

## Contributions to Music Education

2. For the auditioned after school wind symphony, what is the purpose of the group since it no longer participates in festivals or practices during the school day?
3. Do you have leadership "education" sessions for section leaders and band council members? If so, what activities do you do with them?
4. Why was the block schedule discontinued when "corrective action" had to be implemented? Also, what did you like and dislike about the block schedule with your particular students?

In addition to the third interview questions listed above, Mr. Mundy was also asked the following questions:

1. Why is the district closing down specifically the magnet schools? Is it due to low enrollment at those schools in addition to the district budget crisis?
2. Was sixth grade band eliminated as an elective at your second middle school?

Formal, prepared questions for the administrators included:

1. Describe the instrumental music program in terms of level of participation.
2. Describe the level of success of the instrumental music program and the evidence of that success.
3. What support, if any, has the music teacher received from the administration?
4. What has he/she requested from you in the past in terms of financial support or logistical support, especially when attempting to recruit students?
5. Of what value has the instrumental music program been to your school?

Formal, prepared questions for the parents included:

1. Describe the instrumental music program in terms of level of participation.
2. Describe the level of success of the instrumental music program and the evidence of that success.
3. How has the school, if at all, made participation in the program possible?
4. What are your perceptions of the assistance of the parent community in helping to sustain this high quality music program in this low SES district?
5. How have the parents, if at all, supported the instrumental music program in this district?

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## Factors Influencing Outstanding Band Students' Choice of Music Education as a Career

The purpose of this study was to investigate factors influencing the career choice of outstanding band students. Chi-square analysis revealed significantly fewer females than expected selected music education as a career. Significant differences in high school GPA between the two academic major groups (music education and other major) were determined by an ANOVA test, with higher mean GPAs belonging to the group that did not major in music education. A MANOVA test exposed significant differences in career choice attitudes between the two academic majors. Significant attitude differences were found by ANOVA test in the areas of parental influence, teacher influence, ego satisfaction, confidence in talent, interest, and economic considerations. A discriminant analysis was performed to determine which attitudes could best predict an outstanding band student's selection of academic major (music education or other). The discriminant analysis indicated six variables (attitudes) that correctly classified 82.9% of the originally grouped cases.

A recent LexisNexis™ search for "teacher shortage" produced numerous articles that describe the difficulties school districts face as they search for teachers to fill vacant classroom positions (Bartindale, 2005; Cronin, 2005; Dresang, 2005; Matus, 2005; Planas, 2005). The National Education Association (2003) attributes this growing number of unfilled vacancies to increased teacher retirements, growing enrollments, and class size reduction efforts. The National Center for Education Statistics (2001) confirms there is a demographic shift in the age of teachers, which is leading to an increased number of teacher retirements. Statistics show the percentage of teachers 45 years of age or older increased from 26 percent in 1975 to 43% in 1993. In a more recent study, Provasnik and Dorfman

(2005) reported the percentage of teachers 45 years of age or older had risen to 47% by the 1999-2000 school year. In addition, teacher mobility has been identified as another contributing factor in the developing shortage of teachers (Huckey, 1989; Ingersoll, 1997). This shortage is exacerbated by an expected increase in the number of students attending both public and private schools (National Center for Education Statistics, 1999). The combination of these circumstances will result in the need to hire 2.4 million teachers in the next 11 years (National Center for Education Statistics, 1999).

