessitura, break, and range. Cleveland (1990) said that voice classification is based on the range (most important), quality (timbre), and tessitura of the voice.

The results revealed the present study's subjects disagreed as to the individual importance of each

classification determinant and how the determinants coincide with one another. Based on the use and ranking of the determinants, directors appeared to use an eclectic approach by combining the determinants to fit individual situations. The results supported the combining of determinants by the high level of significance revealed in the chi-square analysis.

The study investigated specific questions to help understand the classification process and draw appropriate conclusions. Question 1 asked: "What criteria or methods do small high school vocal music directors use to classify male voices?" The responses revealed that directors considered range to be the most important determinant of voice classification. Perhaps range was selected most important because it may be the easiest variable to determine. Range only involves determining how high and low a male can sing. The other determinants each build upon range in complexity. Tessitura would take a more detailed listening approach to determine that part of the range most comfortable for the voice. Timbre would describe the quality to the voice but may limit the result as male voices of this age are still developing. Register breaks requires experience and good listening skills to determine where the breaks are located. This is not to say that the directors surveyed do not have the skills to make these determinations, just that further

research would be necessary to make that conclusion. A director who combined the usage of the determinants would seem to have a broader base of information to make the correct classification decision.

Two of the classification determinants are not widely used. The results indicated a high significance of non-usage for the determinants of physical characteristics and "other" miscellaneous variables. Physical characteristics would not be considered an important determinate because it is not always reliable. To look at an adolescent male and determine his classification because of the physique would be difficult to do with any assurance. The determinant of "other" was provided for directors to write additional determinants they use for classification that was not included in the survey. Only 4 directors chose to include a response. The lack of responses may indicate that the directors overwhelmingly used the determinants included in the survey.

Question 2 stated: "Are range, tessitura, timbre, speaking voice, register breaks, and physical characteristics used individually or in combination to classify male voices?" The responses of the directors revealed that range, tessitura, register breaks, timbre, and speaking voice are used in combination with each other to determine voice classification. This is supported by the

high significance level that was revealed in the statistical analysis. Directors indicated the usage of determinants by ranking them in the order of importance. The combination of the usage and ranking of determinants revealed the interest of the directors for the variables and their order of importance: range, tessitura, register breaks, timbre, speaking voice, physical characteristics and "other."

Caution should be exerted with the directors' ranking of physical characteristics. It may be that physical characteristics was ranked not because it is used, but because it was on the list to be ranked. The results of Section A of the survey indicated that only 9 of the subject directors used physical characteristics as a classification determinant. Section B revealed that 26 directors ranked the determinant of physical characteristics. This variance may indicate that some directors ranked the determinant in Section B because it was included, not because it is used. Directors might consider physical characteristics but its significance in determining classification may be minimal.

Question 3 asked: "What primary problems of male voice classification do music directors encounter?" The results revealed that directors do consider classification a continuous and difficult process mainly due to the state of transition that adolescent male voices encounter. This result is supported by the chi-square figure which was

highly significant. The process of classification is on-going and requires directors to continuously check voices for the correct classification. Directors believed correct classification to be a key ingredient for mixed choirs as indicated by the significance being .000. The problem of correctly classifying adolescent male voices is compounded when directors lack sufficient time to classify as responses to the statement were significant at the .000 level.

It is interesting that a slim majority of the directors considered the needs of the choir over the individual male. This could be directly related to the lack of male population in the school. Evidently the surveyed directors considered the needs of the choir as significant at the .000 level.

Question 4 asked: "Do small high school vocal directors seek to balance their choirs through voice classification?" Directors were in strong agreement with the concept of using equal numbers of voices in each section to balance the sound as an incorrect approach. Of the 63 respondents, all either strongly disagreed or disagreed with this concept. This could indicate that balance is achieved not by numbers, but by other variables such as instruction. Using altos to balance the tenor part is a technique that 17 directors used. However, 34 directors were not in favor of using altos as tenors. Directors in small schools, who have a

potentially smaller base of male voices to draw upon, could be tempted to have altos switch parts to supplement the sound. This is not the case to any great extent with the surveyed directors. The chi-square statistics would also support these findings as the level of significance was .001.

