THE RELATIONSHIPS OF PARENTAL INVOLVEMENT, MOTIVATING FACTORS, AND SOCIOECONOMIC STATUS TO HIGH SCHOOL ALL-STATE CHOIR AND BAND MEMBERSHIP

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VITA

Stephen Clyde Hickok was born to Fred and Marguerite Hickok in Danville, Pennsylvania, on December 28, 1954. He has two brothers, Fred Hickok and Philip Hickok, and two sisters, Deborah Hickok and Naomi McChesney. Mr. Hickok attended Asbury College in Wilmore, Kentucky and Westminster College in New Wilmington, Pennsylvania where he earned his Bachelor of Music degree in Church Music in 1976. He attended Asbury Theological Seminary and then University of Kentucky where he earned his Masters of Music degree in Vocal Performance in 1981. Mr. Hickok served as the Minister of Music in churches in Kentucky, Florida, Georgia, and Alabama. He was an Assistant Professor of Music and Director of Choral Activities at Andrew College in Cuthbert, Georgia. Mr. Hickok married Karen Regina Stechman, daughter of William and Elaine Stechman, in 1979. They have a daughter Melissa, born April 23, 1982 and a son William, born December 30, 1987.

DISSERTATION ABSTRACT

THE RELATIONSHIPS OF PARENTAL INVOLVEMENT, MOTIVATING FACTORS, AND SOCIOECONOMIC STATUS TO HIGH SCHOOL ALL-STATE CHOIR AND BAND MEMBERSHIP

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Doctor of Philosophy, May 9, 2009
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The primary purpose of this study was to identify differences in parental involvement, motivational factors, and socioeconomic status (SES) between high school band and chorus participants. The secondary purpose of this study was to investigate the relationship of these factors to students who participate in all-state music festivals.

The participants ($N = 403$) in this study included choral and band students from six high schools in the southeastern United States. Participants completed the Characteristics of High School Music Students Survey (CHSMSS) which measured

aspects of students' home environment, parental support in music, and students' attributions of success in music. Performance achievement was operationalized as students' participation in all-state chorus or band festivals. SES was measured through Hollingshead's Two-Factor Index of Social Position.

Nine factors related to band, chorus, and all-state participation were found. Discriminant Function Analysis indicated a significant difference between band and chorus students in SES and musical ability attribution. All factors related to family environment and parental involvement were significantly higher for all-state participants than for non-all-state participants. Parental involvement was a significant factor in students' performance achievement in band and chorus.

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CHAPTER 1

INTRODUCTION

Why do some students achieve high levels of success in band and others do not? Why do some students achieve high levels of success in chorus and others do not? Would the student who is successful in band be as successful in choir? Are we placing students in band or chorus because of their best opportunity for musical achievement or is their placement a matter of luck? All humans are assumed to possess a capacity for musical competence but not all students exhibit the same level of musical competence in the music classroom (Hallam & Shaw, 2002). Music educators have continually sought to implement teaching strategies that contribute to students' competence and achievement in music. When music teachers can identify factors that lead to students' achievement in music, the music teachers should be better prepared to implement teaching strategies that help each student reach a higher level of achievement in music. Parents who understand the factors related to music achievement should be better prepared to implement strategies within a child's environment that will enhance the child's likelihood of high achievement in music.

Researchers in the disciplines of music and psychology have identified parental support, teacher characteristics, academic success, music aptitude, music background, achievement motivation, student attributions of success, and personality

as factors related to student music achievement. However, at least three problems remain in predicting student achievement in music. The first problem in predicting music achievement is that researchers and educators have not reached a common definition of music achievement and what constitutes success in that achievement. The second problem is that music is too multifaceted to assess in any one test (Hufstader, 1974). Comprehensive tests over all possible facets of musical ability would be unwieldy to administer. The third problem is that although researchers have investigated success in instrumental students and general music students, few researchers have studied music achievement in vocal students.

Defining Success

One of the difficulties in identifying predictors of musical success is a lack of consistency in the criteria that constitutes musical competence (Boyle, 1992, p. 247). The definition of musical success varies among researchers, musicians, and teachers. To some, the quality of a student's musical performance demonstrates success; to others, the development of a student's musical abilities is the definition of success (Reimer, 2003, p. 48). Nadia Boulanger contends that the essence of music is the final product (Reimer, 2003, p. 48). Elliott (1995, p. 39-40) defines music as a process. The lack of consistency in the definition of musical aptitude, ability, and achievement among researchers has led to confusion in the measurement of musical success. This confusion has resulted in an unwillingness among teachers to rely on research in their teaching practices (Boyle, 1992, p. 247).

Researchers in music must identify whether they are measuring success according to aptitude, achievement, or ability. Performance assessment identifies a specific form of music ability. It is not synonymous with music aptitude (Gordon, 1998, p. 17). The constructs that are used to measure music ability are not the same constructs that are used to measure music aptitude. Hallam (1998) suggested that the needs for aural, cognitive, technical, musicianship, performance, and learning skills differ according to the type of music that is being performed. Hallam noted that jazz performance skills and orchestral performance skills are not the same. Hallam and Shaw (2002) suggested a definition of musical ability in their qualitative study of teachers and students over the age of 14. Their sample included children and teachers in a city school, a music school, and an institution of higher education. The researchers divided the participants (N = 490) into eight groups. The groups included musicians (n = 55), educators in non-music subject areas (n = 80), adults not involved in music (n = 47), adults who were moderately proficient on an instrument (n = 20), adults who were minimally proficient on an instrument (n = 106), students with more than 2 years of musical experience (n = 135), students with less than 2 years of musical experience (n = 33), and students with no musical experience (n = 14). The participants completed a one-question survey that began with the phrase "Musical ability is . . ." The major concepts of musical ability that were identified from the composite of all the participants in Hallam and Shaw's study were rhythmic ability, organization of sound, emotional sensitivity to music, communication, motivation, personal characteristics, and a combination of complex skills and ensemble skills.

Other researchers have used music teacher assessments as indicators of student success in music. In Bonifati's (1997) study, instrumental music teachers defined student success as possessing good musical technique, possessing self discipline, actively participating in class, having a good attitude, enjoying music, developing a life-long love of music, and being a productive member of a performing group. The teachers characterized successful students as those who made steady progress, gained an appreciation of music, ably interpreted music, and developed a refined approach to creating art. Helwig and Thomas (1973) operationalized students' success through teachers' grades that were based on attitude, effort, and musicality. The assessment of students' success was subjective in nature, but Helwig and Thomas established an internal consistency of this assessment (r - .460, $p \leq .05$) through the Spearman-Brown prophecy formula. Hufstader (1974) used the recommendations of band directors to identify successful and unsuccessful instrumental students. Each band director classified the students as low achievers, medium achievers, and high achievers. Hufstader used only the low group and the high group in order to establish two distinct achievement groups. One of the students identified by a teacher as a low achiever scored consistently with the high achievers on the tests. It is not clear whether this inconsistency was attributable to variances in the factors predicting success or to the teacher's improper classification of the student's success.

Additional difficulties are associated with reliance on teacher assessment to operationalize student success in music. Pascoe and Waugh (2001) recognized the need to assess music students in the schools in Western Australia. They found that no

assessment methods or standards for assessments existed to objectively identify a student's success in music. Pascoe and Waugh outlined five concerns in assessment. Assessments based on phrases such as "participates enthusiastically," "enjoys music," or "practices regularly" did not indicate skills or abilities in music. Teachers had no objective measures for assessment. No benchmarks existed for teachers to monitor student progress; therefore, students were not assessed at periodic intervals. Without proper assessment of the students, teachers could not be held accountable for the achievement of the students.

Researchers and educators have used varying levels of objectivity to interpret measurements of success. Teacher recommendation and expert judging in performance are the most commonly used methods of identifying musical success in high school music programs. Teacher recommendation is subject to the assessment measures of each teacher. Establishing reliability from the assessment of individual teachers is difficult (Helwig & Thomas, 1973; Hufstader, 1974). When multiple judges assess a single performance or achievement, inter-judge reliability can be established by comparing judges' scores. For example, Young (1971) utilized expert judges to determine success in beginning instrumental students. In Young's study, three judges evaluated the recorded student performances. The judges scored the students independently. Young established reliability through inter-reliability coefficients among each pair of judges ($r = .89$, $r = .75$, $r = .73$) as well as for all the judges combined ($r = .98$).

The use of expert judges typically takes place only when a student participates in a musical performance outside the local school environment. If a student does not participate in solo and ensemble festivals or all-state competitions, it is unlikely that the student will be individually assessed by expert judges. The evaluation of students' success in music by a teacher or by expert judges is subject to the teacher's understanding of success or the criteria for success used by the judges. One of the most commonly used measurements of success in public school band and choral programs is the judging system for all-state participation. All-state is a performance-based festival; therefore, adjudication of all-state students utilizes performance-based criteria. Students who are accepted for participation in all-state festivals have been assessed as successful in performance achievement.

Measurements of Success

Researchers have developed measurements based on an array of criteria to identify success in music. Tests of musical ability that were developed by Revesz, Seashore, Wing, and Gordon in the early and mid-twentieth century were built around the aural perception of music (Hallam & Shaw, 2002). Researchers have frequently identified musical aptitude and academic ability as two of the strongest predictors of musical success (Kuhlman, 2005). Kuhlman found that research on the effect of musical aptitude and academic ability presented inconsistent and often opposing results. Gordon (1986) reported that musical aptitude accounted for 37% of the variance of success in music achievement for beginning instrumentalists. According to Gordon (1967), academic achievement contributed little beyond musical aptitude to

enhance musical performance achievement. Klinedinst (1991) and McCarthy (1974), however, identified academic achievement as the most significant factor in instrumental music achievement. Success in instrumental performance significantly correlated to academic success when the performance criteria were based on music reading and notation skills. Reading and notation skills are academic in nature (Klinedinst, 1991). McCarthy (1974) described both music performance and academic achievement as academic activities.

Four of the criticisms of educational testing that are pertinent to testing for musical achievement or ability are selection of appropriate tests, erroneous and naïve interpretations of test results, confusion between the use of norm- and criterion-based testing, and extraneous variables influencing the test scores (Boyle & Radocy, 1986, p. 21-26). Researchers in music must be clear as to what aspect of music they are attempting to identify. Many students might possess a high aptitude for music that goes unidentified in the assessment procedures used within a chorus or band class. Students who are assessed according to the performance abilities they demonstrate are often identified as having musical aptitude. Performance assessment identifies a specific domain of music ability. It does not imply an assessment of music aptitude (Gordon, 1998, p. 3). The constructs that are used to measure music ability are not the same constructs that are used to measure music aptitude.

Reliability is a concern when developing testing instruments, because the test must appropriately measure the aspect of musical success that the researcher intents to measure. Boyle (1992, p. 145-146) pointed out that Wing's approach to assessing

students in music was to evaluate musical intelligence. Seashore's approach focused more on the evaluation of musical ability (Boyle, 1992, p. 143-145). Gardner's approach to the evaluation of musical intelligence varied from Wing's approach in that Gardner isolated musical intelligence from other aspects of IQ. Music ability, music aptitude, music intelligence, music capacity, music talent, music sensitivity, musicality, and music achievement are terms that have been used to identify success in music (Boyle, 1992, chap. 16).

Because of the multifaceted nature of musical ability and the varying definitions of success, a broad array of measurements is needed to predict success in music. Manor (1950) recommended the use of a broad array of psychometric measurements to predict success. Manor measured music aptitude, IQ, persistence, and tonette class achievement in directing fourth-grade students toward the appropriate instrumental studies. The Manor Persistence Ranking Scale used to rate the students' success in the tonette classes measured tone production, range, fingering, physical execution, tone quality, and interest in the instrument. Hallam and Shaw (2002) asked a group of respondents (n = 490) to rate the significance of 19 items to musical ability. The respondents included a spectrum of individuals from accomplished musicians to non-musicians. The ages of the respondents varied, but all were 14 years or older. The items included knowledge of music, music reading, composition and improvisation, evaluation of music, technical skills, appreciation of music, creativity, motivation, communication, and a variety of musical skills. The respondents viewed the nature of musical ability differently according to the extent to

which the respondents were actively involved in the process of making music. The study was inconclusive concerning the definition of musical success, but respondents overall viewed musical ability as learned rather than innate.

Rainbow (1965) investigated 14 variables' association with musical aptitude. Rainbow described music aptitude as the potential talent that a student has for music and clearly differentiated between musical aptitude and musical achievement. Music achievement was one of the variables that Rainbow used to identify music aptitude. The variables used in the study were 1) pitch discrimination, 2) tonal memory, 3) rhythm, 4) musical memory, 5) IQ, 6) school achievement, 7) sex, 8) chronological age, 9) musical achievement, 10) musical training, 11) home enrichment, 12) interest in music, 13) participation in music by relatives, and 14) socioeconomic background. Correlations differed among elementary (n = 91), junior high (n = 112), and high school (n = 88) students. A multiple regression analysis revealed that the variables that contributed most to the variance in musical aptitude among all students were tonal memory (β = 2.93), IQ (β= 2.21), music achievement (β = 15.77), home enrichment (β= 3.72), interest in music (β = 4.06), and socioeconomic background (β = 4.05). Rainbow concluded that the three extra-musical variables that best predicted music aptitude were interest in music, home enrichment, and socioeconomic background.

No single test of musical aptitude or musical intelligence has adequately predicted success in music (Boyle & Radocy, 1986; Hufstader, 1974). Even combinations of tests used in studies by Gordon (1967) and Young (1971) could not fully account for students' success in all aspects of music.

Research on Instrumental and General Music Students

Research into factors contributing to musical success has often focused on instrumental students (Bonifati, 1997; Davidson, Howe, Moore, & Sloboda, 1996; Doan, 1973; Fitzpatrick, 2006; Hufstader, 1974; Klinedinst, 1991; Manor, 1950; McCarthy 1974; Pitts, Davidson, & McPherson, 2000; Schmidt, 2005, Sloboda & Howe, 1991; Young, 1971; Zdzinski 1992, 1993, 1996). Research on instrumental students has been directed toward children beyond the fourth grade. The Seashore, Wing, and Gordon tests were designed for students in grades 4 - 12. Most of the additional research found concerning success in other areas of music has also been directed toward 4th- through 12th-grade students. Gordon focused on that age group because he believed that children's musical aptitude did not become stable until they reached the fourth grade (Gordon, 1998, p. 50, 63-64).

Several researchers have identified factors that are related to student success in music by combining instrumental students and choral students into one study group (Asmus, 1985b, 1986a, 1986b; Brand, 1985, 1986; Brändström, 2000; Dunlap, 1975; Greenberg 1970; Hallam & Shaw, 2002; Legette, 1998, 2003). Helwig and Thomas (1973) suggest that the reason for a lack of research on vocal students is that assessing vocal progress is more difficult than assessing instrumental progress. They note that tests designed to measure technical skills and facility of instrumental students provide for an objective assessment of the students. The progress of vocal students requires a more subjective assessment (Helwig & Thomas, 1973). Researchers have identified programmatic and teacher factors that facilitate student achievement within successful

choral programs, but the researchers did not imply that these factors related to *individual* student achievement (Levi, 1986; Mudrick, 1997; Wright, 1996).

Purpose of the Study

The primary purpose of this study was to identify the contributions of parental involvement, motivating factors (attributions of success), and SES to performance achievement among high school music ensemble members. The secondary purpose of this study was to compare parental involvement, motivating factors, and SES of high school choir and high school band members. The differences in performance demands and ensemble procedures of instrumental students and choral students might be related to variances in family environment or student attributions.

Research Questions

The study addresses the following research questions:

1. What are the parental support factors, motivational factors, and SES of high school band and choir students who attend high schools that have both choir and band students selected for all-state participation?
2. How do the factors relate to membership in band or choir ensembles?
3. How do the factors relate to all-state participation in band and choir students?

Assumptions

Students who have participated in all-state band or chorus in Alabama, Georgia, and Tennessee have auditioned before expert judges. It is assumed that students who have been selected to participate in all-state band or choir have reached a significant level of musical performance ability. Students who have not participated in

an all-state festival are not identified as unsuccessful. Many of the students in this category may be successful performers, but for various reasons did not participate in all-state festivals, therefore, they were not identified as successful.

Delimitations

The researcher chose the sample for this study from a list of schools that have sent students to all-state band and chorus festivals in either 2007, 2008, or both years. The sample, therefore, includes only students who have participated in established, reasonably successful band and choral programs. The factors identified in this study were drawn from high schools through the southeastern United States, but the socioeconomic makeup of the schools in the study is likely to be higher than average. Schools in the least affluent areas of the southeast are not likely as affluent schools to support programs that send a significant number of students to all-state festivals. Parental involvement, personal attributions of success, and SES might differ in schools that have minimal or no band or choral programs.

Definitions

Selection for all-state band or chorus is a measure of *music performance achievement*. All-state participation is not a complete explanation of success in band and chorus students, but it reflects an assessment of performance achievement by expert judges. Success in this study is limited to successful performance achievement as indicated by selection for all-state band or choir.

A *characteristic* is a parental involvement variable, an attribution variable, or socioeconomic variable that, in conjunction with other variables, contributes to a factor. Items on the survey identify characteristics or demographic variables.

A *motivating factor* is a group of attribution variables that relate strongly to one another. Asmus identified Effort, Background, Classroom Environment, Musical Ability, and Affect for Music as motivating factors in the Asmus Motivating Factors (AMF) scale (Asmus, 1985a).

CHAPTER 2

LITERATURE REVIEW

Research on student achievement in music has yielded varying results, because researchers have used varying definitions of success. The methods used to assess music achievement have not always been consistent with the researcher's definition of music achievement. Interest in the topic of the current study began with readings about characteristics of expert performers. Woody (2001) sought to apply the findings of research on expert performers to music education. Woody identified practice habits and motivation that were associated with advanced performance abilities and he pointed out that parental support was related to the development of these habits.

The current researcher's area of interest is vocal music education. The initial concept of the study was to examine successful choral students in the same manner that Woody examined expert performers. The literature review for the current study began with a search of articles that included the terms vocal success, vocal, chorus, choral students, successful music students, and music student characteristics. The researcher began the search in journals related to music education research and the *Handbook of Research in Music Education* (Colwell, 1992). The search yielded few studies that focused on choral students. Most of the studies on successful choral students or characteristics of choral students were based on successful choral programs

or characteristics of choral teachers or choir directors. Most articles on vocal performance and vocal success were reviews of performances and performers.