The challenges of filling vacant teaching positions have led many school districts to hire teachers without traditional certification. Ingersoll (1997) reported these empty positions are usually filled in one of three ways: principals will (a) hire less qualified teachers without certification, (b) assign teachers trained in another discipline, or (c) hire substitute teachers. An investigation into alternative certification in Texas revealed that mathematics, physical education, Spanish and music were the disciplines with the most requests for alternative certification (Kettler, 2000). These alternate methods meet immediate personnel needs but create other long-term concerns. Of the teachers who enter the profession through alternative methods, only 34% continue to be engaged in education three years after they began teaching. Overall, 30% of teachers leave the profession after entry. This high attrition intensifies the need to hire a large number of unprepared teachers into the profession (Darling-Hammond, 2000). The national *No Child Left Behind* legislation, passed in 2002, addressed this concern for teacher preparedness. The legislation required that all public elementary and secondary school teachers who teach a core academic subject hold full state certification, have a minimum of a bachelor's degree, and demonstrate subject matter competency in each of the academic subjects the teacher teaches by the 2005-2006 school year (United States Department of Education, 2003). While this legislation set a standard for improving the classroom credentials of teachers it also created a need for more teachers who meet the *highly qualified* threshold.

As with other important subjects, music also faces an acute shortage of teachers. Many recent articles (Anderson, 2000; Asmus, 1999; Bergee, Coffman, Demorest, Humphreys & Thornton, 2001; Bergee & Demorest, 2003; Brand, 2002; Clayton, 2001; Kettler, 2000; Kimball, 2000; Kruger, 2000; Lautzenheiser, 2001; Lee, 2003; Wilcox, 2000; Wozniak, 1990) have explored the music teacher deficit as well as the need to recruit more qualified music teachers into the profession. Hill (2003) illustrated the scale of the music teacher shortage by reporting that approximately 11,000 new music teachers are needed each year to replace those that leave the profession. Hill also related that only about 5,500 new music teachers join the

profession yearly, which leaves a deficit of approximately 5,500 unfilled music education positions per year. The urgency of this deficit is addressed in The National Association for Music Education (2002) strategic plan, which relates that in many states music positions are going unfilled or are being filled with teachers who do not have degrees in music education.

The ongoing music teacher shortage, the practice of hiring teachers to teach music classes without a music education degree, and the recent *No Child Left Behind* legislation make an investigation into music education as a career choice an important and immediate concern. Previous research in the area of music education career choice (Bates, 1997; Burgstahler, 1966; Davis, 1990; Jones, 1964; Smith, 1982) has revealed that individuals who enter the music education profession have significantly different career choice attitudes than those who enter other professions. The present study was initiated to yield a profile of the career choice attitudes of the college band students who were most likely to select music education as a profession. College students were selected to participate in this study because they had already made the commitment to a career path by choosing their academic major. The development of this profile may be useful in identifying and recruiting potential highly qualified teacher candidates into the music education profession.

The following research questions were developed to identify any characteristics or attitudes that might predict which students will select music education as a career.

1. How do attitudes about parental influence, teacher influence, ego satisfaction, confidence in talent, interest, status, past experience and economic considerations, or combinations of these attitudes, relate to outstanding band students' decisions to select music education as a career?
2. How do those attitudes or combinations of those attitudes relate to outstanding band students' decisions not to choose music education as a career?
3. Are there significant differences in the demographic characteristics between outstanding band students who selected music education as a career and outstanding band students who selected a career other than music education?
4. Are there significant differences in parents' and family members' occupations and hobbies between outstanding band students who selected music education as a career and outstanding band students who selected a career other than music education?

5. What career choice attitudes best classify outstanding band students by a particular career choice group (music education or other career)?

## Method

The participants for this study were college band students who were 18 years of age or older, recruited from collegiate bands in Oklahoma and Arkansas ( $N = 610$ ). Both music majors and students who had selected a major field of study other than music education were included. Band students were classified as outstanding ( $n = 580$ ) if, while in high school, they participated in or achieved one of the following: all-state honor band, all-district honor band, a first division rating on a solo at district contest, a first division rating on an ensemble at district contest (the solo and ensemble events were not required to play off a graded list at district contest), or a leadership position (drum major, squad leader, or band council). The definition of an outstanding band student for this study was determined by identifying participation or accomplishment that would distinguish them from a typical band student.