The last question was: "Do smaller numbers of males in the small high school affect the choral director's voice classification decisions?" Directors agreed that fewer male voices do affect voice classification based upon the statistical analysis which revealed significance at the .000 level. Even though directors indicated that various determinants are used to classify the voice, directors believed that there are procedures used that are not related to the classification determinants. This was also revealed by the small number of directors choosing the category of "other" at the beginning of the survey. An example of this would be placing a voice where it is needed instead of its' classification.

An area of concern that resulted from the survey was the number of directors who responded as "neutral" to many of the survey statements. Perhaps the reason for the "neutral" responses could be one of the following: 1) The director did not have an opinion; 2) The director did not know how to respond to the statement because of lack of

education, training, or experience; or 3) The director did not deal with the statement in the present teaching situation. The actual reason would need to be investigated through further research.

The findings of this study have opened many new avenues for continuing research. A follow-up study could seek the agreement or disagreement of what is considered to be the range, tessitura, timbre, register breaks or speaking voice of a high school tenor, baritone or bass. Even though directors responded to the importance of the classification determinants, this study did not seek to answer the specific criteria of each individual determinant. For example: "What is the range of a high school bass?"; or "What are the register breaks for a high school tenor?"

Further research could determine the relationship between the directors' educational backgrounds or experiences and what determinants are used for voice classification. This study did not attempt to analyze the directors' backgrounds other than to determine the major emphasis of their educational degree. Comparison analysis of the directors' backgrounds in relation to classification procedures could be another complete study.

This study revealed insight into the existing classification practices of Class C choral directors in Nebraska. Further research could compare the differences

and problems of classification between other classes of schools such as Class A, or Class B with Class C. The results may give further insight into the male population issue. It would also be interesting to determine what directors would consider as the best method of classifying voices. The opposite would consider the student's perspective on voice classification. This study investigated male voices. Further research could consider female voices. Studies could also be conducted on the individual determinant's relationship to voice classification.

Evidently directors have opinions about these issues as gathered from the responses to the survey. Many desired to know the results of this study indicating a great interest in the voice classification process. Classification is a practical issue that is continually dealt with by choral directors. Any help that can come from further research would only assist in making the process easier for both students and directors. Students could possibly give a different perspective concerning voice classification.

Results from this study revealed that classification is an important ingredient to the successful choral program. The results also indicated that small school directors primarily use range, tessitura, timbre, register breaks, and speaking voice to determine voice classification. Further

research is necessary to determine the impact that each of these determinants has in the actual classification process.

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Appendix A

Letter to Vocal Music Directors

April 1, 1996

Dear Vocal Music Director:

My name is Larry Nilius. I am the choral music teacher at Omaha Christian Academy and a graduate student at the University of Nebraska at Omaha. As part of my degree, I am conducting a research study investigating the practice of classifying male voices in Class C high school choirs of Nebraska. I am asking for your assistance in completing this project.

Enclosed is a brief survey pertaining to male voice classification. Please take a few minutes to complete the survey and return it in the enclosed postage paid envelope.

Your input is essential for complete and accurate results. **Please return the survey by April 15, 1996.** I greatly appreciate your cooperation.

Sincerely,

Larry Nilius

Enclosure

Appendix B

Male Voice Classification Survey

Part I:

A. Place a checkmark before each determinant that <u>you</u> use to classify male voices. Check all that apply.

_____1. Range of the singer

_____2. Tessitura (Comfort Zone) of the singer

_____3. Timbre (Tone Color) of the singer

_____4. Speaking Voice of the singer

_____5. Vocal Register Breaks (Lift, or Pivot Points)

_____6. Physical characteristics of the singer

_____7. Other_____

B. Rank each determinant of voice classification in the order of importance to you. Place a "1" in the blank for the most important, "2" for the second and so on. If you do not a particular determinant for voice classification, do not rank it.