The search revealed a body of research on successful instrumental and general music students related to student attributions of success. The studies based on attribution theory and student motivation pointed to the importance of the environment of the student. The researcher then concentrated on studies of parental involvement and home environment on student success. The terms factors and predictors of success were used more commonly in the studies than characteristics of success.

A search for successful instrumental students produced a compilation of studies on factors related to performance achievement in junior high and high school students. Similar studies on vocal performance achievement were rare. The researcher examined the studies of instrumental students to identify methods that would appropriately identify factors related to performance achievement in choral students. A common concern among researchers was the relationship of SES to musical achievement. The researcher investigated socioeconomic measurements used in other studies and used the *Handbook of Research Design and Social Measurement* (Miller, 1991) to assess the value of these measurements for the current study.

Overview of Research into Predictors of Musical Achievement

The literature reviewed for this dissertation included studies of an array of variables that have been identified as predictors of achievement in music. Four prominent categories of predictors emerged in the review of the literature. The first category included IQ and musical aptitude (Helwig & Thomas, 1973; Hufstader, 1974;

Klinedinst, 1991; Kuhlman, 2005; Manor, 1950; McCarthy, 1974; Young, 1971). The second category, described as home environment, includes the physical attributes of the home (Brand, 1986), parental involvement in the musical experiences and musical education of the child, and musical background of parents and siblings (Bonifati, 1997; Brand, 1985, 1986; Brändström, 2000; Davidson & Borthwick, 2002; Davidson, Howe, Moore, & Sloboda, 1996; Sloboda & Howe, 1991; Zdzinski, 1992, 1993, 1996). The third category of predictors was SES (Albert, 2006; Brändström, 2000; Dunlap, 1975; Fitzpatrick, 2006; Klinedinst, 1991; McCarthy, 1980) and the fourth category of predictors was motivation and attribution theory (Asmus, 1985a, 1985b, 1986a, 1986b, 1989; Asmus & Harrison, 1994; Legette, 1993, 1998, 2003; Schmidt, 2005). The predictors of music achievement have been most frequently studied in relationship to success in instrumental students.

Music achievement, intelligence, and musical aptitude

Kuhlman's (2005) overview of the research into predictors of musical achievement included studies on the relationship of IQ and musical aptitude to student achievement in music. Many researchers have identified musical aptitude and academic ability as the two strongest predictors of success in instrumental music. Manor (1950) suggested that IQ measurements (IQ) be discarded from the battery of tests used to predict instrumental success, but few researchers since have disregarded IQ as a viable predictor of instrumental success.

Klinedinst (1991) identified scholastic achievement and academic achievement as the strongest predictors of performance success in fifth-graders' first year of

instrumental study. Klinedinst's study of the possible predictors of students' performance success included musical aptitude, scholastic ability, academic achievement, attitudes toward music, self-concept in music, music background, achievement motivation, SES, and physical characteristics of the students. Klinedinst used stepwise multiple regression, discriminant function analysis (DFA), and Pearson product-moment correlation to identify relationships among the predictors. Success was measured by teacher rating, performance rating by a judge, and student retention. Scholastic ability in math and reading achievement were the strongest predictors of musical success (24%), as measured by the teacher ratings of musical ability. Although music aptitude was found to be a statistically significant predictor of success, it accounted for less than 10% of the variance in music achievement. The results of Klinedinst's study suggest that music teachers should find school academic records and music aptitude testing to be valuable in their recruitment for music students. The testing and evaluation procedures used in Klinedinst's study may be valuable for diagnosing current students. Knowledge of one's students facilitates the adaptation of instruction for individual students or for the whole class (Klinedinst, 1991).

Hufstader (1974) found that musical aptitude, musicality, and musical intelligence variables provided an 85% prediction rate of fourth through sixth-grade students who would be successful in instrumental music. Hufstader used the California Test of Mental Maturity (CTMM) and the California Achievement Test (CAT) to collect data on IQ and musical aptitude. The band directors of the study group

identified successful and unsuccessful students by ranking them in their class based on the students' technique, tone quality, musical reading ability, rhythmic reading ability, and general musicianship. Data from the highest 33% of the students and the lowest 33% of the students were used in the statistical analysis. A DFA of each item in the CTMM and the CAT revealed that every variable in the tests provided a unique contribution toward identifying successful and unsuccessful students. One concern over the validity of the results in Hufstader's study was the small number of participants (n = 34). Each of the four classes was ranked by a different teacher, but the criteria used to rank the students were specific and objective. No comparison was made between classes; therefore, this ranking may not completely reflect the differences in abilities between classes. Based on the score profiles of the two groups, four participants were deleted from the high group and one subject was deleted from the low.

Young (1971) examined the functions of IQ, academic achievement, and musical aptitude as factors in predicting instrumental music achievement in fifth-grade students (N = 709). Young measured IQ with the Lorge-Thorndike Intelligence Test, academic achievement with the Iowa Tests of Basic Skills (ITBS)), and musical aptitude with the Musical Aptitude Profile (MAP). Students participated in small group (2-5 students) lessons for seven months. Musical success was determined through evaluation of a recorded performance at the end of the seven months. Young found the highest correlation between musical success and the predictor tests when all three predictor tests were combined. Young found that the measures of success were

predicted as successfully with only the MAP and ITBS scores as they were with all three tests. The ITBS scores alone were only slightly less accurate in predicting musical success than the MAP and ITBS scores combined.

The students who prematurely dropped out of the instrumental program scored lower overall in all the tests than the students who remained in the program. However, the IQ scores of those who started and dropped out were still higher than the scores of the general student population. A greater difference existed in the ITBS scores than in the IQ scores between the group that dropped out and the group that completed the seven months. Again, Young found that the group that dropped out scored higher on each test than the general student population of the same grade level implying that regardless of the role of IQ as a factor in musical success, it is not a predictor of longevity in the instrumental program. The MAP scores of those who dropped out were lower than the general student population. The rhythm aspects of the MAP tests appeared to be the most significant factors related to dropping out of the program early. Young determined that each test successfully predicted success in specific facets of musical achievement. The best predictor of success in all areas of musical achievement was the composite score of all three tests.

Young's findings illustrate the difficulty in identifying success in music and choosing factors to measure success. High student scores in musical aptitude criteria tests correlated positively with musical abilities unrelated to reading. Young found that high student academic ability and IQ correlated positively with music skills related to music reading and notation. Facets of musical achievement that did not

require music reading skills revealed a strong correlation with the MAP. Facets of achievement that required music-reading skills did not reveal a strong correlation with the MAP scores. Young noted a weak correlation ($r = .23$) between the sight-reading and improvisation skills of the students. The finding was similar to the correlation found between IQ and musical aptitude ($r = .25$). Young concluded that improvisation and music reading skills are unrelated skills.

McCarthy (1974) reported a high correlation of IQ and academic success among seventh-grade beginning instrumental students ($N = 90$). The primary purpose of McCarthy's study was to create and evaluate a tutorial instructional method that would facilitate student learning in instrumental music. The method would account for the differences in the physiological and psychological development of the students. McCarthy tested the individual tutorial instruction by using a control group ($n = 45$) and an experimental group ($n = 45$). The students in the experimental group were given individual instruction and assignments within class and were individually evaluated. The control group was taught with a traditional ensemble approach. In the control group, performance achievement correlated positively with attitude towards musical and personal adjustment. In the experimental group, these same variables exhibited almost random relationships. Performance achievement was higher in the experimental group, indicating that the individual instructional approach was beneficial to student success. Investigating the effect of IQ and grade point average (GPA) on performance achievement was a secondary purpose in the study. The results

indicated that students in both groups who had the highest IQs and GPAs scored highest in performance achievement.

McCarthy (1980) evaluated the relationship of individual instruction to achievement and dropout in fifth- and sixth-grade students ($N = 1199$). By measuring music achievement, SES, and IQ, McCarthy found that student's academic reading level accounted for over 85% of the variance in their sight-reading ability as measured by the Watkins-Farnum test.

Helwig and Thomas (1973) evaluated studies that identified predictors of musical success. They noted that little evaluation of student potential and progress existed in choral music studies, and, recommended that choral teachers should evaluate students according to ability and place them in the appropriate level of chorus in order for the students to be successful. Placement above or below the student's ability level may detrimentally affect the student's success. Helwig and Thomas's purpose was to determine if musicality and IQ scores would more accurately predict a student's success in a vocal performance class than traditional auditions and observation methods. The secondary purpose was to identify teacher bias in the grading.

Helwig and Thomas found support for the use of IQ and musical aptitude scores to predict students' achievement in 10th- through 12th-grade choral classes. The researchers found that success in choral achievement could be predicted using the Gaston Test of Musicality and the CTMM. The researchers operationalized students' success through teachers' grades based on attitude, effort, and musicality. Helwig and

Thomas described the correlation between the IQ and musicality measurements and the grades of the students, but the discussion of the secondary purpose overshadowed their description of results. They did not explain why only 64 participants were selected out of a possible 286 participants.

IQ and musical aptitude appear to be excellent predictors of musical ability if the appropriate measurements are properly matched to the type of musical ability that is being measured. If the role of an educator is to predict success, then IQ and aptitude are of value. However, IQ and musical aptitude are internal, stable attributes and are of minimal benefit toward improving students' musical ability. The students' environment is an external, unstable attribute that can be shaped to improve students' musical ability.

Family Background

Studies on family background include information about parental support in music and family characteristics. Family characteristics encompass the parents' musical backgrounds, siblings, and demographics such as SES and geographical location. Just as the home environment appears to have an effect on a variety of human characteristics such as school achievement, IQ, student attitudes and expectations, and creativity, it might have a significant effect upon musical development (Brand, 1985).

The Home Musical Environmental Scale (HOMES) developed by Brand (1985) was designed to evaluate the characteristics of homes that provide positive environments for musical development. Brand included 15 items in the HOMES

questionnaire. The items examined parental musical backgrounds, parental participation with their child's musical activities, parental concert attendance, and parental provisions for the home musical environment (providing musical supplies, instruments, and listening devices). Brand intentionally chose a homogenous socioeconomic sample for the study so that the survey would provide data concerning factors that are changeable, as opposed to SES, parent education, and parent occupation. Most participants were Hispanic students of low or low-middle SES. Brand identified four factors that accounted for 63% of the variance of home environment in second grade students' achievement. In a factor analysis the variables of parents' attitudes toward music and musical involvement with their children, parents' concert attendance, children's ownership and use of records and tapes, and parents' ability to play a musical instrument were all identified as significant factors (Brand, 1985).

In a subsequent study, Brand (1986) used HOMES to investigate the correlation between home musical environment and musical attributes of 116 children age 7. Brand used a sequence of multiple regression analyses to estimate the relationships of each of the environmental factors to each of the variables in the Primary Measures of Musical Audiation (PMMA). The composite of all the environmental factors accounted for 20% of the variance in PMMA scores. Brand emphasized the significance of the home environment within a homogeneous socioeconomic setting. The study points out that the home environment, even within a

low socioeconomic setting, has a significant relationship to the student's musical achievement.

Bonifati (1997) investigated the impact of home environment on the success of instrumental students in grades 4 - 12. Most instrumental students who were identified as successful by their teacher took lessons on their instrument and owned their instrument rather than renting it. Most of the students came from two-parent households. Parents were between the ages of 36 and 50, had college degrees, professional occupations, were typically white, and were Protestant or Catholic. Parents' musical experience had little relationship to the students' success, but parents' support for their child's musical endeavors was positively related to their child's success. Bonifati identified parental encouragement as the most important factor in their child's success. Most parents did not want a music career for their child, but they expected their child to be committed to continuing music studies. Most of the students began music studies when they were less than 5 years old. Many had taken piano lessons, were generally successful in their academic endeavors, and had other siblings who were successful in music.

Davidson, Howe, Moore, and Sloboda (1996) interviewed children ($N = 257$) ages 8 through 18 who had received instruction in instrumental music. The researchers divided the students into five groups for the study. Group 1 ($n = 119$) included students who attended a music school and anticipated making a career in music. Group 2 ($n = 30$) included students who were called for an audition, but were not admitted to the music school. Group 3 ($n = 23$) included students who inquired about the music

school, but did not apply. Group 4 (n = 27) included students who attended public school and learned to play an instrument, but did not intend to make music a career. Group 5 (n = 58) included students who attended the same public school but had discontinued playing an instrument at least a year prior to their interview. Davidson, et al. interviewed all of the students and at least one of the parents of each student. The researchers found a trend in the parental support over a period of years. The strongest parental support for the students in group 1, took place before the students were 11 years old. Parents of group 1 encouraged singing before age 3. As the students' age increased, their self-motivation and autonomy increased and their parental involvement decreased. The students in groups 4 and 5 did not receive early parental support. In groups 4 and 5, parental pressure for students to practice increased during the students' teenage years. None of the groups indicated a particularly noticeable musical interest at an early age. Parents of group 1 were the most involved in music, albeit at an amateur level, and parents of group 5 were the least involved in music. Davidson, et al., asserted that parental involvement is critical to student success in music and that this involvement must begin in the preschool years.

In a longitudinal case study, Davidson and Borthwick (2002) followed the family dynamics of an English family for 13 months. One researcher was integrated into family activities in order to explore family dynamics in detail. The other researcher visited the family every two weeks to observe the family with a more objective perspective. Davidson and Borthwick (2002) found that children who eventually became professional instrumental performers were not only monitored by

their parents, but had varying complex interactions with their parents. Parental support was found to be important to the motivation and self-worth of a child. The amount and the nature of parental involvement in a child's musical development were also important. Davidson and Borthwick concluded that the type of support provided by parents can shape a child's success or failure in music and that parent's expectation of a child will be reflected in the child's own self-expectation. Differences in levels of expectation between children may result in differences in self-worth; a child with lower levels of expectations will often have lower self-worth. Parents must find a balance between responsiveness (warmth and acceptance) and demandingness (controlling and restrictive) (Davidson & Borthwick, 2002).

Brändström (2000) observed that musical background and SES appeared to be significant factors in children's musical activities. Brändström investigated 12- and 13-year-old students in sixth grade ($N = 369$) at 11 different schools in Sweden. Six years later, Brändström sent a questionnaire to one of the classes from a participating school to determine how long the participants ($N = 13$), now in their last year of school, had studied in the Municipal Music School, what instrument they had studied and what occupational choice they had made. Brändström measured the effect of SES, musical background of the family, students' plans for their future, and students' choice of instrument. These variables were compared to three groups: those studying music currently ($n = 90$), those who had studied but discontinued music ($n = 147$), and those who had never studied music ($n = 132$). Fifty-four percent of the children who continued their studies in the Municipal Music Schools in Sweden had parents who

currently or previously played a musical instrument. Fifty-eight of these children had siblings who played a musical instrument. Brändström reasoned that a parent's interest in music facilitates the tangible help that the parent can give their child at home.

Pitts, Davidson, and McPherson (2000) examined motivational, personality, and environmental characteristics of nine primary-school students in their first 20 months of instrumental studies. The method of data collection was a collection of longitudinal case studies selected from 158 brass and woodwind players during the 20-month period. The nine participants attended eight different primary schools. The study consisted of three groupings of students. Three of the students (group A) had maintained interest and enthusiasm for their instrument, three of the students (group B) continued to take lessons beyond the 20 months, but with decreased motivation, and three of the students (group C) discontinued music lessons within the 20 months of the study. Motivation in group A tended to be intrinsic even though it included extrinsic factors. The children set high standards for themselves. The children in groups B and C were motivated only by extrinsic factors. In groups B and C, practice time was a factor more than practice quality. In some cases respondents said they "put in the time" and in some cases, there was no practice focus at all. Parents of group A encouraged their children and helped them to set realistic expectations. Parent of groups B and C often exhibited limited involvement and either limited or unrealistic expectations of their children. They were often distanced from the child's playing and insincere or injudicious in their praise to the child. Even motivated children

experienced periods of self-doubt and low interest. Parental and teacher support was critical to overcoming those periods (Pitts, Davidson, & McPherson, 2000).

Zdzinski (1992, 1993, 1996, 2007) investigated the relationship of aspects of parental involvement with music aptitude, musical achievement, and performance achievement in instrumental studies. Zdzinski (1992) used a researcher developed Parental Involvement Measure (PIM) instrument and HOMES to identify parental involvement in middle school instrumental students ($N = 113$). Zdzinski patterned the PIM after Doan's (1973) Measurement of Family Involvement in Music (FIM) and HOMES. PIM included three sub-scales. The Parental Involvement-Frequency (PI-F) sub-scale consisted of 15 five-point Likert-type questions that measure the frequency with which parents are involved in the musical activities of their children. The low range of the PI-F (15 points) indicated no parental involvement in the child's musical activity. The high range of the PI-F (75 points) indicated the highest measurable frequency of parental involvement. The Parental Involvement-Degree (PI-D) sub-scale consisted of 15 questions that measure the degree of involvement by the parents (father only, mother only, or both). The low range of the PI-D (0 points) indicated no involvement of either parent. The high range of the PI-D (30 points) indicated the involvement of both parents in all areas of musical activity included in the survey. The Parental Involvement-Categorical (PI-D) sub-scale consisted of nine parental involvement items with yes/no responses that identified home environment characteristics.

To establish content validity in the PIM items, Zdzinski (1993) solicited responses from high achieving wind instrumentalists and instrumental music teachers about parental involvement that related to high student achievement. Cronbach's index of internal consistency was $r = .94$ and test-retest reliability was $r = .85$. Zdzinski added nine yes/no demographic questions about gender, grade, age, school, years of playing experience, practice time, and private instruction. Performance achievement correlated with six PIM variables, indicating that parents take the students to concerts ($r = .251$), attend non-school concerts ($r = .227$), provide transportation ($r = .192$), play in a musical group ($r = .171$), attend rehearsals ($r = .165$), and listen to music ($r = .155$). Music achievement correlated with six PIM variables: parents talk about music ($r = .321$), listen to music ($r = .261$), take the students to concerts ($r = .260$), play in a musical group ($r = .199$), provide transportation for the student ($r = .188$), and attend parent meetings ($r = .158$). While the correlations between parental involvement and music achievement were statistically significant, they were too low to suggest practical value (Zdzinski, 1992).