To increase its validity, the principal investigator designed the data collection instrument by using previous music education career choice surveys as models (Bates, 1997; Burgstahler, 1966; Davis, 1990; Jones, 1964; Smith, 1982). Prior career choice research involving music identified eight factors (parental influence, teacher influence, ego satisfaction, confidence in talent, interest, status, past experience in music and economic considerations) that shape career decisions (Bates, 1997; Burgstahler, 1966; Davis, 1990; Jones, 1964; Smith, 1982). A 5-point Likert-type scale (1= Strongly Disagree to 5= Strongly Agree) was used to measure participants' agreement with statements developed to assess their attitudes in each of the eight career choice areas. In addition, validity of the data collection instrument was addressed by submitting it for review by five colleagues, on two separate occasions, to insure the attitudinal statements were appropriate for measuring the career choice attitudes of outstanding band students.

A pilot study ( $N = 54$ ) was conducted to test the reliability of the survey instrument. Upon return of the pilot surveys, the responses for each attitude statement were examined to confirm an even frequency distribution. The attitude statements were grouped together in clusters representing each of the eight career choice areas. Each of the eight clusters was submitted for reliability testing (Cronbach's alpha). Statements that lowered the reliability of each cluster were eliminated from the survey. The principal investigator along with five college professors who are active researchers in the fields of music and music education then came to consensus on 41 attitudinal statements to include in the final survey. Scales were derived for each

of the eight career choice areas to test for significant differences between the two academic major groups (music education or major other than music education). Reliability scores for the clusters ranged from a low of .67 for "status" to a high of .84 for "interest" (see Table 1).

Table 1  
*Clusters with reliabilities for pilot and main study*

Cluster	Pilot Study		Main Study	
	Number of Statements	Cronbach's Alpha	Number of Statements	Cronbach's Alpha
Parent Influence	7	.82	5	.79
Teacher Influence	5	.83	5	.69
Ego Satisfaction	7	.69	5	.79
Confidence in Talent	5	.67	4	.80
Interest	8	.61	4	.84
Status	9	.62	5	.67
Past Experience	5	.60	3	.81
Economic Considerations	5	.69	5	.78

In the current study, a total of 621 surveys were distributed at nine different institutions of higher education. Six hundred ten surveys were returned for a 98% return rate. Of the 610 participants, 580 were classified as *outstanding*. Once all the surveys had been returned to the principal investigator, the data were entered into SPSS (Statistical Package for the Social Sciences version 13.0) for analysis. Because the focus of the study was the career attitudes of outstanding band students, only responses from students classified as outstanding were used in further statistical analysis.

The statistical procedures used for data analysis in this study included the chi-square, multivariate analysis of variance (MANOVA), univariate analysis of variance (ANOVA), Cronbach's Alpha and discriminant analysis. The use of multiple statistical tests on the same set of data might inflate the possibility of Type I error. Many statisticians subscribe to the strict use of the Bonferroni adjustment to protect against this inflation. However, the adjustment to lower the alpha level, while reducing Type I error, also escalates the possibility of Type II error. Therefore, to strike a balance between inflating the probability of Type I error with no adjustment and raising the potential for Type II error with a strict Bonferroni adjustment, a more stringent alpha level of  $\alpha = .01$  was utilized for this study rather than the more traditional alpha level of  $\alpha = .05$ .

## Results

Of the 580 participants that were classified as outstanding band students, 263 (45.3%) were female and 317 (54.7%) were male. A total of 217 (37.4%) indicated they were freshmen, 144 (24.8%) sophomores, 109 (18.8%) juniors, 96 (16.6%) seniors, and 14 (2.4%) were graduate students. With regard to academic major, 247 (42.6%) indicated that they were music education while 333 (57.4%) were majoring in a discipline other than music education, including some music majors not on the music education track.