_____ Range of the singer

_____ Tessitura

_____ Timbre

_____ Speaking voice of the singer

_____ Vocal Register Breaks

_____ Physical characteristics of the singer

_____ Other_____

Part II:

Circle the one number that best corresponds with your feeling or reaction to each of the statements.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

---

1. Classification of high school male voices is a continuous and difficult process throughout the school year.

   1 2 3 4 5

2. Since the high school male voice is often in a state of transition, it is difficult to classify this voice.

   1 2 3 4 5

3. High school males are often incorrectly classified.

   1 2 3 4 5

4. A key ingredient for successful high school mixed choirs is correctly classifying the male voice.

   1 2 3 4 5

5. High school choir directors lack sufficient time to correctly classify voices.

   1 2 3 4 5

6. Choir directors should consider the needs of the male voice over the needs of the entire choir.

   1 2 3 4 5

7. High school male voices will often oversing (pushing their voice beyond its' capabilities) to achieve an adult sound.

1 2 3 4 5

8. Using altos to sing the tenor part is a good solution to supplement a tenor section.

1 2 3 4 5

9. Classifying a baritone as a tenor can be used to achieve vocal balance.

1 2 3 4 5

10. Achieving vocal balance in a mixed choir is accomplished by classifying the same number of voices for each part.

1 2 3 4 5

11. Small high school directors differ as to the criteria used in determining voice classification.

1 2 3 4 5

12. Because there are fewer male voices to chose from in the small high school, it will affect how a director will classify a voice.

1 2 3 4 5

13. Some choral directors assign students to voice parts for reasons unrelated to the various determinants of the voice.

1 2 3 4 5

Check the principal focus of study of your music degree.

_____Voice _____Piano
_____Band Instrument _____String Instrument

Appendix C

Follow-up Letter to Vocal Music Directors

April 15, 1996.

Dear Vocal Music Director,

Two weeks ago you should have received a survey that deals with the classification of male voices. If you have not returned the survey or misplaced it, use the enclosed survey.

The research project that I am conducting is dependent upon your response. Please take a few minutes to complete the enclosed survey and return it in the postage-paid envelope.

The survey must be received by April 30, 1996.

Thank-you for your response,

Larry Nilius

Appendix D

Written Responses From The Survey

The following are responses that were written on the survey by directors. The responses' location is explained first followed by the actual statement of the director.

Part I Section A

Speaking Voice - "Talk to them about speaking voice if doesn't match their range."

Other - "if borderline, I use them on parts where needed as long as they are capable (without straining the voice);"

- "ability to stay on pitch (i.e. a cappella);"

- "music experience, sight reading, pitch or melody retention;"

- "comfort of attitude of males singing female voice part."

Part I Section B

Range - Ranked #1 "(lowest note)"

Other - "melody retention/ear training"

- "Where I need the part and if they can sing it!!"

Part II

1. Classification of high school male voices is a continuous and difficult process throughout the school year.

-Disagree "Depends on age."

5. High school choir directors lack sufficient time to correctly classify voices.

- "I lack the knowledge."

-Agree "Those which teach K-12."

7. High school male voices will often oversing (pushing their voice beyond its' capabilities) to achieve an adult sound.

-Disagree "Depends on the individual and if you let them."

-Neutral "Not if trained correctly."

8. Using altos to sing the tenor part is a good solution to supplement a tenor section.

-Agree "Sometimes for help."

-Disagree "Depends on range of the tenor part."

-Agree "I've had to do this for balance."

-Neutral "Sometimes."

-Agree "If not <u>always</u> singing tenor. I avoid this if possible."

-Agree "You have to watch the range."

-Neutral "I only do this when necessary. I do put students (female) on tenor when they can't sing high enough to reach 1/2 the alto range."

9. Classifying a baritone as a tenor can be used to achieve vocal balance.

-Agree "Depends on literature use and it's range."

-Agree "Depending on how high the range. If high E's - yes. High F's - only if a good head voice."

-Neutral "Classify a tenor as a baritone."

-Agree "If it doesn't strain his voice."

11. Small high school directors differ as to the criteria used in determining voice classification.

-Neutral "Sometimes."

13. Some choral directors assign students to voice parts for reasons unrelated to the various determinants of the voice.

-Agree "Ultimately - the student makes the final decision to which part he sings. There are some students who do (sing) what they want to not what the teacher may feel is best. Given time - maybe - the teacher can show the singer he <u>can</u> - so something that he (or she) may doubt about themselves."

General Comments:

-"Good luck with your study!"

-"I hope this helps."

-"I was what you called a K-12 combination major - being able to teach both vocal and instrumental music - but only had one semester and one summer session of voice lessons and sang in the college choir 3 years. Never had a vocal pedagogy class."

-"We usually sing SAB selections in choir"

-"Would we be able to have a synopsis of your findings?"

-"Please consider sending results of summary to schools you surveyed."