Zdzinski (1996) expanded the investigation on the relationships between parental involvement, music aptitude, grade level, and gender to performance, cognitive achievement, and the progression of musical attitudes in instrumental students ($N = 406$) in grades 4 through 6. The results supported Zdzinski's (1992, 1993) earlier findings concerning parental support. Parental involvement significantly correlated to affective, cognitive, and performance results. The parental involvement correlation to affective measurements increased as the grade level increased. The

correlation between parental involvement and affective measurements accounted for 12.9% of the shared variance. Parental involvement correlated to cognitive and performance measurements in the elementary grades, but not in the middle school and high school grades. Parental involvement correlated to the musical achievement of instrumental students. The relationships were, however, too small to justify practical value (Zdzinski, 1996).

Zdzinski (2007) studied 523 elementary, middle, and high school students in general music, orchestra, band, and chorus classes to determine the reliability of the 39-item Parental Involvement-Home Environment in Music (PI-HEM) scale. Using a principal components analysis with a varimax rotation, Zdzinski identified home structure, parental expectations, musical participation, musical environment, family musical background, and attitudes about music as factors related to all the groups. The ratio of participants (N = 523) to variables (36) was more than 14.75 to 1. The result of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .85. When Zdzinski administered the 99-item PI-HEM, the ratio of participants to variables was more than 5:1and the KMO measure of sampling adequacy was .88. The analysis of the 99-item scale revealed a seventh factor; parental program support.

Sloboda and Howe (1991) sought to understand factors that related to high levels of competence in instrumental performance. Their study was based on references to the relevance of family background in the success of Nobel Prize winners, champion chess players, and prize-winning scientists. The authors interviewed 42 students, age 8 - 18, from Chethams School in Manchester, England

and 20 of the students' parents. The students were identified by the school as A-level or B-level musicians. Sloboda and Howe found a relationship between parental support and student success. Student success did not appear to relate to personal involvement of the parent in musical activities. Most of the parents were involved in their child's progress. Most of the children required a significant amount of encouragement from their parents to practice. Six of the students began instrumental studies based on their internal, personal motivations. Five of these were identified as having extraordinary abilities on their instrument (Sloboda & Howe, 1991). Sloboda and Howe suggested that parents provided a balance between placing extreme pressure on their child to practice and letting them practice based on their internal motivation.

Socioeconomic Status

Albert (2006) noted a relationship between SES and student's motivation for success in school. Albert suggests the same relationship is possible between SES and students' participation in instrumental music programs. The cost of participation in instrumental programs may be a deterrent to the initial participation and the continued participation of students from low socioeconomic backgrounds (Albert, 2006). Frakes, (1984) found that the dropout rate in choral programs was higher than the rate in band programs and that most of this took place in junior high. Tipps (2003) suggested that once the financial investment in an instrument was made students were more likely to continue in the program.

Bonifati (1997) interviewed the parents of 19 instrumental students (age 9 - 13) who were identified by the students' music teachers as successful. Bonifati identified

the parents' musical background, musical activities, and SES through questionnaires and interviews. Bonifati did not find a correlation between SES and success in instrumental studies, but this may have been due to the small number of participants in the study. Conversely, Klinedinst (1991) found SES to be a significant factor in predicting instrumental performance achievement and retention in instrumental programs for fifth-grade students. Klinedinst used the Hollingshead two-factor index to identify SES and used teacher rating (based on a scale developed by Klinedinst) to measure students' potential for success. Even though scholastic ability in math and reading achievement was the strongest predictor of musical success, SES was the strongest predictor of retention ($F = 6.82$), followed by self-concept in music ($F = 5.41$), reading ($F = 4.39$), scholastic ability ($F = 3.56$), and math achievement ($F = 3.17$). Brändström (2000) found that 12- and 13-year-old children of parents with middle and high-level professional occupations and high-academic backgrounds were approximately twice likely as children of manual laborers to attend a Municipal Music School, thereby supporting the conclusion that SES has an important relationship to musical success.

Fitzpatrick (2006) measured the effects of SES and instrumental performance in students ($N = 15,431$) grades 9 - 12 in the Columbus Ohio Public Schools. Student SES was identified by free and reduced lunch records. The researcher obtained the Ohio Proficiency Test (OPT) scores in writing, reading, mathematics, science and citizenship for all students in grades 4, 6, and 9. Fitzpatrick divided the students into two groups according to instrumental and non-instrumental participation. The OPT

scores from grade 4 were linked to the students' future instrumental or non-instrumental status. The researcher compared the students SES to their OPT scores. In 7 of the 12 OPT sub-tests, high SES students outscored all other students. Instrumental students outperformed non-instrumental students in all areas for students of similar SES. Instrumental students of similar SES began with higher OPT scores. By ninth grade, instrumentalists of low SES outscored non-instrumentalists of high SES.

Dunlap (1975) explored the effect of SES, race, community size, and the presence of a father in the home on the musical achievement of students ($N = 472$) in Mississippi and Arkansas. Dunlap found that SES correlated positively with music achievement among all the students of the sample and among students in each of the sub-groups. The sub-groups in Dunlap's study were black students, urban students, and metropolitan students. Dunlap based his measurement of SES on Warner's (1960) four-aspect index. Warner identified SES through occupation, income, housing, and dwelling area. Each of the four aspects was measured on a 7-level scale. Warner then weighted each aspect to determine a family's socioeconomic index. Warner weighed occupation by 4, source of income by 3, house type by 3, and dwelling area by 2.

Socioeconomic measurement instruments

Sociologists have grappled with the problem of vague identifications of occupations versus overly specific identifications of occupations (Van Leeuwen, Mass, & Miles 2004). Goyder and Frank (2007) created codes for occupational status based on skills involved in the occupation. The nine skill-types developed by Goyder and Frank were 1) business, finance and administrative occupations; 2) natural and

applied sciences and related occupations; 3) health occupations; 4) occupations in social science, education, government service, and religion; 5) occupations in art, culture, recreation, and sport; 6) sales and service occupations; 7) trades, transport and equipment operators, and related occupations; 8) occupations unique to primary industry; and 9) occupations unique to processing, manufacturing and utilities. Two problems existed in using this scale. First, the scale was too vague to place all of the data accurately and confidently. Second, the scale utilized Canadian data that did not follow the criteria generally used in studies in the United States.

Osborn (1987) observed that before 1950 SES was commonly measured by the occupational status of the male head of the household. The Hollingshead Index of Social Position and the Duncan Socioeconomic Index have been widely used to identify SES (Osborn, 1987). The most notable problem in Duncan's index is poor reliability when occupational descriptions are improperly converted into occupational codes. Researchers need to be significantly trained to implement the complex coding system of the *U. S. Census Index of Occupations and Industries and the Dictionary of Occupation Titles from the U. S. Department of Labor* (Miller & Salkind, 2002).

Deonandan, Campbell, Ostbye, Tummon, and Robertson (2000) compared seven socioeconomic measures that were based on occupation, education and income. Four of the measures (Blishen, Pineo-Porter, Hollingshead, and British) used self-reported data. Three measures relied on estimates of occupation, income, and education based on zip code information (Deonandan, et al., 2000). Deonandan's, et al., concern with the self-reporting measures was the investigators' subjectivity in

categorizing the occupations. Deonandan, et al., found a high correlation between the four self-reporting measures, but a low correlation between the self-reporting and the postal-code measures.

Researchers have reported high reliability and validity in Hollingshead and Redlich's (1958) measure of SES. The Hollingshead three-factor index consists of occupation, education, and residence scales. In order to use the residential scale, the researcher must map the geographical area that encompasses the research participants into residential zones. The subjectivity of rating neighborhoods and the impracticality of mapping residential zones caused the three-factor index to be less widely received by researchers than the two-factor index (Osborn, 1987). Hollingshead's two-factor index includes an occupational scale and an educational scale (Miller & Salkind, 2002). Hollingshead's two-factor and three-factor indexes correlate highly with judged class status. The two-factor index correlation is r= .9406 and the three-factor correlation is R = .942 (Hollingshead & Redlich, 1958). Hollingshead and Redlich's measures of social position show a strong correlation to Ellis, Lane, and Olesen's (1963) index of class position (Miller & Salkind, 2002). Longitudinal studies that have used the Hollingshead occupational status index indicated that Hollingshead's scale is as strong as any of the other prominent scales of SES (Slomczynski, Miller, & Kohn, 1981).

The Hollingshead scale was reprinted in the *Handbook of Research Design and Social Measurement* (Miller & Salkind, 2002, p. 462-469) with updated financial information on the occupational scale. Hollingshead categorized nearly 200

occupations into seven levels of occupational status. Hollingshead identified seven levels of educational status in the education scale (Miller & Salkind, 2002). The highest occupational level in the household and the highest educational level in the household represented the occupational and educational levels of each household (Davis-Kean, 2005). Table 1 describes the seven levels of the occupational and educational scales.

In Hollingshead's two-factor index, occupation is weighted by seven and education is weighted by four. Hollingshead categorized the total of the weighted scores, based on the population of New Haven, CT into five social classes. Class I was the lowest socioeconomic class with a range of 11-17. The range of class II was 18-31, class III was 32-47, class IV was 48-63, and class V was 64-77 (Miller, 1991).

Table 1

Hollingshead's Occupational and Educational Scale

Level	Occupation	Education
1	Higher executives of large concerns, proprietors, and major professionals	Graduate professional training
2	Business managers, proprietors of medium-sized businesses, and lesser professionals	Standard college or university graduation
3	Administrative personnel, owners of small businesses, and minor professionals	Partial college training (completed at least one year)
4	Clerical and sales workers, technicians, and owners of small businesses	High school graduation
5	Skilled manual employees	Partial high school (at least 10th grade)
6	Machine operators and semiskilled employees	Junior high school (7th-9th grade)
7	Unskilled employees	Less than 7 years of school

Motivation and Attribution Theory

According to Asmus (1985a) the effect of motivation upon musical achievement is poorly understood. An inequality of motivation exists in many classrooms. In order to promote student motivation, teachers must understand what

motivates their students. Students' appearance of laziness, weak character, and shortsightedness are commonly misdiagnosed as symptoms of apathy. Teachers need to be able to differentiate between causal attributions of success or failure and perceived characteristics of apathy (Legette, 2003). Greenberg (1970) identified low self-concept as the primary cause of low musical achievement. Greenberg's study indicated that low achievement in pitch matching was not a result of a musical factor, but an emotional or psychological factor. Hylton (1981) conversely suggests that musical experience appears to create a positive self-image. Attribution theory suggests that students consider ability (internal-stable attributions) and effort (internal-unstable attributions) to be the primary reasons for success and failure in music among elementary, middle, and high school students (Arnold, 1997; Asmus, 1986a, 1986b; Legette, 1998, 2003).

In a 4-year longitudinal study, Rathunde and Csikszentmihalyi (1993) assessed high school freshmen's (N = 208) performance in math, science, music, and art. Undivided interest appeared to be a factor for success in academics (math and science) and performance (music and art). Undivided interest is a concept that Dewey (1933, p. 209-213) described as being "playful and serious at the same time." Students must enjoy a task while having a goal. Piaget (1962, p. 168) observed that play satisfies the ego and provides sensory-motor or intellectual satisfaction. Rathunde & Csikszentmihalyi (1993) asserted that assimilation of a task is accomplished through repetition. Piaget (1962, p. 182-192) described assimilation as the incorporation of new information into one's current knowledge. Rathunde & Csikszentmihalyi referred

to the assimilation process in terms of mastering a task. Interest must be present in order for this repetition to take place. Rathunde and Csikszentmihalyi adjusted for the effects of family support and income, scholastic aptitude, achievement orientation, and gender in their data. They found a positive correlation between undivided interest and talent mastery, undivided interest and teacher ratings, and undivided interest and subjective engagement. Students with multiple talent areas may regard each talent area differently. They may focus on one talent area to the exclusion of another simply because of time limitations. To correct for this, the researchers deleted all data from multiply-talented students and performed the same statistical analysis. The researchers found that the resulting data were almost identical to the data that was analyzed with the inclusion of multiply-talented students.

Asmus (1985a, 1985b) utilized the concepts of attribution theory to understand elements of students' success or failure in music. Asmus presented a two-question survey to 118 sixth- grade students. The participants attended three different schools. Twenty of the participants attended a middle class parochial school, 55 of them attended an inner city school, and 43 of them attended an affluent suburban public school. The students identified five reasons they believed some students do well in music. In the second question, the students identified five reasons they believe some students do not do well in music. The responses were categorized according to one of four causal categories: ability, task difficulty, luck, or effort. The attributions associated with the categories were stable or controllable (ability and task difficulty), unstable or uncontrollable (luck and effort), internal (ability and effort), and external

(task difficulty). The results did not indicate a significant difference in the attributions for success and the attributions for failure. Using a 3 x 2 repeated measures multivariate ANOVA, Asmus found a significant difference in attributions between the schools. Students at the parochial school identified ability as the primary cause for success or failure. Students at the inner city school identified effort as the primary cause. Students at the suburban schools identified ability and effort as the primary causes. Students at all schools identified luck as a reason for failure, but the parochial school students identified luck less than students in the other two schools. Asmus was surprised that internal-stable attributes were not more prevalent, because society often considers musical skill to be a "gift."

Asmus (1986b) expanded the study of attribution to include students ($N = 589$) in grades 4 - 12 in instrumental, vocal, and general music. Females ascribed internal-stable attributes to success and failure more than males did. Students tended to ascribe stable attributions to success and external-unstable attributes to failure. As grade levels increased, students shifted from internal-unstable attributes to internal-stable attributes. The shift from effort related to ability related success indicated a decrease in persistence in the older students. The study implies that that teachers need to encourage students with effort-related attributions (Asmus, 1986b).

The Asmus Motivating Factors Measure (AMF) is one of two measures that comprise the Asmus Measures of Motivation in Music (AMMM) (Asmus, 1985a). The AMF measures Effort, Background, Classroom Environment, Musical Ability, and Affect for Music. Asmus developed the AMMM by collecting more than 5,000

statements from music students in 4th through 12th grades. A different group of high school music students (n = 540) rated the appropriateness of the 125 most common statements about success and failure in music (Asmus, 1986b). Through a factor analysis, Asmus identified the five factors, related to success in instrumental students, which comprised the AMF. The factors were Effort, Background, Classroom Environment, Musical Ability, and Affect for Music. Reliability for the five scales ranged from .60 to .90 (Asmus, 1986a, 1987, 1988, Asmus & Harrison, 1994). Asmus used the same process to develop three scales comprising the Motivation Magnitude Measure, which is the second measure in of the AMMM (Asmus, 1989).

Asmus compared a teacher ranking of the students with the results of the AMMM to establish criterion-related validity. Criterion-related validity was low. Asmus questioned whether using a teacher ranking was a suitable criteria to establish validity as teachers might use significantly different criteria to measure motivation than the students do, as indicated on their responses on the AMMM. To establish construct validity Asmus compared the factor analyses of the individual motivating factors scales and magnitude of motivating scales to the AMMM. Construct validity of the AMF was strong in that the factors of the motivating factors scales were identical to the factors on the AMMM. The factors found in the magnitude of motivation scale revealed low construct validity in relation to the AMMM. Reliability for Asmus' AMF measure was α =.728. Asmus found that the stability dimension was more difficult to define in the external and emotional dimension than the internal dimension of affect

for music. This might be because the classroom environment that is related to external dimensions fluctuates more than the affect for music

Legette (1993) examined the effect of Effort, Background, Classroom Environment, Musical Ability, and Affect for Music on college students' (N = 105) success in a beginning guitar class. Legette used the 35 item Music Attribution Orientation Scale (MAOS) (Asmus, 1988) to investigate the differences between music majors (n = 43) and non-music majors (n = 62). The MAOS contained five sub-scales identified as Effort, Background, Classroom Environment, Musical Ability, and Affect for Music. Both groups collectively and each group individually placed the most importance on Effort, followed in order, by Affect for Music, and Musical Ability. Music majors placed more importance on each of the three attributions than non-music majors did. No statistical difference existed between music majors and non-music majors for the causal attributions of class environment and background. The study confirms Asmus' (1985a, 1985b, 1986b) findings that students attribute ability and effort to success and failure in music. The researcher unexpectedly found that the non-music majors often performed better than the music majors did. Legette speculated that music majors did not believe that intense effort and ability were necessary in this class. They were not as concerned about performance and skill acquisition in this particular class. Non-music majors may have viewed the class as an opportunity to develop a new skill.

Legette (1998) found that high school students (N = 1,114) identified musical ability as the strongest attribute (M = 4.12 on a 5 point Likert-type scale) for success.

Using the Asmus (1988) MAOS, Legette investigated Effort, Background, Classroom Environment, Musical Ability, and Affect for Music. The second strongest attribute was Effort ($M = 4.04$). Legette analyzed the differences due to school system and gender through a *t* test for two independent samples. Students in city schools indicated significantly higher attributions of success for Effort, and Musical Ability ($p < .02$) than students in county schools, but significantly lower for Class Environment ($p < .02$).

Attributions of Effort, Background, Musical Ability and Affect for Music, increased significantly from elementary to middle school and from middle to high school ($p < .02$). Females indicated higher attributions for success in Effort, Background, Class Environment, and Affect for Music ($p < .02$) while males indicated a higher attribution for success in Musical Ability ($p < .02$). Legette's results were consistent with earlier findings of students' emphasis on ability and effort. The fact that females emphasized effort more than males conflicted with earlier studies that identified females as more external than males in their attributions. The analysis revealed that students attending city schools placed more importance on Effort and Music Ability, but the students from the county schools placed more importance on Class Environment. One-way ANOVAs revealed no significant differences between school levels for Class Environment, but the students' attributions of Effort, Background, Musical Ability, and Affect for Music increased as the school grade level increased. Legette concluded that teachers should note the importance of ability and

effort as causal attributions for success and failure. Students who perceive ability as a cause for failure will be likely to expect continued failure in music despite their effort.

Legette (2003) compared the attributions of students in grades 3 through 5 (*N* = 301) in two contrasting elementary schools. Students in school A were 95% Caucasian, 3% African American, and 18% free or reduced lunch. Students in school B were 15% Caucasian, 75% African American, and 80% free or reduced lunch. Students in both schools indicated that Effort and Musical Ability were the most important causal attributions for success and failure in music. Males indicated more importance for Effort and Affect for Music than females did. School B ranked background and affect for music as more important than school A did. Legette maintained that the perceived importance of effort should be encouraging for teachers. However, Legette warned that if teachers treat effort alone as a cause for failure, then some students who have tried hard, but not been successful, could become even more discouraged.