Research questions one and two were investigated by performing a one-way multivariate analysis of variance (MANOVA) to determine differences between the two groups of academic majors (music education or other) for parental influence, teacher influence, ego satisfaction, confidence in talent, interest, status, past experience and economic considerations. MANOVA results revealed significant differences among the academic major categories on the dependent variables (Wilks'  $\Lambda = .686$ ,  $F(8,340) = 19.45$ ,  $p < .001$ ,  $\eta^2 = .314$ ). Significant differences between the responses of participants who selected music education as a major and participants who selected a major other than music education were found for parental influence, teacher influence, ego satisfaction, confidence in talent, interest, and economic considerations. For each category, the music education major group generated higher agreement means than the major other than music education group. ANOVA testing found no significant differences between groups for status and past experience (see Table 2 and Table 3).

Table 2  
*Analysis of Variance for Career Choice Scales*

Career Choice Scale	df	F	$\eta^2$	p
Parent Influence	1, 347	21.45	.058	.000*
Teacher Influence	1, 347	56.09	.139	.000*
Ego Satisfaction	1, 347	17.54	.048	.000*
Confidence in Talent	1, 347	26.61	.071	.000*
Interest	1, 347	91.36	.208	.000*
Status	1, 347	6.19	.018	.013
Past Experience	1, 347	1.41	.004	.235
Economic Considerations	1, 347	60.94	.149	.000*

\*  $p < .01$

Table 3  
*Means and Standard Deviations of Career Choice Scales*

Item	Total		Music Education		Other	
	M	SD	M	SD	M	SD
Parent Influence	3.48	.940	3.69	.985	3.23	.817
Teacher Influence	3.72	.875	4.02	.768	3.36	.864
Ego Satisfaction	4.39	.625	4.51	.523	4.24	.703
Confidence in Talent	4.14	.807	4.34	.645	3.91	.915
Interest	4.57	.688	4.86	.291	4.23	.854
Status	4.10	.577	4.17	.498	4.02	.652
Past Experience	4.14	.963	4.20	.947	4.08	.980
Economic Considerations	3.76	.875	4.06	.663	3.39	.956

A chi-square goodness-of-fit and ANOVA tests were performed on the demographic characteristics of outstanding band students to answer research question three. A chi-square goodness-of-fit test was calculated comparing a participant's choice of academic major with gender. It was hypothesized that each value would occur an equal number of times. A significant deviation from the hypothesized values was found in the comparison of academic major and gender ( $\chi^2(1) = 11.38$ ,  $p < .01$ ). Frequencies for the academic major/gender crosstabulation (see Table 4) reveal that females who selected music education (instrumental, vocal, elementary, general) as a career were significantly fewer in number than expected. A chi-square goodness-of-fit test was also calculated comparing a participant's choice of major with each of the following demographic categories: socioeconomic status, high school classification (based on the high school bands' classification as determined by each state's activities association), total years of band participation, the grade each participant began their involvement in band, years of music classes other than band, and years of private lessons on major instrument. It was hypothesized that each value would occur an equal number of times. No significant deviation from the hypothesized values was found for any category other than gender.

Table 4  
*Major/Gender Crosstabulation*

Major	Gender		Total
	Female	Male	
Music Education	92	155	247
Other	171	162	333
Total	263	317	580

In addition, a one-way ANOVA was computed comparing the high school grade point averages of participants who were music education majors and participants who selected a major other than music education. A significant difference was found between academic major groups ( $F(1,569) = 7.48, p < .01$ ). An observation of means showed that students who selected music education as a major had significantly lower high school grade point averages than students who selected a major other than music education (music education  $M = 3.51, SD = .510$ ; major other than music education  $M = 3.62, SD = .459$ ). A one-way ANOVA was also computed comparing the composite ACT test scores of participants who were music education majors and participants who selected a major other than music education. No significant difference was found ( $F(1,539) = 1.83, p > .01$ ) indicating ACT test scores were not related to the choice of academic major.

A chi-square goodness-of-fit test was calculated to answer research question four by comparing a participant's choice of major with family members' occupations and hobbies. It was hypothesized that each occupation and hobby would occur an equal number of times for each major. No significant deviations from the hypothesized values were found.

Research question five was answered by performing a stepwise discriminant analysis to determine what career attitudes predicted one's choice of academic major (music education or other). One function was generated and was significant,  $\Lambda = .553, \chi^2(6, N = 342) = 199.43, p < .01$ , indicating that the predictors significantly differentiated between music education and major other than music education (see Table 5). Academic major was found to account for 44.6% of function variance. Standardized function coefficients and correlation coefficients revealed that the attitudes to the statements "I believe I have the passion necessary to become a teacher," "I would enjoy a career that includes music," "My father encouraged me to be a music teacher," "I feel that salary is an important factor in choosing a career," "I feel that most people admire a teacher," and "I believe teaching music is an honorable profession" were most closely associated with the function. Original classification results revealed that 90.9% of music education majors were correctly classified, while 73.7% of majors other than music education were correctly classified. For the overall sample, 82.9% were correctly classified. Cross-validation derived 82.0% accuracy for the total sample. The means of the discriminant functions are consistent with these results. Music education as a major had a function mean of .811 while major other than music education had a mean of -.990 indicating the amount that academic major differentiates between the groups (see Table 6). An investigation of means for each variable selected in the stepwise discriminant analysis revealed that students who selected music education as a career, on average, responded more pos-

itively to each statement with the exception of "I feel that salary is an important factor in choosing a career." Music education students expressed less agreement with that statement than students who selected a major other than music education. After the initial discriminant analysis, a systematic elimination of variables revealed that narrowing the six statements to the top two ("I believe I have the passion necessary to become a teacher," "I would enjoy a career that includes music") yielded an 80.4% rate of original group cases classified correctly.

Table 5  
*Summary of Stepwise Discriminant Analysis Results*

Variable	$\Lambda$	df	n	F	p
I believe I have the passion necessary to become a teacher	.674	1	340	164.09	.000
I would enjoy a career that includes music	.616	2	340	105.47	.000
My father encouraged me to be a music teacher	.591	3	340	77.97	.000
I feel that salary is an important factor in choosing a career	.568	4	340	64.08	.000
I feel that most people admire a teacher	.561	5	340	52.57	.000
I believe teaching music is an honorable profession	.553	6	340	45.07	.000

Table 6  
*Discriminant Analysis Variable Means and Standard Deviations*

Variable	Total		Music Education		Other	
	M	SD	M	SD	M	SD
I believe I have the passion necessary to become a teacher	3.74	1.45	4.59	.727	3.00	1.52
I would enjoy a career that includes music	4.18	1.18	4.89	.338	3.64	1.30
My father encouraged me to be a music teacher	2.46	1.40	2.90	1.39	1.97	1.24
I feel that salary is an important factor in choosing a career	2.78	1.28	2.30	1.11	3.14	1.28
I feel that most people admire a teacher	3.88	.997	3.88	.957	3.88	1.03
I believe teaching music is an honorable profession	4.65	.735	4.87	.486	4.48	.842

## Discussion

Making the decision to enter the music education profession is a complex process involving many factors. Results from the current investigation indicate that career choice attitudes appear to play a role in that decision process. Outstanding band students' perceptions of parent influence and teacher influence were found to be important in the decision to major in music education. The results from this study support previous research (Bergee, Coffman, Demorest, Humphreys & Thornton, 2001; Burgstahler, 1966; Davis, 1990; Easterbrook, 1969; Jones, 1964; Lee, 2003; Schutz, Crowder & White, 2001; Smith, 1982), which has also shown the importance of these two groups in the career choice decision.

These findings should be of particular interest to music teachers in discussing the recruitment of students into the music education profession. While the direct link of teacher influence in the career choice decision has been established in this study as well as previous research (Bates, 1997; Bergee, Coffman, Demorest, Humphreys & Thornton, 2001; Burgstahler, 1966; Davis, 1990; Jones, 1964), a closer examination of results from this study will reveal that teachers may have far more influence on their students' career decisions (and in turn recruiting for the profession) than they might have first believed. A study by Lee (2003) investigating the role of universities in the recruitment of string music educators revealed the influence music teachers have in the career choice process by reporting "Student testimonies have stated that their decision to become a music educator in strings was based on positive experiences with their high school orchestra teachers" (p. 49).