Schmidt (2005) examined the achievement orientation of 300 band students. Schmidt's variables were task/learning and performance/ego. Schmidt investigated the relationships among achievement orientations, self-concept in instrumental music, and attitude to band compared to teachers' ratings of performance achievement and effort, practice time (self-reported) and demographics, and music experience. Through a confirmatory factor analysis (CFA), Schmidt sought to identify the factor structure that underlay the motivation variables. Schmidt then investigated the relationship of the factors to performance ratings, effort, practice time, music experience, and

demographics. Students completed a 5-point Likert-type survey. Schmidt found that most students had a strong musical self-concept. Mastery and cooperative orientations had the highest means and competitive and ego orientations and commitment to band had the lowest means. Commitment to band correlated positively with intrinsic, cooperative, mastery, individual orientations, and self-concept. The competitive and ego orientations correlation, the approach success and avoid failure orientations correlation, and the mastery and intrinsic orientations correlation were all high. Schmidt concluded that proper motivation is critical to student success in instrumental music at all age levels (Schmidt, 2005).

All-State Participants

Despite the range of measurements for success in music, the opportunities for assessing and predicting student success remains the role of the individual teacher. The inconsistencies in criteria for teacher recommendations of students and the inconsistencies in grading practices for music students cause difficulties in using the criteria for research purposes. The most consistent assessments of students take place at music festivals. State music education associations provide music festivals and competitions as opportunities for student assessment by expert judges. This type of assessment takes place in a setting that provides more objectivity than the classroom setting. Auditions for all-state festivals provide a measurement for individual student performance achievement for choral and band students. Many of the constructs found in the available measurements of musical aptitude and achievement are used in the performance assessment criteria for the all-state festivals.

Tobin (2005) chronicled the development of all-state festivals from the 1950s to the present and found little research on the relationship between all-state festivals and the participating students and their music education. Tobin surveyed 727 all-state participants from Massachusetts to investigate the relationship of all-state participation to music, academic, leadership, and extracurricular activities. Tobin found a significant relationship between all-state participation and academic success. Tobin considered the all-state audition process to be rigorous enough to claim that the all-state participants were the best musicians in the state.

Lien and Humphries (2001) noted some non-musical factors influenced all-state audition results. All-state bands must accept students based on the number of positions for each instrument in the band. Distance of the students to the audition site seemed to be a factor that resulted in a larger number of students from large cities and large schools auditioning for all-state positions. Ultimately, the selected students from the audition pool were chosen as a result of their success in the audition (Lien & Humphries, 2001).

In a study that included 48 states and the District of Columbia, all but one of the states reported holding all-state choral festivals (McCord 2003). Twenty-nine (59.2%) of the state music associations included in the study held live auditions within regions of the state. Eight states (16.3%) auditioned the students at one central location. Four states (8.2%) auditioned the students at a district level and a regional level. Eight states (16.3%) auditioned the students through recorded mediums. Only three of the states in the study used teacher recommendation as the criteria for all-state

participation. Most of the states that used judges used one to three judges per audition. Nineteen states (39.6%) provided only one judge per audition, 12 states (24.5%) provided two judges per audition and 16 states (32.7%) provided three or more judges per audition. The highest number of judges used per audition was four: one judge per voice part (SSAATTBB). The number of judges used varied by grade level and the number of voices heard per judge varied when auditioning multiple voice parts in one audition. Sight-singing, foreign language, and scale and arpeggio requirements varied from state to state (McCord, 2003).

Summary

A review of the research literature concerning factors and characteristics of successful musicians reveals four principal observations. Much of the research of the past 40 years has focused on factors and characteristics of successful instrumental students. A substantial amount of research has investigated musical aptitude in general music students in public schools. A significant void exists in the understanding of factors and characteristics of successful vocal and choral students. Further research is necessary to effectively identify the criteria that define success in music.

CHAPTER 3

METHODS AND PROCEDURES

Participants

The participants in this study were 403 students enrolled in high school choral and band classes in the southeastern United States. The researcher contacted schools in Alabama, Georgia, and Tennessee that had high number of students participating in all-state band and choir. All students in the choral and band classes, with appropriate parental permission, were eligible to participate in the survey. Students who had auditioned and been selected to participate in all-state festivals were identified as successful in performance achievement in music. The sample of all choral and band students in the participating schools represented the population of southeastern high school choral and band students who attended schools with significant participation in all-state festivals.

All-State Selection Criteria

Audition procedures varied in Alabama, Georgia, and Tennessee, but were similar enough to operationalize successful performance achievement as all-state participation. Alabama, Georgia, and Tennessee maintained state music associations connected to the Music Educators National Convention and state bandmaster's associations. Alabama and Georgia each maintained a vocal association. The

Tennessee Music Education Association (TMEA) maintained three separate vocal associations that were divided geographically into east (ETMEA), middle (MTMEA), and west Tennessee (WTMEA). TMEA provided general guidelines for all-state vocal and all-state band auditions, but the MTMEA and WTMEA had additional guidelines for their own area (Middle Tennessee Vocal Association [MTVA], 2006; Tennessee Music Education Association [TMEA], 2006; West Tennessee Vocal Association [WTVA], (2005).

All of the vocal associations auditioned students for performance achievement. Aspects of the audition process and assessment varied among the associations. All of the vocal associations except the Georgia Vocal Association (GVA) required students to learn their vocal part for the selected all-state choral repertoire. All of the vocal associations except the GVA auditioned students in small groups. The number of judges required to audition the small groups or individuals varied among the associations. The AVA, ETVA, and MTVA required that the students audition on their vocal part for the music in the all-state repertoire. The Alabama Vocal Association (AVA) required students to audition without accompaniment for repertoire that is written for a cappella choir. WTVA stated that, “no student may be required to sing from memory or a cappella” (WTVA, 2005). AVA required only that students prepare their vocal part for the selected choral repertoire. Table 2 illustrates the all-state audition requirements for the vocal associations governing the participants of this study (Alabama Vocal Association [AVA], 2006; Georgia Music Educators Association [GMEA], 2007; MTVA, 2006; TMEA, 2006; WTVA, 2005).

Table 2

Vocal Associations' Audition Requirements

	Vocal Part Judging	Sight-reading	Scales	Tonal Memory	Solo
AVA	1 judge, knowledge of part, intonation, voice quality	Not required	Not required	Not required	Not required
GVA	Not required	Rhythm, intervals, starting and, ending pitch, range	Major, natural minor, chromatic	Pitch, rhythm diction, tone, interpretation	4 examples 5 notes each
ETVA	2 judges per quartet 4 judges per octet	Not required	Not required	Not required	Not required
MTVA	5 judges selected from participating teachers, blind audition	Not required	Not required	Not required	Not required
WTVA	3 judges, diction, technical accuracy, pitch, rhythm,	Starting pitch, correct notes and rhythms	Not required	Not required	Not required

Bandmaster's associations in Alabama, Georgia, and Tennessee assessed student performance achievement in the all-state festival auditions. The bandmaster's associations required major and minor scales, arpeggios, sight-reading exercises, and prepared studies, exercises, or etudes of all auditionees. Percussionists were required to audition on snare, xylophone, and timpani (Alabama Music Educators Association [AMEA], 2007; GMEA, 2006; TMEA, 2006).

School Selection Procedures

The researcher contacted representatives of the vocal associations and bandmasters associations in Alabama, Florida, Georgia, and Tennessee by email and telephone to identify band and choral programs with the greatest number of students participating in all-state festivals in 2007 and 2008. The AVA provided copies of the 2008 concert programs listing all-state participants (P. Edmundson, personal communication, March 25, 2008). The ABA (G. Gooch, personal communication, April 3, 2008), TBA (Z. Williamson, personal communication, April 2, 2008), and the band division of GMEA (G. Gribble, personal communication, March 24, 2008) provided lists of all-state band participants. The researcher purchased a list of vocal all-state festival participants from the FVA (E. McNamara, personal communication, March 31, 2008). Lists of vocal all-state students were retrieved from the Tennessee vocal associations' web sites (ETVA, 2008; MTVA, 2008; WTVA, 2008).

Schools that had both choir and band all-state members were selected to eliminate effects of differing school emphases on chorus or band programs. It seemed logical that schools with participation in both performance areas were more likely to

have a balance of emphasis. Factors were not as likely to be skewed by the emphasis of the school. Fourteen Alabama schools, 14 Georgia schools, and 4 Tennessee schools fit the criterion for the selection.

Distribution of all state choir members across Florida schools differed from the distribution in Alabama, Georgia, and Tennessee. Four Florida schools had the highest number of vocal participants in the state: three participants. Twenty-two schools had two vocal participants and the remaining schools had only one participant per school. The limited number of students represented in each school resulted in a broad representation of students from the state, but did not insure that the best vocalists in the state were represented. The distribution of participants from each school in Alabama, Georgia, and Tennessee indicated that the best students were concentrated in a smaller number of schools. Florida was not included in the study for two reasons. First, the distribution of all-state students in FVA did not represent performance success as accurately as Alabama, Georgia, and Tennessee. Secondly, the collection of data that would include a significant number of all-state participants was impractical.

Access and Permission

The study protocol was approved by the Auburn University Institutional Review Board's expedited procedure. The researcher contacted prospective principals or superintendents of 25 high schools to request their participation in the study. The researcher explained the procedures used to guarantee anonymity and confidentiality and provided each principal, teacher, and parent/guardian with contact information for the researcher and the Auburn University Office of Human Subjects. The researcher

initially contacted each principal by telephone to describe the study and ask permission to administer the survey in their school. If the principal was not authorized by the school system to approve the research, the principal referred the researcher to the appropriate administrator. Authorizations were provided by superintendents, assistant superintendents, accountability specialists, evaluation specialists, and fine arts coordinators. (See Appendices C and D for human subjects approval and recruiting materials.)

The researcher sent a letter by email to the authorizing school representatives requesting written permission to administer the survey. A sample consent letter, to be returned to the Office of Human Subjects Research at Auburn University, was attached to the email. After the first two contacts, the researcher determined that it was more efficient to indicate that a report would be emailed to all administrators and teachers who participated instead of having a request form for the report.

Upon receipt of the authorizing representative's verbal permission, the researcher contacted each band and choral director by phone to describe the study, request their consent to administer the survey to their classes, and obtain student enrollment. After confirmation from the Office of Human Subjects Research the researcher mailed each director a packet containing a letter with instructions, two parent permission forms per student, and one questionnaire per student.

Data Collection Procedures

Each teacher was asked to administer the Characteristics of High School Music Students Survey (CHSMSS) to all students who had returned a permission form

during a band or choir class. The teacher or an appointed student collected the completed surveys and returned them with the permission forms in a self-addressed, postpaid envelope.

Instrument

Two previously developed instruments, AMF (Asmus 1985a, 1989) and PIM (Zdzinski 1992, 1993) were combined to create the Characteristics of High School Music Students Survey (CHSMSS) (see Appendix A) .

Evaluation of Pilot Study

A pilot study was designed to evaluate the data collection procedures and the survey instrument. Two hundred music students at Auburn High School were recruited for a pilot study of validity and reliability of the instrument and procedures. An Exploratory Factor Analysis (EFA) was used to identify factors related to student participation in band and chorus. The resulting sample size of 80 (13 choral students and 68 band students) was too small for factor analysis. The KMO Measure of Sampling Adequacy Test (KMO = .21) was below .70 and indicated inadequate correlations to proceed with factor analysis. The KMO result was expected because of the small sample size. A minimum of 642 participants was necessary to perform a factor analysis for the 74 items in the survey (Meyers, Gamst, & Guarino, 2006, p. 567).

The band students completed the 89-item CHSMSS survey (see Appendix B) during class time and the choral students completed the survey at home. Twenty percent (n = 14) of the group that took the survey home and 55% of the group that

took the survey in class returned completed questionnaires. When the band director and choral director were asked their opinions concerning taking the survey in class, both affirmed that it should be taken in class. One chorus student was excluded from the study, because no effort to respond correctly was apparent. One band student was excluded from the study, because the student did not respond to most of the items.

The ages of the participants ranged from 14 - 18 (M = 16.25, SD = 1.0). One student was 14 years old and nine students were 18 years old. The participants were evenly distributed across grades 10 - 12: 28 sophomores, 27 juniors, and 25 seniors. Most of the students lived with both parents (81.2%). No distinction was made between parents and stepparents in the number of parents living at home. Only one student reported living with a guardian with no parents at home. The mean number of siblings in the families of the participants was 1.50, which included siblings living at home and those not living at home.

The average family occupational level, educational level, and SES are shown in Table 3. The average SES of the families in the pilot study ranks in highest category of Hollingshead's (1958) index of social position. The highest category is defined by a score of 64-77. Nearly half the families (41.2%) scored 77 on the Hollingshead index and 74.9 % of the families scored 64 or higher.

Table 3

SES of Pilot Study Participants

	M	*SD*
Occupational Level	6.29	1.38
Educational Level	6.62	.60
SES	68.26	11.23

Six items were deleted from the survey as a result of the pilot study. Item 76, "years of private lessons," and item 77, "amount of practice time," did not converge into any of the factor components. The two items did not sufficiently relate to the research questions so they were removed from the CHSMSS. In the dataset, item 78 (all-state chorus) and item 79 (all-state band) were combined into a categorical variable identifying the student as a band participant or choir participant. Item 80 identified the number of parents living at home. If only one parent lived at home, the data coding was different for father and mother. By using different coding for each parent, the researcher could identify whether there was any difference in performance achievement, parental involvement, or motivating factors between fathers and mothers in single parent homes. After reviewing the results, the researcher determined that the questions about parents living at home (item 80) and number of siblings (item 81) did not add any benefit to the survey beyond the items from Zdzinski's (1992, 1993) PIM. Items 80 and 81 were deleted from the demographic section. Data from item 84 (number of brothers) and item 85 (number of sisters) were coded in one cell as number

of siblings, but the items were deleted from the CHSMSS, because they did not sufficiently relate to the research questions. The deletions left only items that were included in the Asmus (1985a) scale and the Zdzinski (1992, 1993) scale to be analyzed. Some of the responses to the questions about parents' occupations were answered with descriptions that were too general to categorize so the researcher added, "Please be as specific as possible" to those questions.

Structure of the CHSMSS

Items 1 through 35 on the CHSMSS were designed with the same wording and formatting as the AMF to measure students' motivation factors through attributions of success and failure in music. The responses were coded into SPSS on a scale of 1 ("not important at all") to 5 ("extremely important"). Items 36 through 74 were identical to PIM items and measured family background and parental involvement. Items 36 through 50 were from the PI-F subscale. If the student's response to an item was A, indicating that the parent(s) were always involved, the item was coded as 5. A response of E, indicating that the parent(s) were never involved, was coded as 1. Items 51 through 74 represented the PI-D subscale. If the student indicated that neither parent was involved in items 51 through 65, the item was coded as 0. If the father only or mother only was involved, the item was coded as 1. If both parents were involved, the item was coded as 2. Items 67 through 73 measured parental involvement in creating a home music environment through yes (coded 1) or no (coded 0) responses. Item 74 measured a degree of parental involvement for band students based on instrument ownership. School owned instruments were coded as 1, rented instruments

were coded as 2, and family owned instruments were coded 3. Students indicated their membership in band or chorus in item 75.

In order to maintain confidentiality in the surveys and to minimize threats to internal validity, teacher recommendation was not used as the criteria for identifying students who are successful in band or choral performance achievement. Selection validity (Pedhazur & Schmelkin 1991) would have been jeopardized because variances in teachers' criteria for success would create inconsistencies in the success group. If the teacher identified the students before the survey was administered, the students' responses would have been subject to compensatory rivalry or resentful demoralization (Pedhazur & Schmelkin 1991). If the teacher identified the students after the survey was administered implementation of the survey could not have been anonymous and the participants might not have felt free to express their opinions.

The criteria used to establish performance achievement was the students' participation in all-state band or chorus. In Alabama, Georgia, and Tennessee, expert judges assessed the band students' according to similar measurements of success and the choral students according to similar measurements of success. Students' performance achievement in chorus or band was identified by all-state chorus or band participation in item 76. Students responded to item 76 by listing the number of years they had participated in all-state chorus or band. The response to all-state participation was treated as a dichotomous variable. Any response of one or more years was identified as successful achievement in performance. Participation was operationalized by labeling participation of one or more years as 2 and non-participation as 1.

The 89-item version of the CHSMSS used for the pilot study differed slightly from the final 83-item survey as was explained in the description of the pilot study. The last portion of the CHSMSS identified demographic information about the students. Students were asked to indicate their gender, age, and grade level. The survey contained four questions to identify SES concerning each parent's occupation and education. The format of the occupation and education items was patterned after Dunlap's (1975) survey. SES was classified using the Hollingshead Index of Social Position (Hollingshead & Redlich, 1958).

The researcher took steps to identify students who might have been surveyed twice. The researcher numbered each survey in a band or choral group within a specific school so that the subject number in SPSS matched the survey number written on the survey. The researcher catalogued the survey numbers for each group. None of the participants indicate that they participated in band and chorus, so no further steps were warranted to eliminate duplicates.

Data Analysis

The data analysis was designed to address the purposes and research questions of the study. The primary purpose of this study was to identify the contributions of parental involvement, motivating factors (attributions of success), and SES to performance achievement among high school music ensemble members. The secondary purpose of this study was to compare parental involvement, motivating factors, and SES of high school choir and high school band members. Parental involvement was measured through the PIM scale. The motivating factors were

identified through factor analysis of the AMF scale. Hollingshead's Two Factor Index of Social Status was used to measure SES.

The research questions were stated as follows:

1. What are the parental support factors, motivational factors, and SES of high school band and choir students who attend high schools that have both choir and band students selected for all-state participation?
2. How do the factors relate to membership in band or choir ensembles?
3. How do the factors relate to all-state participation in band and choir students?

Data was entered into SPSS (16.0) statistical software. Research question 1 was addressed through reliability analyses, CFAs, and EFAs. Internal consistency reliability was established for each factor identified in the PIM scale, the three PIM subscales in the PIM, and the AMF scale. Parental involvement was determined through the PIM sub-scale scores. The PI-F range was 15 – 75, the PI-D range was 0-30, and the PI-C range was 9 – 18 (yes = 2, no = 1).

The researcher ran a CFA using AMOS (16.0) software to confirm that the factor structure identified in the AMF scale (items 1 – 35) fit the current data sample. Motivating factors related to band and chorus participation were identified through EFA and CFA of the AMF scale. A CFA of the AMF scale was designed to minimize the possibility of Type II error in items 1 - 35. The CFA measured the fit of the current data to the Asmus' (1986b, 1989) model. (Asmus had identified the factor structure through a principal components factor analysis.)

Two relative fit indices, the Normed Fit Index (NFI) and the Comparative Fit Index (CFI), and one absolute fit index, the Root Mean Square Error of Approximation (RMSEA), were calculated to fit the model to the data (Guarino, Shannon, & Ross, 2001). The NFI and CFI indicate the improvement of the model over the independence model, which assumes that there are no relationships within the data. The NFI and CFI are probability values that range from 0 to 1 and should be $\geq$ .95 to indicate a good fit (Meyers, Gamst, & Guarino, 2006, p. 575-576). "The RMSEA is the average of the residuals between the observed correlation/covariance from the sample and the expected model estimated from the population" and should be < .08 (Meyers, Gamst, & Guarino, 2006, p. 576) or < .06 according to Schreiber, Stage, King, Nora, and Barlow (2006).

After identifying the best factor structure fit through CFAs, the researcher ran a principal components factor analysis with a varimax rotation. The factor loading of the current sample was compared to Asmus' (1989) factor loading. The KMO Measure of Sampling Adequacy Test, $\geq$ .70, was used to indicate whether adequate correlations existed to proceed with factor analysis. Variables with correlations of .3 or higher were identified as part of a component. Components with eigenvalues ≥ 1 were reported as contributors to the total variance of the factors.

In a factor analysis, the term *extracting components* describes the process of grouping variables into components. A *component* is a group of variables in a factor analysis that are highly correlated. The *extracted components* are identified only as component 1, component 2, etc. The components have meaning as a *factor* when the

researcher identifies the component through the similarities of variables in the component. Once the researcher has labeled the components, they are referred to as factors. An *eigenvalue* indicates how much of variance of the initial group of variables is accounted for by one component. An eigenvalue is the sum of the squared (r^2).

Research question 2 sought to identify the relationship of the factors to band and choir participation and research question 3 sought to identify the relationship of the factors to all-state participation. DFA was determined to be most appropriate analysis to identify differences between band and chorus members and all-state and non-all-state participants, because the researcher used nine continuous variables (AMF factors, PIM subscales, and SES) to predict success in band students and choral students (Asmus & Radocy, 1992, p 160; Meyers, Gamst, & Guarino, 2006, chap. 7). Pearson product-moment correlations were analyzed between the individual items of the PIM scale and all-state participation. The correlations were compared to the correlations of individual PIM items found by Zdzinski (1996).

CHAPTER 4

RESULTS

Introduction

The results of this study are organized according to the chronology of data collection, and order of the analyses used to answer each of the research questions. Three research questions are addressed through the analyses:

1. What are the parental support factors, motivational factors, and SES of high school band and choir students for all-state participation?
2. How do the factors relate to membership in band or choir ensembles?
3. How do the factors relate to all-state participation in band and choir students?

The sections included in the results chapter are survey response, reliability, factor analysis of the AMF scale, comparison of means, correlation analysis of the PIM scale, comparison of factors between groups, and DFA.

Response Rate and Sample Characteristics

Thirty-three high schools in Alabama, Georgia, and Tennessee had at least six students participating in all-state band and six students participating in all-state chorus during the 2007-2008 academic year. Fifteen of the schools were in Alabama, 14 of the schools were in Georgia, and 4 of the schools were in Tennessee. Principals, superintendents, or arts coordinators from 11 schools agreed to conduct the research in

their schools. The approval process for research in two school systems in Georgia took a minimum of three months for approval. If the research were approved, it would be for the 2008-2009 academic year. The researcher did not pursue approval from those 11 schools, because the other schools that responded positively accounted for approximately 2,300 potential participants.

Administrators for 9 of the 11 schools who had verbally agreed to conduct the research returned a letter of permission to the Auburn University IRB. The researcher sent 1,891 surveys to the band and choir directors of the nine schools. Five schools returned a combined 323 surveys for a return rate of 17%. These surveys and the 80 surveys collected in the pilot study represented 403 participants from six schools, resulting in a return rate of 19.27%. The minimum sample size needed for a factor analysis was 50 plus 8 multiplied by the number of variables (34), or 322 participants (Meyers, Gamst, & Guarino, 2006, p. 567). Thirty-four of the 35 variables in the AMF were analyzed through factor analysis. The researcher's intent was to survey both band and chorus students in each school, but the returned surveys did not include students from both programs in all the schools. Only two schools had participation from both band and chorus students. The sample, however, met the objective of surveying band and choral students from schools in which both programs had significant representation at all-state festivals (see Table 4).

The mean age of the 403 participants was 16.01 and the mean grade level was 10.28. The participants included 185 (45.9%) chorus participants and 218 (54.1%) band participants. One hundred forty-two participants (45.9%) were male and 257

(63.8%) were female. Three participants did not respond to the gender survey item. One hundred twenty-four (30.8%) of the participants indicated participation in one or more years of all-state ensembles including 58 chorus participants and 66 band participants.

Table 4

Summary of Participants by State and Ensemble Type

	Schools	Band	Chorus	Total	*P*
AL	4	154	89	243	60.30
GA	1	64	0	64	15.88
TN	1	0	96	96	23.82
Total	6	218	185	403	100.00

Research Question 1

Three scales were used to identify factors related to band and chorus participation. Parental involvement factors were identified through the PIM, motivational factors were identified through the AMF, and SES was measured through Hollingshead's Index of Social Position.

Reliability

Reliabilities for PIM and AMF scales were estimated through calculation of Cronbach's alpha. Reliability coefficients for the three PIM sub-scales are presented in Table 5 with comparisons to Zdzinski's findings.PIM reliability ($\alpha = .911$) was greater than Zdzinski's $\alpha = .848$. Reliability estimates for the five factors in the AMF are

presented in Table 6. The AMF reliability was α = .905 (*M* = 132.98, *SD* = 16.28), which was greater than Asmus' (1986a, 1986b, 1988) reported AMF reliability α = .728 (*M* = 118.58, *SD* = 16.81) and Zdzinski's (1996) α =.866(*M* = 118.58, *SD* = 16.81).

Table 5

Reliability of Zdzinski's PIM Scale and Sub-scales

Scale	Zdzinski			Hickok		
	M	*SD*	α	*M*	*SD*	α
PIM	50.08	12.741	.848	63.09	17.172	.911
PI-F	35.57	8.726		36.56	10.800	.859
PI-D	14.30	5.313		11.52	8.067	.840
PI-C				11.98	2.009	.641

Table 6

Reliability of Asmus' AMF Scale

Scale	Asmus	Zdzinski			Hickok		
	α	*M*	*SD*	α	*M*	*SD*	α
AMF	.728	118.58	16.807	.866	132.98	16.277	.905
Effort					24.82	4.195	.854
Classroom					22.48	4.492	.790
Ability					26.14	3.748	.853
Background					17.33	4.918	.806
Affect					24.04	3.882	.765

Parental Involvement

Parental support factors were measured through the PIM. The frequency of parental involvement, the degree of parental involvement and the home music environment were established through the three subscales of the PIM (Zdzinski, 1993). The range of the PI-D sub-scale was changed to 8 – 16. Item 74 on the survey referred to instrument ownership. The item was relevant to band students, but not choral students, so it was deleted.

Analysis of Motivating Factors

The fit of Asmus' factor model to the current data was identified through a CFA. The NFI in Asmus' 35-item model indicated a poor fit (see Table 7). The CFI

indicated a slightly better fit, but still poor. The RMSEA was .070 indicating a good fit of the model to the data according to the criteria of < .08 suggested by Meyers, Gamst, and Guarino (2006, p. 574). The RMSEA, however, did not meet the criteria of < .06 recommended by Schreiber et al. (2006). Although the preliminary fit indices indicated a poor factor structure, the internal consistency reliability indicated that the AMF factor structure was appropriate for the current study. The CFA fit indices were slightly better when item 27 "afford a good instrument" was deleted from the Asmus model. The researcher determined that although item 27 was relevant to band participants, it was not relevant to choral participants. Further explanation concerning the researcher's decision to use the 34-item model is included in the following section on EFAs. Table7 shows a comparison of the fit indices of the model with 35 variables to the model with 34 variables. The fit indices of the 34-variable model are reported for all participants, band students only, and chorus students only.

Table 7

Fit Indices of the Asmus Model and Study Data

Fit Index	All participants 35 items	All participants 34 items	Band 34 items	Chorus 34 items
NFI	.729	.739	.662	.635
CFI	.799	.807	.763	.756
RMSEA	.070	.070	.081	.080
X^2	2.991*	2.984*	2.436*	2.176*

* = $p < .01$

Chi-square tests were calculated to compare the 34-item and the 35-item models (Thompson, 2004). The fit of the model was slightly better again when all 8 of the variables that did not load into the original model were omitted. The NFI, CFI, and RMSEA fit indices were similar for the band participants and chorus participants, but were not as good as in indices for all participants. The chi-square value was better for the band and chorus models than for the model with all participants. In all cases the model χ^2 was significant ($p < .01$). EFAs were used to determine variances in the factor structure that could improve the fit of the model for the current study. Nine variables in the current data set loaded onto components other than the original Asmus model with loading coefficients greater than .3 in a second component. As seen in Appendix E, in six of the nine cases, the second component was the same factor in which the variable loaded in Asmus' model. The three variables that loaded into

component 6 were variables that Asmus identified as background variables. The variable that did not indicate any relationship to the original factor structure was "being able to afford a good instrument" (item 27 of the survey).

It is reasonable to assume that the deletion of the nine variables that did not load as expected would create a better fit of the model. Variables with poor fit can be deleted from the model until only variables that fit the model well are retained. Although the model can be made to fit, valuable data would be omitted. The same factors were identified in EFAs with and without the nine variables. The omission of item 27 did not change the factors that were identified, but, it changed the amount of variance explained by each factor. Item 27 was relevant to Asmus' study of instrumental music participation, but was not relevant to the study of choral music participation; therefore, it was deleted from the data set.

An EFA of all participants and an EFA of only band students, without item 27, yielded seven components. All of the variables in the AMF had a loading coefficient greater than .3 in the seven components (all with eigenvalues greater than 1) of the current model. An EFA of choral students yielded eight components. The KMO measure of sampling adequacy in each model was > .70, so the ratio of subjects to variables was good. For all participants in the 35-item scale the KMO was .889. In the 34-item model the KMO was .888 for all participants, .854 for band students, and .823 for choral students. In Asmus' study and in the current study Effort had the highest eigenvalue. The order of the remaining four factors in Asmus' study was Class Environment, Musical Ability, Background, and Affect for Music. The table shown in

Appendix F illustrates the rotated component matrix without the variable "able to afford a good instrument." All loading coefficients of .3 or greater are included in the table. Five variables had a loading coefficient of .3 or greater in more than one factor. Seven of the variables did not load under the expected factor of the Asmus model. Four of the variables that did not load with the expected factor had a loading factor of .3 or greater in a second factor that corresponded with the Asmus model. The first five components, which account for 49.58% of the variance, were given factor labels consistent with the Asmus factors. Components six and seven were not named.

The researcher analyzed the data through a third EFA in which the number of factors was suppressed. When suppressing the analysis to five factors, all but two of the variables loaded onto the same factor as they did in Asmus' (1986b) study. As seen in Appendix G, both of the factors also had a factor loading < .3 in the expected factor.

A similar EFA was done with band participants suppressed to five factors. The items loaded onto the same factors with band students as they did with all participants, but the variance explained by each factor was different. When the same analysis was done with chorus students only, most of the effort and ability variables were loaded onto the first component. The fifth component included two variables related to musical ability and one variable related to affect for music. Table 8 illustrates the variance explained (rotation sums of squared loadings) by the factors in the current sample with all participants, band students, and chorus students. In Asmus' study, the factors in order of explained variance are Effort, Classroom Environment, Musical Ability,

Background, and Affect for Music. The fifth component in the suppressed analysis of chorus participants did not include enough variables to clearly identify it as a factor, so it is identified only as a component. The EFAs that were not suppressed contain more than five components, but only the components identified as factors based on the Asmus scale are reported. Item 27 ("able to afford a good instrument") is not included in the current data set.

Table 8

Percentages of Variance Explained in the 34-Item AMF Scale

Factors	All	All Suppressed	Band	Band Suppressed	Chorus	Chorus Suppressed
1	12.04 Ef	11.59 Ab	11.87 Ef	11.90 Ef	14.35 Ab	18.43 Ef/Ab
2	10.51 Ab	11.59 Ef	11.06 Ab	11.82 Ab	9.26 Ef	11.88 Bk
3	9.57 Af	10.13 Bk	11.01 Af	11.61 Af	8.70 Af	8.91 Cl
4	9.00 Cl	10.02 Af	10.45 Cl	10.46 Cl	7.68 Cl	8.52 Af
5	8.46 Bk	9.70 Cl	7.48 Bk	9.62 Bk	7.51 Bk	5.76 Co
6					6.84 Bk	
Total	49.5	53.02	51.87	55.40	54.34	53.51

Note: Ef = Effort, Cl = Classroom Environment, Ab = Ability, Bk = Background, Af = Affect for Music, Co = Component

The EFAs with all participants and the EFA with band participants yielded seven components. The EFA with chorus participants resulted in eight components,

but components five and six both included background variables. Although the order of the proportion of explained variance differed between all participants and band participants, the difference in variance of like factors ranged from .45% - 1.67%. The greatest difference in the percentage of variance for all factors was 3.58% for all participants and 1.89% for band participants. The factor loadings and variances of the factors in the EFA for choral students were not consistent with the factor loadings and variances of band students and all participants. These differences support the need to further analyze the differences between factors related to band participation and chorus participation.

The CFAs indicated a minimal fit of the factor model to the current data but the EFAs resulted in factor loadings that were similar to those identified by Asmus. In the EFA of band participants, when suppressed to five factors, all variables loaded to the same factors as they did in the Asmus (1989) study. With the exception of two variables, the EFA of all participants resulted in the same match. The match of factor loadings between the current data and the Asmus study implies that Asmus' factor model can be applied to all participants in the current study.

Factors Related to Band, Chorus, and All-state Participation

Nine factors were established to identify the relationship of parental involvement, student attributions of success, and SES to all-state participation and band or chorus participation. Three factors which were established through the PIM subscales are frequency of parental involvement (PI-F), degree of parental involvement (PI-D), and parental provisions for the home musical environment (PI-C).

Five factors which were a result of the factor analysis of the AMF scale were Effort, Background, Classroom Environment, Musical Ability, and Affect for Music. SES was established through Hollingshead's (1958) Occupational and Educational Scale. (See Table 9 for descriptive statistics for each factor.)

Table 9

Descriptive Statistics for CHSMSS Factor Means

Factor	*N*	Minimum Possible	Maximum Possible	*M*	*SD*
PI-F	403	15	75	36.56	10.800
PI-D	403	0	30	11.52	8.067
PI-C	403	8	16	11.98	2.009
Musical Ability	403	7	35	26.14	3.748
Effort	403	7	35	24.82	4.195
Affect for Music	403	7	35	24.04	3.882
Classroom Environment	403	7	35	22.48	4.492
Background	403	6	30	17.33	4.918
SES	401	11	77	59.40	17.027

Research Question 2

The DFA for band and chorus membership was computed to address research question 2: How do the factors relate to membership in band and choir ensembles? Classification results of the DFA indicated that 63.3% of the participants were

correctly classified as band or chorus participants according to predictions based on the CHSMSS scores. Predictions based on the CHSMSS scores would have been 71.0% correct for the students currently in band and 54.3% correct for students currently in chorus. The overall multivariate function was statistically significant for band and choir membership (Wilks's Lambda = .887, $p < .001$). Table 10 illustrates the difference in the means of each factor according to band or chorus membership. The follow up *F* tests revealed significant main effects for Ability and SES with band or chorus participation. The mean score for the Ability in Music attribution factor was higher for band students than for chorus students. The mean SES was higher for chorus students than for band students.

Table 10

DFA Means for Band and Chorus Participation

	Band		Chorus		
Factor	*M*	*SD*	*M*	*SD*	*F*
PI-F	36.41	9.887	36.97	11.643	.269
PI-D	11.78	8.132	11.33	7.958	.321
PI-C	11.90	2.024	12.11	1.958	1.057
Ability	26.80*	17.911*	25.39*	4.116*	14.589*
Effort	24.85	3.251	24.78	4.167	.032
Affect	23.77	4.020	24.36	3.676	2.276
Class	22.16	4.542	22.84	4.395	2.270
Background	16.99	4.673	17.68	5.120	2.006
SES	54.87*	17.911*	62.39*	15.441*	10.739*

* = $p < .001$

Research Question 3

The results of the DFA for all-state and non-all-state participation address research question 3: How do the factors relate to all-state participation in band and choir students? The results indicated that 71.3% of the participants would have been correctly identified as all-state or non-all-state participants. Predictions would have been 95.3% correct for the students who did not participate in all-state ensembles, but only 17.1% correct for students who were all state participants. The overall

multivariate function was statistically significant for all-state and non-all-state participation (Wilks's Lambda = .914, $p < .001$). Table 11 illustrates the difference in the means of each factor according to all-state participation and non-all-state participation. The follow-up *F* tests for all-state and non-all-state participation revealed a significant main effect for all factors related to Background and parental involvement. Background, PI-F, PI-D, and PI-C were higher for all-state participants than for non-all-state participants. The strongest effect was the PI-F score.

The results of the DFAs suggest that four factors that have predictive value for all-state participation: Background, Frequency of Parental Involvement, Degree of Parental Involvement, and Parental Provisions for the home musical environment (see Table 11).

Table 11

DFA Means for All-state and Non-all-state Participation

	All-state		Non -all-state		
Factor	*M*	*SD*	*M*	*SD*	*F*
SES	60.85	15.969	58.76	17.464	1.291
Ability	26.29	3.566	26.09	3.812	.251
Effort	25.19	4.007	24.65	4.270	1.375
Affect	24.45	3.794	23.86	3.899	1.944
Class	22.43	4.705	22.49	4.389	.014
Background	18.33**	4.692**	16.85**	4.914**	7.997**
PI-F	39.84***	11.271***	35.26***	10.173***	16.122***
PI-D	13.53***	8.492***	10.71***	7.698***	10.729***
PI-C	12.40*	1.867*	11.82*	2.026*	7.281*

* = $p \leq .007$; ** = $p \leq .005$ level; *** = $p \leq .001$

Correlations of Variables in the PIM

A correlation analysis was used as a follow-up test to compare individual items on the PIM to the correlations that Zdzinski (1996) reported. Because Zdzinski used Pearson product-moment correlations to identify relationships between the PIM items and performance ability, the researcher used Pearson Product-Moment Correlations to measure relationships among PIM variables and all-state participation (Shannon &

Davenport, 2001). Although Zdzinski's measures differed from the all-state measurement in the current study, both studies used valid measurements for performance ability. The comparison of the two correlations related to the parental involvement aspect of research question 3. Table 12 illustrates the comparisons of Zdzinski's study and the current study. Correlations that are missing in Zdzinski's list are a result of the reporting method and are not statistically significant. Zdzinski measured performance ability, affective musical ability, and cognitive musical ability and reported only PIM items that had a significant correlation with at least one of the musical ability assessments.

Table 12

Pearson Product-Moment Correlations for Variables in the PIM

Variable	All-state Membership	Zdzinski Performance Assessment
PI-F items		
Attend parent meetings	.24**	.18**
Talk about music	.23**	.10
Attend school concerts	.21**	.30**
Attend non-school concerts	.17**	.21**
Listen to practice	.15**	-.15
Ask about progress	.14**	-.12
Record performances	.12*	.19**

Table 12 *(continued)*

Variable	All-state Membership	Zdzinski Performance Assessment
Sing with you	.09	.00
Attend school rehearsals	.09	
Assist with practice	-.09	-.30
Take you to concerts	.06	.02
Listen to music at home	-.05	.06
Play in group	.04	.08
Provide transportation	-.04	.01
Sing in group	-.01	.17**
PI-D items		
Music parent organization	.37**	.22**
Attend parent meetings	.18**	.14**
Talk about music	.18**	.12
Attend school concerts	.18**	.20**
Assist with practice	.14**	-.26**
Attend non-school concerts	.14**	.21**
Ask about progress	.12*	.06
Listen to practice	.10	-.09
Record performances	.09	.12

Table 12 *(continued)*

Variable	All-state Membership	Zdzinski Performance Assessment
Play in music group	.06	
Take you to concerts	.04	.07
Attend rehearsals	-.05	
Sing in music group	.04	.12
Provide transportation	.04	.19**
Listen at home	-.00	.06
PI-C items		
Own classical recordings	.18**	.06
Siblings sing or play	.12*	.25**
Provide recordings	.08	.26**
Purchase music	.08	.19**
Take lessons	.07	
Provide toy instruments	.06	.10
Give you lessons	.05	
Play or sing with you	.03	

* = $p \leq .05$; ** = $p \leq .01$

Twelve of the 17 PIM items that correlated with performance measurements in Zdzinski's (1996) study correlated with all-state participation in the current study. Five items in the current study that correlated with all-state participation did not correlate with performance measurements in Zdzinski's study. The results illustrate similarities in the relationships of the items to the factors in the two studies.

CHAPTER 5

DISCUSSION

Response to Research Questions

The first research question was, "What are the parental support factors, motivational factors, and SES of high school band and choir students who attend high schools that have both choir and band students selected for all-state participation?" The results of the DFA for the PIM support Zdzinski's (1993) findings that parental involvement is significantly related to performance outcomes in instrumental students. The reliability of the PIM scale supports the identification of degree and frequency of parental involvement and the home musical environment as factors related to band and chorus participation. The results of the EFA for the AMF scale support Asmus' (1986) identification of Effort, Background, Classroom Environment, Musical Ability, and Affect for Music as attributions related to success in instrumental students. The results of the EFA for band and choral students indicate that the same attributions are related to success in choral students. The mean SES of all participants was in the second highest of the five Hollingshead classes of social position.

The second research question was, "How do these factors relate to membership in band or choir ensembles?" Band students appear to perceive musical ability as more important than chorus students do. The mean SES is higher for chorus students than

for band students. The average SES for chorus students was in the highest class of social position identified by Hollingshead & Redlich (1958).

The third research question was, "How do the factors relate to all-state participation in band and chorus?" The students' perceived importance of background, the frequency of parental involvement, the degree of parental involvement, and the home musical environment were higher for all-state students than for non-all-state students.

The item "caring about music" appears to have been interpreted differently by many of the participants in the current study, than it was in Asmus' study. In the Asmus study, the item was related to Effort, but in the current study the item was related to Affect for Music in all the factor analyses except the analysis of all-state participants. It appears that those who are most successful in music performance interpret "caring about music" as an important part of Effort.

A DFA identified musical ability attributions and SES as the factors that best described the difference between band and chorus students. Chorus students reported higher SES scores and band students reported higher attributions of musical ability. One might rationalize that family environment and parental involvement could cause students to choose band or chorus, but such a supposition cannot be established about a student attribution. There is no indication whether a student's attribution of the importance of musical ability is established before choosing band or chorus participation. It is possible that a student's perception of the importance of musical ability is formed as a result of participation in band or chorus.

Predicting Success in Band and Chorus

The CHSMSS appears to be of moderate value in deciding whether to participate in band or in chorus. It is not clear whether the band or chorus experience develops the attributions of success or whether attributions affect the students' decisions toward participation in band or chorus. The classification results of the DFA do not indicate that the composite CHSMSS is an accurate indicator in predicting students' participation in band or chorus. Even though the predictive value of the CHSMSS was high for non-all-state participants, the CHSMSS did not appear to be a strong predictor for students who participated in all state. The composite CHSMSS does not appear to be a strong predictor of success in performance ability, but portions of the scale appear to have some predictive value. The strong correlation between all-state participation and the parental involvement and home environment factors imply that higher levels of parental involvement can contribute to a student's participation in all-state.

Implications for Parents

The parental involvement and family environment factors appear to have the most significant effect on students' success in music performance as measured by all-state participation. Children perceive family background as an important part of their musical endeavors. Parents must provide their children resources for success in music. The number of parents involved with their children's musical endeavors was significant, but the most important significant effect of all the parental involvement and family environment factors was the frequency of involvement by parents. The

results indicate that effective parental support can be measured tangibly by the time that parents commit to their child's musical education.

Implications for Educators

One might reasonably believe that student attributions in music are affected by their participation in band and chorus. A positive or negative environment within a classroom could affect a student's perception of the importance of the classroom environment to one's success in music. Students who do not consider themselves successful in music might attribute their lack of success to a lack of musical ability rather than a lack of effort. Students who have put forth considerable effort and found success in music could attribute their success to effort, even if their musical ability played a significant role in their success. If Hallam and Shaw's (2002) findings that musical ability is learned rather than innate were correct, they would emphasize the importance of effort.

Educators can be encouraged to know that within the attribution factors, students consistently identified effort as the first or second most important attribution for success. It is important for teachers to continue to emphasize the importance of effort to their students. The classroom environment can be a contributing factor to the students' perceptions of the importance of effort.

Band and chorus teachers have opportunities to communicate the effects of parental involvement through their parent organizations. The effect of parental involvement on all-state participation underscores the importance of maintaining a strong parent organization. Recruiting parents to be involved and explaining the

effects of that involvement can enhance the students' opportunities for success in band and chorus.

Recommendations for Further Research

Further study is warranted on the relationship of the attribution and parental involvement factors to choral students on a wider spectrum of SES than is included in the current study. The current study identified schools with a significant number of all-state participation in band and chorus. One can reasonably assume that these are strong band and chorus programs. Schools with strong programs in both areas might not represent the lowest SES population of Alabama, Georgia, and Tennessee. The classroom environment is likely to be more positive in the schools represented in this study than in many schools that struggle financially and have a lower SES population.

Most of the existing studies have investigated music students currently participating in music performance ensembles. An investigation of students who have never participated in music programs in addition to those who currently participate might provide a clearer assessment of the attributions and parental involvement factors that relate to success in music performance. Further research is warranted into students who previously participated in music programs, but dropped out. What are the reasons they dropped out? Pitts, Davidson, and McPherson's (2000) found that persistence in instrumental students was related to parental involvement. The role of parental involvement might be similar for persistence in choral students. Differences between students who currently participate in band and chorus and those who have dropped out are likely to be similar to differences between students who demonstrate performance

achievement and those who do not. Identifying variances in student attributions of success, family environment and parental participation would help educators to identify and avoid factors that lead to failure in music performance.

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APPENDIX A

Characteristics of High School Music Students Survey

Characteristics of High School Music Students Survey

The purpose of this portion of the survey is to determine your attitudes toward various aspects of music and musical activities. Because the items determine only your attitudes, there are no right or wrong answers.

Indicate how important you believe each cause is in determining success and failure in music by circling A through E. Where:

A is extremely important to
E which is not important at all.

For example if you read the cause, "Having Long Fingers," and felt it was not very important, you would mark it as D.

A	B	C	D	E

On the other hand, if you read the cause, "Being a careful worker," and felt that it was somewhat important, you would mark it as B.

A	B	C	D	E

⇦ Extremely Important					⇨ Not important at all	
1.	A	B	C	D	E	Trying hard enough to succeed in music
2.	A	B	C	D	E	Having musical parents
3.	A	B	C	D	E	Getting along with others in music class
4.	A	B	C	D	E	Being able to keep a steady beat
5.	A	B	C	D	E	Being able to feel emotion in music
6.	A	B	C	D	E	Practicing a lot
7.	A	B	C	D	E	Having a natural talent for music
8.	A	B	C	D	E	Being with your friends in music classes
9.	A	B	C	D	E	Having a good ear
10.	A	B	C	D	E	Liking the sound of music
11.	A	B	C	D	E	Taking music seriously
12.	A	B	C	D	E	Having relatives who are musical
13.	A	B	C	D	E	Liking the teacher
14.	A	B	C	D	E	Understanding how to count music
15.	A	B	C	D	E	Being naturally creative
16.	A	B	C	D	E	Putting the effort into practicing
17.	A	B	C	D	E	Starting music when you are very young
18.	A	B	C	D	E	Having a teacher who doesn't show favoritism toward the more talented students
19.	A	B	C	D	E	Knowing how to read music well
20.	A	B	C	D	E	Love listening to music
21.	A	B	C	D	E	Setting a musical goal and trying to reach it through practice
22.	A	B	C	D	E	Having music run in your family
23.	A	B	C	D	E	Liking the other students in music
24.	A	B	C	D	E	Being able to comprehend musical notes and rhythms
25.	A	B	C	D	E	Wanting to please others through music
26.	A	B	C	D	E	Caring about music
27.	A	B	C	D	E	Being able to afford a good musical instrument
28.	A	B	C	D	E	Having a teacher who understands you
29.	A	B	C	D	E	Being able to understand musical symbols and markings
30.	A	B	C	D	E	Thinking that music is fun
31.	A	B	C	D	E	Being willing to put in the effort required by music
32.	A	B	C	D	E	Having natural music ability
33.	A	B	C	D	E	Not having a hot tempered music teacher
34.	A	B	C	D	E	Having a sense of rhythm
35.	A	B	C	D	E	Liking to make music

Circle your response for each of the following statements.
Indicate HOW OFTEN each of the following activities occur.

36. Your parents talk about music with you.
Always Very Often Often Sometimes Never

37. Your parents ask about your progress in music.
Always Very Often Often Sometimes Never

38. Your parents listen to you practice.
Always Very Often Often Sometimes Never

39. Your parents assist with your practice.
Always Very Often Often Sometimes Never

40. Your parents record performances of you.
Always Very Often Often Sometimes Never

41. Your parents sing with you.
Always Very Often Often Sometimes Never

42. Your parents sing in a musical group.
Always Very Often Often Sometimes Never

43. Your parents play in a musical group.
Always Very Often Often Sometimes Never

44. Your parents listen to music at home.
Always Very Often Often Sometimes Never

45. Your parents take you to concerts.
Always Very Often Often Sometimes Never

46. Your parents attend school concerts.
Always Very Often Often Sometimes Never

47. Your parents attend non-school related concerts.
Always Very Often Often Sometimes Never

48. Your parents attend music or band/choral parent meetings.
Always Very Often Often Sometimes Never

49. Your parents attend your school choral/band rehearsals.
Always Very Often Often Sometimes Never

50. Your parents provide transportation to music activities.
Always Very Often Often Sometimes Never

Circle one response for each of the following questions.

51. Do either of your parents assist with your practice?
Neither parent Father only Mother only Both Parents

52. Do either of your parents listen to you practice?
Neither parent Father only Mother only Both Parents

53. Do either of your parents record performances of you?
Neither parent Father only Mother only Both Parents

54. Do either of your parents talk about music with you?
Neither parent Father only Mother only Both Parents

55. Do either of your parents ask about your progress in music?
Neither parent Father only Mother only Both Parents

56. Do either of your parents listen to music at home?
Neither parent Father only Mother only Both Parents

57. Do either of your parents take you to concerts?
Neither parent Father only Mother only Both Parents

58. Do either of your parents attend school concerts?
Neither parent Father only Mother only Both Parents

59. Do either of your parents attend non-school related concerts?
Neither parent Father only Mother only Both Parents

60. Did either of your parents play in a musical group?
Neither parent Father only Mother only Both Parents

61. Did either of your parents sing in a musical group?
Neither parent Father only Mother only Both Parents

62. Do either of your parents belong to a music parent organization?
Neither parent Father only Mother only Both Parents

63. Do either of your parents attend music or band/chorus parent meetings?
Neither parent Father only Mother only Both Parents

64. Do either of your parents attend your school band or chorus rehearsals?
Neither parent Father only Mother only Both Parents

65. Do either of your parents provide transportation to music activities?
Neither parent Father only Mother only Both Parents

66. Did your parents provide you children's CDs/recordings?
Yes No

67. Did your parents provide you toy musical instruments?
Yes No

68. Do your parents purchase music books/materials for you?
Yes No

69. Do either of your parents take music lessons?
Yes No

70. Do either of your parents give music lessons to you?
Yes No

71. Do either of your parents play a musical instrument or sing with you?
Yes No

72. Do any of your brothers and sisters sing or play a musical instrument?
Yes No

73. Do your parents own classical music recordings?
Yes No

74. If you play in a band, is your instrument school owned, family owned or rented?
School Owned Family Owned Rented

Write the appropriate number or check in the blank beside each item.

75. In which ensemble do you currently participate?
High School Chorus _____
High School Band _____

76. How many years have you been selected to:
sing in All-State chorus?_____
play in All-State band? _____

Check the appropriate boxes and fill in the blanks with the requested information.

77. Gender
- ❑ Male
- ❑ Female

78. Age: _____

79. Grade level:
- ❑ Seventh grade
- ❑ Eighth grade
- ❑ Ninth grade
- ❑ Tenth grade
- ❑ Eleventh grade
- ❑ Twelfth grade

80. Describe what your father does for a living. (Please be as specific as possible.)
_____

81. Describe what your mother does for a living. (Please be as specific as possible.)
_____

82. Circle the number that indicates your father's level of education.

0 1 2 3 4 5 6 7 8 9 10 11 12 school grade completed	1 2 3 4 college	5 masters	6 doctorate

83. Circle the number that indicates your mother's level of education.

0 1 2 3 4 5 6 7 8 9 10 11 12 school grade completed	1 2 3 4 college	5 masters	6 doctorate

Finished!
(Please wait for your questionnaire to be collected.)

APPENDIX B

Characteristics of High School Music Students Survey

Pilot Version

Characteristics of High School Music Students Survey

(Original Survey used in pilot study.)

The purpose of this portion of the survey is to determine your attitudes toward various aspects of music and musical activities. Because the items are determined only your attitudes, there are no right or wrong answers.

Indicate how important you believe each cause is in determining success and failure in music by circling A through E. Where:

A is extremely important to
E which is not important at all.

For example if you read the cause, "Having Long Fingers," and felt it was not very important, you would mark it as D.

A B C (D) E

On the other hand, if you read the cause, "Being a careful worker," and felt that it was somewhat important, you would mark it as B.

A (B) C D E

	Extremely Important ⇦				⇨Not important at all	
1.	A	B	C	D	E	Trying hard enough to succeed in music
2.	A	B	C	D	E	Having musical parents
3.	A	B	C	D	E	Getting along with others in music class
4.	A	B	C	D	E	Being able to keep a steady beat
5.	A	B	C	D	E	Being able to feel emotion in music
6.	A	B	C	D	E	Practicing a lot
7.	A	B	C	D	E	Having a natural talent for music
8.	A	B	C	D	E	Being with your friends in music classes
9.	A	B	C	D	E	Having a good ear
10.	A	B	C	D	E	Liking the sound of music
11.	A	B	C	D	E	Taking music seriously
12.	A	B	C	D	E	Having relatives who are musical
13.	A	B	C	D	E	Liking the teacher
14.	A	B	C	D	E	Understanding how to count music
15.	A	B	C	D	E	Being naturally creative
16.	A	B	C	D	E	Putting the effort into practicing
17.	A	B	C	D	E	Starting music when you are very young
18.	A	B	C	D	E	Having a teacher who doesn't show favoritism toward the more talented students
19.	A	B	C	D	E	Knowing how to read music well
20.	A	B	C	D	E	Love listening to music
21.	A	B	C	D	E	Setting a musical goal and trying to reach it through practice
22.	A	B	C	D	E	Having music run in your family
23.	A	B	C	D	E	Liking the other students in music
24.	A	B	C	D	E	Being able to comprehend musical notes and rhythms
25.	A	B	C	D	E	Wanting to please others through music
26.	A	B	C	D	E	Caring about music
27.	A	B	C	D	E	Being able to afford a good musical instrument
28.	A	B	C	D	E	Having a teacher who understands you

29.	A	B	C	D	E	Being able to understand musical symbols and markings
30.	A	B	C	D	E	Thinking that music is fun
31.	A	B	C	D	E	Being willing to put in the effort required by music
32.	A	B	C	D	E	Having natural music ability
33.	A	B	C	D	E	Not having a hot tempered music teacher
34.	A	B	C	D	E	Having a sense of rhythm
35.	A	B	C	D	E	Liking to make music

Circle your response for each of the following statements.
Indicate HOW OFTEN each of the following activities occur.

36. Your parents talk about music with you.
Always Very Often Often Sometimes Never

37. Your parents ask about your progress in music.
Always Very Often Often Sometimes Never

38. Your parents listen to you practice.
Always Very Often Often Sometimes Never

39. Your parents assist with your practice.
Always Very Often Often Sometimes Never

40. Your parents record performances of you.
Always Very Often Often Sometimes Never

41. Your parents sing with you.
Always Very Often Often Sometimes Never

42. Your parents sing in a musical group.
Always Very Often Often Sometimes Never

43. Your parents play in a musical group.
Always Very Often Often Sometimes Never

44. Your parents listen to music at home.
Always Very Often Often Sometimes Never

45. Your parents take you to concerts.
Always Very Often Often Sometimes Never

46. Your parents attend school concerts.
Always Very Often Often Sometimes Never

47. Your parents attend non-school related concerts.
Always Very Often Often Sometimes Never

48. Your parents attend music or band/choral parent meetings.
Always Very Often Often Sometimes Never

49. Your parents attend your school choral/band rehearsals.
Always Very Often Often Sometimes Never

50. Your parents provide transportation to music activities.
Always Very Often Often Sometimes Never

Circle one response for each of the following questions.

51. Do either of your parents assist with your practice?
Neither parent Father only Mother only Both Parents

52. Do either of your parents listen to you practice?
Neither parent Father only Mother only Both Parents

53. Do either of your parents record performances of you?
Neither parent Father only Mother only Both Parents

54. Do either of your parents talk about music with you?
Neither parent Father only Mother only Both Parents

55. Do either of your parents ask about your progress in music?
Neither parent Father only Mother only Both Parents

56. Do either of your parents listen to music at home?
Neither parent Father only Mother only Both Parents

57. Do either of your parents take you to concerts?
Neither parent Father only Mother only Both Parents

58. Do either of your parents attend school concerts?
Neither parent Father only Mother only Both Parents

59. Do either of your parents attend non-school related concerts?
Neither parent Father only Mother only Both Parents

60. Did either of your parents play in a musical group?
Neither parent Father only Mother only Both Parents

61. Did either of your parents sing in a musical group?
Neither parent Father only Mother only Both Parents

62. Do either of your parents belong to a music parent organization?
Neither parent Father only Mother only Both Parents

63. Do either of your parents attend music or band/chorus parent meetings?
Neither parent Father only Mother only Both Parents

64. Do either of your parents attend your school band or chorus rehearsals?
Neither parent Father only Mother only Both Parents

65. Do either of your parents provide transportation to music activities?
Neither parent Father only Mother only Both Parents

66. Did your parents provide you children's CDs/recordings?
Yes No

67. Did your parents provide you toy musical instruments?
Yes No

68. Do your parents purchase music books/materials for you?
Yes No

69. Do either of your parents take music lessons?
Yes No

70. Do either of your parents give music lessons to you?
Yes No

71. Do either of your parents play a musical instrument or sing with you?
Yes No

72. Do any of your brothers and sisters sing or play a musical instrument?
Yes No

73. Do your parents own classical music recordings?
Yes No

74. If you play in a band, is your instrument school owned, family owned or rented?
School Owned Family Owned Rented

Write the appropriate number in the blank beside each item.

75. In which ensemble do you currently participate?
High School Chorus _____
High School Band _____

76. How many years of private lessons have you had?
Voice _____
Piano _____
Instrument other than piano _____ What instrument(s)? _____

77. How many minutes do you spend practicing each day? (average) _____

78. How many years have you been selected to sing in All-State chorus? _____

79. How many years have you been selected to play in All-State band? _____

Check the appropriate boxes and fill in the blanks with the requested information.

80. Gender
- ❑ Male
- ❑ Female

81. Age: _____

82. Grade level:
- ❑ Seventh grade
- ❑ Eighth grade
- ❑ Ninth grade
- ❑ Tenth grade
- ❑ Eleventh grade
- ❑ Twelfth grade

83. Who lives at home with you?

Father
- ❑ Yes
- ❑ No

Mother
- ❑ Yes
- ❑ No

Others (please describe) _____

84. How many brothers do you have? _____

85. How many sisters do you have? _____

86. Describe what your father does for a living.

_____

87. Describe what your mother does for a living.

_____

88. Circle the number that indicates your father's level of education.

0 1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4	5	6
school grade completed	college	masters	doctorate

89. Circle the number that indicates your mother's level of education.

0 1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4	5	6
school grade completed	college	masters	doctorate

Finished!
(Please wait for your questionnaire to be collected.)

APPENDIX C

Office of Human Subjects Approval

APPROVED COPY FOR INVESTIGATOR

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

RESEARCH PROTOCOL REVIEW FORM

For information or help completing this form, contact: **THE OFFICE OF HUMAN SUBJECTS RESEARCH**, 307 Samford Hall,
Phone: 334-844-5966 **e-mail:** hsubjec@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Complete this form using Adobe Acrobat Writer (versions 5.0 and greater).

1. **PROPOSED DATES OF STUDY:** FROM: 11/01/2007 TO: 03/07/2008

REVIEW TYPE (Check one): ☐ FULL BOARD ☑ EXPEDITED ☐ EXEMPT

2. **PROJECT TITLE:** Characteristics of High School Choir and Band Students (Doctoral Dissertation)

3.

Stephen C. Hickok	Doctoral Student	CTMU	887-9830	hickosc@auburn.edu
PRINCIPAL INVESTIGATOR	TITLE	DEPT	PHONE	E-MAIL

2525 East Glenn Avenue, Auburn, AL 36830 — ADDRESS FOR CORRESPONDENCE

N/A — FAX

4. **SOURCE OF FUNDING SUPPORT:** ☑ Not Applicable ☐ Internal ☐ External (External Agency): _____

5. **STATUS OF FUNDING SUPPORT:** ☑ Not Applicable ☐ Approved ☐ Pending ☐ Received

6. **GENERAL RESEARCH PROJECT CHARACTERISTICS**

A. Research Content Area

Please check all descriptors that best apply to this proposed research project.

- ☐ Anthropology
- ☐ Anthropometry
- ☐ Biological Sciences
- ☐ Behavioral Sciences
- ☑ Education
- ☐ English
- ☐ History
- ☐ Journalism
- ☐ Medical
- ☐ Physiology
- ☐ Other (Please list:) _____

Please list 3 or 4 keywords to identify this research project: Factors, Characteristics, Choral, Band

B. Research Methodology

Please check all descriptors that best apply to the research methodology.

Data collection will be: ☑ Prospective ☐ Retrospective ☐ Both

Data will be recorded so that participants can be directly or indirectly identified: ☐ Yes ☐ No

Data collection will involve the use of:

- ☐ Educational Tests (cognitive, diagnostic, aptitude, achievement)
- ☑ Surveys / Questionnaires
- ☐ Private Records / Files
- ☐ Interview / Observation
- ☐ Audiotaping and / or Videotaping
- ☐ Physical / Physiologic Measurements or Specimens

The Auburn University Institutional Review Board has approved this document for use from 10/31/07 to 10/30/08. Protocol # 07-240EP0710

C. Participant Information

Please check all descriptors that apply to the participant population.

- ☑ Males
- ☑ Females

Vulnerable Populations

- ☐ Pregnant Women
- ☐ Children
- ☐ Prisoners
- ☑ Adolescents
- ☐ Elderly
- ☐ Physically Challenged
- ☐ Economically Challenged
- ☐ Mentally Challenged

Do you plan to recruit Auburn University Students? ☐ Yes ☑ No

Do you plan to compensate your participants? ☐ Yes ☑ No

D. Risks to Participants

Please identify all risks that may reasonably be expected as a result of participating in this research.

- ☐ Breach of Confidentiality
- ☐ Coercion
- ☐ Deception
- ☐ Physical
- ☐ Psychological
- ☐ Social
- ☑ None
- ☐ Other (please list): _____

RECEIVED
OCT 2007
Office of Human Subjects Research IRB

For OHSR Office Use Only

new

DATE RECEIVED IN OHSR: 10/31/07 by RKH — PROTOCOL # 07.240 EP 0710

DATE OF OHSR CONTENT REVIEW: _____ by _____ — DATE ASSIGNED IRB REVIEW: _____ by _____

DATE OF IRB REVIEW: Rec 11/1/07 Rev 11/8/07 by PWG — DATE IRB APPROVAL: 10/31/07 by IRB procedure

INTERVAL FOR CONTINUING REVIEW: 1 year - expires 10/30/08 — 45 CFR 46.110 (#7)

7. **PROJECT ASSURANCES**

PROJECT TITLE: Characteristics of High School Choir and Band Students (Doctoral Dissertation)

A. PRINCIPAL INVESTIGATOR'S ASSSURANCE

1. I certify that all information provided in this application is complete and correct.
2. I understand that, as Principal Investigator, I have ultimate responsibility for the conduct of this study, the ethical performance this project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the Auburn University IRB.
3. I certify that all individuals involved with the conduct of this project are qualified to carry out their specified roles and responsibilities and are in compliance with Auburn University policies regarding the collection and analysis of the research data.
4. I agree to comply with all Auburn policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human subjects, including, but not limited to the following:
   a. Conducting the project by qualified personnel according to the approved protocol
   b. Implementing no changes in the approved protocol or consent form without prior approval from the Office of Human Subjects Research (except in an emergency, if necessary to safeguard the well-being of human subjects)
   c. Obtaining the legally effective informed consent from each participant or their legally responsible representative prior to their participation in this project using only the currently approved, stamped consent form
   d. Promptly reporting significant adverse events and/or effects to the Office of Human Subjects Research in writing within 5 working days of the occurrence.
5. If I will be unavailable to direct this research personally, I will arrange for a co-investigator to assume direct responsibility in my absence. This person has been named as co-investigator in this application, or I will advise OHSR, by letter, in advance of such arrangements.
6. I agree to conduct this study only during the period approved by the Auburn University IRB.
7. I will prepare and submit a renewal request and supply all supporting documents to the Office of Human Subjects Research before the approval period has expired if it is necessary to continue the research project beyond the time period approved by the Auburn University IRB.
8. I will prepare and submit a final report upon completion of this research project.

Stephen C. Hickok	Stephen C. Hickok	10-29-07
Principal Investigator (Please Print)	**Principal Investigator's Signature**	**Date**

B. FACULTY SPONSOR'S ASSSURANCE

1. By my signature as sponsor on this research application, I certify that the student or guest investigator is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct this particular study in accord with the approved protocol.
2. I certify that the project will be performed by qualified personnel according to the approved protocol using conventional or experimental methodology.
3. I agree to meet with the investigator on a regular basis to monitor study progress.
4. Should problems arise during the course of the study, I agree to be available, personally, to supervise the investigator in solving them.
5. I assure that the investigator will promptly report significant adverse events and/or effects to the OHSR in writing within 5 working days of the occurrence.
6. If I will be unavailable, I will arrange for an alternate faculty sponsor to assume responsibility during my absence, and I will advise the OHSR by letter of such arrangements.
7. I have read the protocol submitted for this project for content, clarity, and methodology.

Dr. Kimberly Walls	Kimberly C Walls	10-30-07
Faculty Sponsor (Please Print)	**Faculty Sponsor's Signature**	**Date**

C. DEPARTMENT HEAD'S ASSSURANCE

By my signature as department head, I certify that every member of my department involved with the conduct of this research project will abide by all Auburn University policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection and ethical treatment of human participants.

Dr. Nancy Barry	Nancy T Barry	10-30-07
Department Head (Please Print)	**Department Head's Signature**	**Date**

8. **PROJECT ABSTRACT: Prepare an abstract (400-word maximum) that includes: I.) A summary of relevant research findings leading to this research proposal; II.) A concise purpose statement; III.) A brief description of the methodology; IV.) Expected and/or possible outcomes, and V.) A statement regarding the potential significance of this research project. *Please cite relevant sources and include a "Reference List" as Appendix A.***

Researchers have identified musical aptitude and academic ability as the two strongest predictors of success in music. Most of the research in student musical success has identified success in instrumental students (Kuhlman, 2005; Klinedinst, 1991; Hufstader, 1974; McCarthy 1974; Young ,1971). Hufstader (1974) found that musical aptitude, musicality, and musical intelligence variables are predictors of student success in instrumental music. Helwig and Thomas (1973) noted that little evaluation of student potential and progress existed in choral music studies.

Brand (1985) found that the home musical environmental affected students' scores on musical achievement assessments. Davidson, Howe, Moore, and Sloboda (1996) asserted that parental involvement is critical to student success in music. Brändström (2000/2001) observed that family musical background and socio-economic status appeared to be significant factors in the musical activities of 12 and 13 year-olds. Zdzinski (1992; 1993; 1996a; 1996b; 2001; 2007) found that parental involvement had a small, but statistically significant effect on the success of general music, orchestra, band and chorus students in grades 4-12. Asmus (1985; 1986a;1986b) found that students attributions for success in music differed from their attributions for failure in music.

The purpose of this study is to identify family background factors and musical success attributions of high school choir and band students. Student characteristics will be identified through an anonymous survey administered to high school music students.

Factor analysis will be used to identify components from the survey items that can be identified as significant factors related to students' membership in band or chorus and between all-state and non al-state students. A regression analysis will be conducted to measure differences between (a) all-state and non all-state music students and (b) all-state choir students and all-state band students. It is expected that differences will be found between choral students and band students (Zdzinski, 1992,1993, 1996b, 2007).

The findings of this study will be helpful to teachers in recruiting and in planning and modifying curriculum. The findings will be helpful to parents in identifying ways to enhance their child's potential for success in band or chorus.

9. **PURPOSE & SIGNIFICANCE.**
   a. **Clearly state all of the objectives, goals, or aims of this project.**

The purpose of this study is to identify the family background factors and personal attributions of high school choir and band students.

   b. **How will the results of this project be used? (e.g., Presentation? Publication? Thesis? Dissertation?)**

The results of this project will be used in my doctoral dissertation. The study will be submitted for presentation at a poster session at the Alabama Music Educators Association in January of 2008. The study will be submitted as a research article to a research journal in the field of music education.

10. **KEY PERSONNEL INVOLVED WITH DATA COLLECTION. Identify each individual involved with the conduct of this project and describe his or her roles and responsibilities related to this project. Be as specific as possible.**

Individual: Stephen C. Hickok **Title:** Doctoral Student **Dept/ Affiliation:** CTMU
Roles / Responsibilities:

Stephen Hickok will contact prospective principals, band directors and choral directors to request permission for their students to participate in this study. Stephen Hickok will make the initial contact by telephone describing the study. Hickok will send a consent form to each principal requesting written permission for the participation of their students. Hickok will send a packet to each band director and choral director containing a letter describing the survey, a permission form for parents, directions for administering the survey, a survey form for each student, and a form requesting the results of the study. Stephen Hickok will collect and analyze the data and write the results of the study.

Individual: _____ **Title:** _____ **Dept/ Affiliation:** _____
Roles / Responsibilities:

Individual: _____ **Title:** _____ **Dept/ Affiliation:** _____
Roles / Responsibilities:

Individual: _____ **Title:** _____ **Dept/ Affiliation:** _____
Roles / Responsibilities:

Individual: _____ **Title:** _____ **Dept/ Affiliation:** _____
Roles / Responsibilities:

11. **LOCATION OF RESEARCH. List all locations where data collection will take place. Be as specific as possible.**

The pilot study will be conducted at Auburn High School. Ten high schools throughout Alabama, Florida Georgia,and Tennessee that have students participating in both all-state chorus and all-state band will be identified. Students at these schools will complete the surveys in their chorus and band classrooms.

12. **PARTICIPANTS.**

a. **Describe the participant population you have chosen for this project.**

The population is high school choral and band students, grades 9 through 12.

What is the minimum number of participants you need to validate the study? 762

What is the maximum number of participants you will include in the study? 1500

b. **Describe the criteria established for participant selection. (If the participants can be classified as a "vulnerable" population, please describe additional safeguards that you will use to assure the ethical treatment of these individuals.)**

All band and choir members of the identified high schools will be invite to participate in the study. The high school band director and choir director will distribute and collect permission/assent forms and questionnaires. The permission forms will be collected separately from the surveys. It will not be possible to match the individual permission forms to the surveys. All surveys will be anonymous. No method of student identification is included in the survey. Students will place their completed surveys together in a packet with all the surveys from their class and the student permission forms. All surveys and permission forms will be mailed together from each school. Only the school from which each packet of surveys and permission forms is received will be identifiable. There is no incentive for any director to look at any of the surveys. The surveys do not contain any questions that ask the students to describe their current directors.

c. **Describe all procedures you will use to recruit participants.** ***Please include a copy of all flyers, advertisements, and scripts and label as Appendix B.***

Stephen Hickok will contact the presidents of the vocal associations and bandmasters associations in Alabama, Florida, Georgia, and Tennessee to identify band and choral directors with the greatest number of students participating, annually, in all-state festivals. Stephen Hickok will contact, by telephone, the prospective principals and then the prospective band and choral directors to request permission for their students to participate in this study. Upon receipt of a permission form from the principal and agreement of the band and choral directors, Stephen Hickok will send a packet to each band director and choral director containing a letter with a detailed description of the survey, a permission form for parents allowing the participation of their child, directions for administering the survey, a survey form for each student, and a form to request the results of the study. Directors will be asked to send the parental permission form home with the students to be returned with a parent or guardian signature prior to administering the survey. All students who return the signed permission form will be allowed to participate in the survey.

What is the maximum number of potential participants you plan to recruit? 2000

d. **Describe how you will determine group assignments (e.g., random assignment, independent characteristics, etc.).**

A regression analysis will be used to compare characteristics of all-state membership and all band or choir membership.

e. **Describe the type and amount and method of compensation for participants.**

No compensation is offered to the participants. The chorus and band directors will be offered the opportunity to receive a copy of the results.

13. **PROJECT DESIGN & METHODS. Describe the procedures you will plan to use in order to address the aims of this study. (NOTE: Use language that would be understandable to a layperson. Without a complete description of all procedures, the Auburn University IRB will not be able to review protocol. If additional space is needed for #13, part b, save the information as a .pdf file and insert after page 6 of this form.)**

a. Project overview. (Briefly describe the scientific design.)

Factor analysis of data from an anonymous survey of high school music students will be conducted to identify family background factors and personal characteristics.

b. Describe all procedures and methods used to address the purpose.

The researcher will mail survey packets to each choral director and band director who participates in the study. The packet will include a student permission form and a survey for each student who will potentially be surveyed. Upon receipt of the permission forms by each director, the director will administer the survey during a regular class period. The participating directors will collect the permission forms and keep them separate from the surveys. The director will distribute a copy of the survey to each student. Upon completion of the survey, the surveys will be collected by one student and placed into the provided return envelope. The director will place the permission forms in the same envelope. The envelope will then be mailed to the researcher. The envelope is pre-addressed and post-paid.

The researcher will enter the data into SPSS (statistical software) and analyze the data through factor analysis. A regression analysis will compare the impact of the identified factor relationships to all-state ensemble membership and band/choir membership.

c. **List all instruments used in data collection. (e.g., surveys, questionnaires, educational tests, data collection sheets, outline of interviews, scripts, audio and/or video methods etc.)** ***Please include a copy of all data collection instruments that will be used in this project and label as Appendix C.***

The researcher compiled a questionnaire based upon the Parental Involvement Measure (PIM) (Zdzinski, 1993), the Asmus Motivation Factors Scale (AMFS) (Asmus, 1985), and Warner's (1960) Levels of Occupational Status and Parents' Level of Education as used in Dunlap's (1975) study.

d. **Data Analysis: Explain how the data will be analyzed.**

Factors will be identified through a Principal Components Factor Analysis with a Varimax Rotation. Reliability will be established through Cronbach's Alpha Formula. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy Test will be used to indicate whether adequate correlations exist to proceed with factor analysis. Factors with correlations of .3 or higher will be identified as part of a component. Components with eigenvalues equal to or greater than 1 will be reported as contributors to the total variance of the factors. Regression analysis will compare factors relationships to all-state and band/choir membership.

14. **RISKS & DISCOMFORTS: List and describe all of the reasonable risks that participants might encounter if they decide to participate in this research.** ***If you are using deception in this study, please justify the use of deception and be sure to attach a copy of the debriefing form you plan to use and label as Appendix D.***

There are no foreseen risks or discomforts associated with this study.

15. **PRECAUTIONS. Describe all precautions you have taken to eliminate or reduce risks that were listed in #14.**

N/A

anonymous data collection

16. **BENEFITS.**

a. **List all realistic benefits participants can expect by participating in this study.**

N/A

b. **List all realistic benefits for the general population that may be generated from this study.**

Directors can utilize the results of this study to identify successful avenues of recruiting. Directors can also use this data to identify curricula and teaching methods that will strengthen students opportunities for success in chorus and band. Findings of home environment factors of success will provide parents with strategies to enhance their child's opportunity for success in music. Further research in this area will offer the possibility of comparing student success in other areas, like academic success, with student success in chorus and band. The results of the survey will help students and their prospective directors predict whether their strongest likelihood of success is in band or chorus.

17. PROTECTION OF DATA.

a. **Will data be collected as anonymous?** ☑ Yes ☐ No *If "YES", go to part "g".*

b. **Will data be collected as confidential?** ☐ Yes ☐ No

c. **If data is collected as confidential, how will the participants' data be coded or linked to identifying information?**

d. **Justify your need to code participants' data or link the data with identifying information.**

e. **Where will code lists be stored?**

f. **Will data collected as "confidential" be recorded and analyzed as "anonymous"?** ☐ Yes ☐ No

g. **Describe how the data will be stored (e.g., hard copy, audio cassette, electronic data, etc.), where the data will be stored, and how the location where data is stored will be secured in your absence.**

Hard copies of the completed surveys will be stored in a fire-safe file cabinet at 2525 East Glenn Avenue, Auburn, AL 36830. The data will be entered into SPSS software on the computer of Stephen Hickok at 2525 East Glenn Avenue, Auburn, AL. Access to the hard copies of the data is by key to the safe which is in the possession of Stephen Hickok. Access to the electronic data is by password to Stephen Hickok's computer

h. **Who will have access to participants' data?**

Stephen Hickok

i. **When is the latest date that the data will be retained?**

indefinitely

j. **How will the data be destroyed? (NOTE: Data recorded and analyzed as "anonymous" may be retained indefinitely.)**

N/A

AUBURN

UNIVERSITY

Office of Human Subjects Research
307 Samford Hall
Auburn University, AL 36849

Telephone: 334-844-5966
Fax: 334-844-4391
hsubjec@auburn.edu

November 6, 2007

MEMORANDUM TO:	Stephen Hickok Curriculum & Teaching
PROTOCOL TITLE:	"Characteristics of High School Choir and Band Students (Doctoral Dissertation)"
IRB AUTHORIZATION NO:	07-240 EP 0710
APPROVAL DATE: EXPIRATION DATE:	October 31, 2007 October 30, 2008

The above referenced protocol was approved by IRB Expedited procedure under 45 CFR 46.110 (#7):

> "Research on individual or group characteristics or behavior (including, but not limited to, research of perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies."

You should report to the IRB any proposed changes in the protocol or procedures and any unanticipated problems involving risk to subjects or others. Please reference the above authorization number in any future correspondence regarding this project.

If you will be unable to file a Final Report on your project before October 30, 2008, you must submit a request for an extension of approval to the IRB no later than October 16, 2008. If your IRB authorization expires and/or you have not received written notice that a request for an extension has been approved prior to October 30, 2008, you must suspend the project immediately and contact the Office of Human Subjects Research for assistance.

A Final Report will be required to close your IRB project file. You are reminded that you must use only the IRB-approved, stamped parental permission/child assent letter (enclosed) when you recruit participants. Please remember that you must keep signed consent/assent forms for three years after your study is completed.

If you have any questions concerning this Board action, please contact the Office of Human Subjects Research at 844-5966.

Sincerely,

Peter W. Grandjean, Chair
Institutional Review Board for the Use of Human Subjects in Research

Enclosures

cc: Dr. Nancy Barry
Dr. Kimberly Walls

APPENDIX D

Communication and Permission Letters

Telephone Script for recruiting principal participation.

Hello _____(principal's name). I'm Steve Hickok from Auburn University. I'm calling because your school has had such consistent student participation at all-state band and chorus in the past years.

I'm conducting a study of factors and characteristics of successful choral and band students as a part of a doctoral dissertation in music education. Your students would be a strong asset in helping to evaluate characteristics that are evident in successful music students. Very little research has been done to identify the differences between successful choral students and successful band students.

I anticipate that this study will be a valuable resource for teachers and parents. For teachers it will provide a resource for recruiting and for planning curricula that will enhance students' success. For parents it will help them to understand the home and family factors that will enhance their child's success.

I'd like to ask permission to contact your band and choral directors concerning their students' participation in a survey. It will take approximately 30 minutes to complete. Your band and choral directors would administer this survey to all of their students who have the permission of their parents to participate. The survey is completely anonymous. If you are willing for your directors to participate, I will send you a consent letter to be signed and returned before I contact your band and choral director.

Principal
High School
Address
Date

Dear Principal:

Thank you for considering the inclusion of your school in the study "Characteristic of High School Choir and Band Students." Understanding the underlying factors and characteristics that are common to music students is essential toward providing them the best possible musical education.

With your permission, I will contact your choral and band directors to request their consent to administer a survey to their students during a portion of their class time. The total time to complete the survey should be about 20 minutes. All responses are anonymous. There is no method of identifying the individuals responding to these questions. Your school will not be identified in any of the reported data. I will provide the directors with permission forms for the parent(s) or guardian(s) of each student. These permission forms have been approved and stamped by the Institutional Review Board (IRB) of Auburn University. A sample parent permission letter is enclosed.

Please sign and return the enclosed "school permission letter" on your school's letterhead to Steve Hickok, 2525 East Glenn Avenue, Auburn, AL 36830. The form has been sent to you as a Word and a PDF document that can be printed directly to your letterhead. If you have any questions concerning this survey, please feel free to contact me at hickosc@auburn.edu. If you have any questions concerning your involvement in this study you may contact the Auburn University Office of Human Subjects by phone (334) 844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu. If you wish to receive the results of this survey, simply include your email address on the enclosed form and return it with the letter of permission/cooperation from your school or email hickosc@auburn.edu.

Sincerely,

Stephen C. Hickok
PhD. Candidate, Auburn University

Institutional Review Board
c/o Office of Human Subjects Research
307 Samford Hall
Auburn University, AL 36849

Dear IRB Members,

After reviewing the proposed study, "Characteristics of High School Choir and Band Students," presented by Mr. Stephen Hickok, a doctoral candidate at Auburn University, I have granted permission for the study to be conducted at our high school.

I understand that the directors will gather parental/guardian consent forms for all participants. Mr. Hickok has provided my office a copy of all Auburn University IRB-approved, stamped consent documents. Any data collected will be anonymous.

I understand that the survey will take approximately 20 minutes and will be administered by the choral and band teachers in their classrooms during regularly scheduled class periods. I expect that all choral and band classes will complete this survey no later than May 30, 2008.

Sincerely,

Principal

Characteristics of High School Choir and Band Students

- I would like to receive a copy of the results of the survey on characteristics of music students.
- STEP 1
  - Provide your mailing address or email address in the space below
    - Please send the results to the following mailing address

      _____

      _____

      _____

      or

    - Please send the results to the following email address.

      _____

- STEP 2

  Place this form with the surveys in the self-addressed, postpaid envelope provided.

  Or

  MAIL THE FORM TO:

  Stephen C. Hickok
  2525 East Glenn Avenue
  Auburn, AL 36830

  Or

  EMAIL REQUEST TO:

  hickosc@auburn.edu

Telephone Script for recruiting teacher/director participation.

Hello _____(director's name). I'm Steve Hickok from Auburn University. I'm calling you because you've had such consistent student participation at all-state in the past years.

I'm conducting a study of factors and characteristics of successful choral and band students as a part of a doctoral dissertation in music education. You and your students would be a strong asset in helping to evaluate characteristics that are evident in successful music students. Very little research has been done to identify the differences between successful choral students and successful band students.

I anticipate that this study will be a valuable resource for teachers and parents. For teachers it will provide a resource for recruiting and for planning curricula that will enhance students' success. For parents it will help them to understand the home and family factors that will enhance their child's success.

I've asked your principal's permission to contact you about this survey. I would like to ask for your participation in a survey of your students. The survey will take approximately 30 minutes to complete. You would administer this survey to all of your students who have the permission of their parents to participate. The survey is completely anonymous. I will identify participation in all-state through one of the questions on the survey. This will allow me to specifically compare all-state band and choral student characteristics.

If you are willing to participate, I will send a packet with the permission forms and surveys necessary for your students and a self-addressed, post-paid envelope to return the completed surveys and permission forms.

How many copies of the permission forms and surveys will you need?

Dear Music Teacher:

Thank you for agreeing to participate in the study of "Characteristics of High School Choir and Band Students." Understanding the underlying factors and characteristics that are common to successful music students is essential toward providing them the best possible musical education.

This survey includes questions about parental involvement and home environment in music, student motivational factors and non-identifying demographic information about the students. The total time to complete the survey should be about 30 minutes. All responses are anonymous. There is no method of identifying the individuals responding to these questions. Your school will not be identified in any of the reported data.

- Please send the enclosed permission forms to parents or guardians of each of your students
- Collect the forms prior to administering the survey.
- Please follow the directions on the enclosed survey.
- Please administer the survey during your choral or band classes.
- Students will mark their answers on the survey booklet as directed in the test instructions.
- Students should not put any form of identification on the surveys.
- When your students complete the survey, please collect all the surveys from students who have turned in signed permission forms.
- Place the permission forms in the self-addressed, postpaid envelope with the surveys and mail the package to the researcher.

Thank you for taking the time to participate in this study. If you have any questions concerning this survey please feel free to contact the researcher, Stephen Hickok, at hickosc@auburn.edu or (334) 728-5515. If you have any questions concerning your involvement in this study you may call the Auburn University Office of Human Subjects by phone (334) 844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu .

Sincerely,

Stephen C. Hickok

AUBURN
UNIVERSITY

COLLEGE OF EDUCATION
CURRICULUM & TEACHING

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

PARENTAL PERMISSION/CHILD ASSENT
For a Research Study entitled
Characteristics of High School Choir and Band Students

Your child is invited to participate in a research study on characteristics of high school chorus and band students. The study is being conducted by Stephen C. Hickok, a doctoral student, under the direction of Dr. Kimberly Walls in the Department of Curriculum and Teaching. Your child was selected as a possible participant because he or she is involved in a high school choral or band program. Since your child is age 18 or younger we must have your permission to include him/her in the study. If you allow your child to participate in this research study, your child will be asked to complete an anonymous survey containing questions on motivational factors, parental involvement and home environment in music during chorus or band class. Your child's total time commitment will be approximately 30 minutes.

The results of this study will identify factors that parents and teachers could use to help their children achieve success in band or chorus. The results of this study will be available by contacting your choral or band director or by contacting Mr. Hickok at hickosc@auburn.edu.

Your child's participation is completely voluntary. Your decision about whether or not to allow your child to participate will not jeopardize your or your child's future relations with Auburn University or the Department of Curriculum and Teaching. There is no method of identifying a specific student with his or her completed survey. Information obtained through your child's participation will be used as a part of the doctoral dissertation published by Stephen C. Hickok.

If you (or your child) have questions about this study, please contact Stephen Hickok at hickosc@auburn.edu. If you have questions about your child's rights as a research participant you may contact the Auburn University Office of Human Subjects by phone (334) 844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu .

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH FOR YOUR CHILD TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO ALLOW YOUR CHILD TO PARTICIPATE. YOUR CHILD'S SIGNATURE INDICATES HIS/HER WILLINGNESS TO PARTIPATE.

Stephen C. Hickok

Participant's Signature Date | Investigator obtaining consent Date

Printed Name | Stephen C. Hickok
Printed Name

Parent/Guardian Signature Date

Printed Name

The Auburn University
Institutional Review Board
has approved this document for use
from 10/31/07 to 10/30/08.
Protocol # 07-240 EP 0710

5040 HALEY CENTER
AUBURN, AL 36849-5212

TELEPHONE:
334-844-4434

FAX:
334-844-6789

www.auburn.edu

APPENDIX E

Rotated Component Matrix for 35 AMF Variables

Variable	Effort	Ability	Class	Affect	Background	Comp 6	Comp 7
Practicing	.740						
Goals and practice	.731						
Practice effort	.730						
Trying hard	.721						
Serious about music	.659						
Willing effort	.645						
Feel emotion*	.431			.391			
Symbols and markings		.807					
Notes and rhythms		.762					
Counting music		.757					
Reading music		.730					
Sense of rhythm		.567					
Steady beat		.462					
Teacher temperament			.720				
Teacher favoritism			.705				

Table Appendix E *(continued)*

Variable	Effort	Ability	Class	Affect	Background	Comp 6	Comp 7
Teacher understands you			.656				
Liking teacher			.636				
Liking other students			.594				
Getting along with others			.573				
Music is fun				.712			
Love listening				.712			
Caring about music*	.332			.671			
Like to make music				.657			
Please others				.489			
Naturally creative				.450			
Musical relatives					.776		
Runs in family					.743		
Musical parents					.736		
Being with friends*			.372		.425		
Natural Talent*						.774	
Natural ability*						.749	
Starting young*					.411	.443	
Liking sound*				.476			.508
Afford a good instrument*			.410				-.463

Table Appendix E *(continued)*

Variable	Effort	Ability	Class	Affect	Background	Comp 6	Comp 7
Good ear*		.363					.410

* = Items that did not load onto the factors identified in the Asmus model.

APPENDIX F

Rotated Component Matrix for 34 AMF Variables

Variable	Effort	Ability	Affect	Class	Background	Comp 6	Comp 7
Practicing	.758						
Practice effort	.744						
Goals and practice	.726						
Trying hard	.710						
Serious about music	.666						
Willing effort	.637	.360					
Feel emotion*	.439		.382**				
Symbols and markings		.813					
Counting music		.767					
Reading music		.755					
Notes and rhythms		.746					
Sense of rhythm		.554					
Steady beat	.384	.462				.347	
Love listening			.715				
Music is fun			.704				

Table Appendix F *(continued)*

Variable	Effort	Ability	Affect	Class	Background	Comp 6	Comp 7
Caring about music*	321**		.657				
Like to make music			.647				
Please others			.509				
Naturally Creative			.455				
Teacher favoritism				.737			
Teacher temperament				.729			
Teacher understands you				.654			
Liking teacher				.608	.335		
Liking other students				.568	.448		
Getting along with others				.547			
Musical relatives					.783		
Runs in family					.765		
Musical parents					.719		
Starting young					.458	.425	
Being with friends*				.330*	.428		
Natural talent						.762*	
Natural ability						.737*	
Liking sound*			.432**				.616
Good ear*						.347	.538

Table Appendix F *(continued)*

* = variables that did not load onto the expected factor

** = secondary factor loadings > .3 that are consistent with the Asmus model

APPENDIX G

Rotated Component Matrix for 34 AMF Variables Suppressed to Five Factors

Variable	Ability	Effort	Background	Affect	Class
Counting music	.754				
Symbols and markings	.753				
Notes and Rhythms	.745				
Reading music	.711				
Sense of rhythm	.643				
Steady beat	.608				
Good ear	.470				
Goals and practice		.734			
Practice effort		.730			
Trying hard		.714			
Practicing		.705			
Serious about music		.655			
Willing effort		.652			
Runs in family			.785		
Musical relatives			.715		

Table Appendix G *(continued)*

Variable	Ability	Effort	Background	Affect	Class
Musical parents			.687		
Starting young			.609		
Natural talent			.596		
Natural ability			.587		
Being with friends			.429		.407*
Music is fun				.720	
Love listening				.703	
Like to make music				.644	
Caring about music		.358*		.624	
Liking sound				.510	
Feel emotion				.479	
Please others				.450	
Naturally creative				.430	
Teacher favoritism					.675
Liking teacher					.673
Teacher temperament					.664
Liking other students					.660
Teacher understands you					.647
Getting along with others					.621

Table Appendix G *(continued)*

* = secondary factor loadings > .3 that are consistent with the Asmus model