Other career choice attitudes with significant differences in this study included ego satisfaction, confidence in talent, interest, and economic considerations. Most would agree that ego satisfaction (the gratification from partaking in musical endeavors) and economic considerations are not easily influenced by outside sources. However, music teachers do have the capability to provide learning situations that could influence students' interest and confidence in their talent. Previous research has determined that giving students teaching and leadership opportunities were influential in the selection of music education as a career (Bergee, Coffman, Demorest, Humphreys & Thornton, 2001; Bergee & Demorest, 2003; Kimball, 2000; Madsen & Kelly, 2002). Some examples of these opportunities might include teaching sectionals, teaching small groups, conducting ensemble warm-ups, setting-up for rehearsals, organizing the music library, serving as squad leader, serving as drum major, teaching private lessons, and being a peer mentor. Music teachers should monitor these experiences closely to insure that they are positive experiences for the student, or the desired effect of influencing students' confidence and interest

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could be undermined. One word of caution, teachers who use student workers must be vigilant not to allow them access to records that by law should remain confidential (grades, social security numbers, etc.). The possible effect of providing these types of experiences can best be summarized in a statement from one of the respondents in research by Bergee et al.

The single greatest influence in my choosing music education as a career was my being given many opportunities in high school to teach and direct my peers and younger students . . . . By working as an assistant to conductors, teachers, and directors, I was given a model and a basis for forming my own teaching style. If I had never been put in teaching roles, I would never have known that I had talent and desire for this field" (Opportunities to Teach and Influence of Teaching Opportunities section, para. 1)

The remaining categories in which the two groups differed significantly were ego satisfaction and economic considerations. While little research has been conducted to examine the effect of ego satisfaction on career choice there has been research on the effect of economic considerations (primarily salary and salary potential) on the recruitment and retention of music teachers (Anderson, 2000; Bergee, Coffman, Demorest, Humphreys & Thornton, 2001; Scheib, 2004). The results from research on the effect of economic considerations on music teachers have been fairly consistent. Generally speaking, monetary issues have no influence on students choosing to enter the music education profession, while salary is mentioned as a contributing attrition factor for music teachers already in the profession. These findings from previous research are consistent with the results of this study.

An additional research question in this study was formulated to determine if there were demographic differences between music education majors and students who selected a major other than music education. For this study, there were significant differences by gender and high school grade point average. The lower than hypothesized number of female music majors contrasted with previous research by Davis (1990), which found no significant differences in gender distribution, and research by Brumbaugh (2003) that determined more females expressed an interest in teaching strings than males. The differences in the results of these studies could be explained by the varied samples utilized. The Brumbaugh study investigated string students' career choice while the present study and the Davis study investigated career decisions by band students.

The lower than expected number of female music education majors entering the profession is exacerbated by the fact that a higher percentage of women than men leave the profession early in their careers (Madsen & Hancock, 2002). These

factors create a situation where females are underrepresented in the music education profession. To narrow this widening *gender gap*, as well as recruit more music teacher candidates into the profession, current music educators should seek to encourage and mentor females to consider music education as a possible career choice.

The significant differences in high school grade point averages between academic majors in this study support findings from previous research by Davis (1990) and Brumbaugh (2003). In all three instances, students who selected music education as a major had lower high school grade point averages than students who selected a major other than music education. The academic credentials of teacher candidates for all disciplines has been a concern as far back as 1983 when The Commission on Excellence in Education report for the United States Department of Education reported that "too many teachers are being drawn from the bottom quarter of graduating high school seniors and college students" (p.3). Dean Angeles (Baumer, 2001), coordinator of string education and conductor of the chamber and symphony orchestras at Loyola University in New Orleans, suggested that the ideal music education student, in addition to being musically gifted, is also academically strong, leaving these students with many career options. He believed that music teachers should earmark promising students as potential teachers as early as the junior high level to interest these high achievers before their career paths are set.

Research question four investigated the differences between the two academic major groups (music education, major other than music education) in regards to parents' and family members' occupations and hobbies. The present study found no significant differences between the academic groups for any parent or family members' occupations, which matches the results from a similar study by Brumbaugh (2003) involving string students. A comparable study by Davis (1990) also found that there were no significant differences between majors except for the *relative as a professional musician* category. These results would seem to indicate that a parent or family members' occupation or hobby have no influence on selecting music education as a career choice.

The final research question was formulated to determine which career choice attitudes best classify outstanding band students by their academic major (music education or major other than music education). In order of importance, the six attitudinal statements that were determined to predict a participant's major with 82% accuracy were (a) I believe I have the passion necessary to become a teacher, (b) I would enjoy a career that includes music, (c) My father encouraged me to be a music teacher, (d) I feel that salary is an important factor in choosing a career, (e) I feel that most people admire a teacher, and (f) I believe teaching is an honorable profession. In each instance the mean attitude score was higher or the same for the

music education major group with the exception of "I feel salary is an important factor in choosing a career" which returned higher mean scores for the major other than music education group. The top two attitude statements from this model "I believe I have the passion necessary to become a teacher" and "I would enjoy a career that includes music" are compatible with the results from the Bergee, Coffman, Demorest, Humphreys and Thornton (2001) study, which found the top three other influential career choice factors were (a) love of music, (b) desire to work with people, and (c) felt called to teach. This same study also noted that the remunerative benefits of music teaching were not mentioned as an influential factor. The results from the Bergee et al. study and the present research suggest that the attitude profile that might best predict a student's intention to major in music would include their love and enjoyment of music, the passion to work with other people as a teacher, and their feelings about what place salary has in the career choice decision.

This study was initiated with the hope that the results might be useful in identifying and recruiting potential highly qualified teacher candidates into the music education profession. Results from this study suggest that music teachers have the potential to be very influential in students' career choices. The following steps are recommended to music teachers to help recruit new, highly qualified teacher candidates into the music education profession. They include:

1. Be cognizant of students who fit the attitude profile of possible music education students' (love and enjoyment of music, the passion to teach, feelings about what place salary has in the career choice decision), especially underrepresented groups including females.
2. Give these students the opportunity to teach peers or younger students so they may develop a passion to teach.
3. Communicate with the parents (particularly the father) of these students to let them know that their child fits the attitude profile of a student who would be an ideal candidate for entering the music education profession.

Identifying outstanding band students and evaluating their career attitudes are good methods to discover the highly qualified music educators that will be needed to fill the many expected music teaching vacancies. The future teachers of our profession are waiting for our encouragement.

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## The Influence of Warm-Ups and Other Factors on the Perceived Physical Discomfort of Middle School String Students

The purpose of this study was to explore the influence of warm-up activities and fixed factors on the perceived health of public middle school string players. Participants in this study were 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade string players ( $N = 158$ ). Participants rated their discomfort while playing their instrument in a series of 32 items representing left and right sides of the body and encompassing various regions of the body. Descriptive statistics revealed that participants generally did not experience discomfort while playing their instruments. Neither warm-up frequency, type of warm-up activity, or warm-up duration impacted perceived discomfort. Only one fixed factor had a significant impact on overall discomfort. Sixth graders reported higher discomfort than 7th and 8th grade participants.

Playing an orchestral instrument is a physical act unlike many others. The control and repetitive motion of fine motor muscles required to play a string instrument can lead to pain and discomfort. Unlike professional athletes who may work with trainers on a regular basis, musicians spend most of their time alone, practicing for long periods (Paull & Harrison, 1997). The practice behaviors of young students first learning their instruments in a middle school orchestra are often unguided and seldom monitored. Ensuring student physical health can help lead to a life-long love of playing music and should be of paramount importance to teachers and researchers alike.

Many authors and musicians believe that warm-ups are an integral part of a musician's daily activities and can help limit performance based injuries. Klickstein (2003) states: