DOCUMENT RESUME

ED 351 987 HE 026 055

AUTHOR Bobbett, Gordon C.; And Others
TITLE College Activities and Their Effect on Postsecondary Instrumental Music Growth.
PUB DATE 11 Nov 92
NOTE 43p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Knoxville, TN, November 11, 1992).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Achievement Tests; College Students; Grade Point Average; Higher Education; High School Students; Music Activities; *Musical Instruments; *Music Education; Outcomes of Education; Questionnaires; Research; Secondary School Students; Skill Development; Student Attitudes; *Student Evaluation

ABSTRACT

This paper examines the relationships between musical independence or MI (a reflection of the product rather than the process of musicianship), related academic courses, and other music/nonmusic activities at the postsecondary education level. The first purpose of the study is to examine the relationships between MI and Colwell's Musical Achievement Tests Nos. 3 and 4 (MAT3/MAT4) and to evaluate to what extent secondary music achievement tests are appropriate for postsecondary use. The paper presents the research methodology and the findings pertinent to answering five research questions: (1) At each institution, is the top instrumental ensemble more musically independent than the bottom ensemble? (2) Are MI outcomes influenced by the grade in which students started band, college grade point average, age, number of years students played their instrument, number of hours practiced per week, and number of hours studied per week? (3) What college courses and activities influence MI the most and the best? (4) What are the important course areas that influence student MI? and (5) Does the music faculty communicate to its students (through lectures, class assignments, and conversations) the things that are the most important in developing MI? Appendices include the instrumental college survey and statistical data from the study. Contains 10 references. (GLR)

COLLEGE ACTIVITIES AND THEIR EFFECT ON POSTSECONDARY INSTRUMENTAL MUSIC GROWTH

Dr. Gordon C. Bobbett
Educational Consultant
8325 Richland Colony Rd.
Knoxville, TN 37923

Mr. Wayne Dorothy
Assistant Director of Bands
North Dakota State University
Fargo, ND 58105

Nan C. Bobbett
Musician, Certified Public Accountant
8325 Richland Colony Rd
Knoxville, TN 37996

Descriptors
Evaluation
Instrumental Music
College Courses/Activities

1992 Mid-South Educational Research Association (MSERA) Annual Meeting
Knoxville, TN

Discussion Session
Wednesday, November 11, 1992

COLLEGE ACTIVITIES AND THEIR EFFECT ON POST-SECONDARY INSTRUMENTAL MUSICAL GROWTH

I. INTRODUCTION

In two different studies, Bobbett (1989, 1990a, and 1991) evaluated musical independence in conjunction with related academic and musical activities of post-secondary music students at two institutions: University of Tennessee-Knoxville and Ball State University. Some of the studies' findings relating to college courses and other experiences were inconclusive and required further evaluation.

A primary assumption of a post-secondary program such as engineering, medicine, or music is that the program's course work plus related activities prepare students to be successful in their profession. Engineering programs train engineers; music education programs should train music educators. The music education curriculum includes private lessons, ear-training, theory, ensemble classes, music history, and general academic courses. To what extent do these courses contribute to the student's musical growth?

Many factors affect why some students master a skill and others do not. Simply, there is a debate between two schools of thought: a student's musical growth is a reflection of talent (*i.e., Mozart was born a musical genius*), or experiences and activities, collectively, contribute to this growth (*i.e., Mozart was taught musical skills*). If activities and experiences influence growth, which ones have the greater influence? Most college professors defend the content and merit of the courses they teach. Also, the institution might offer a specific course because of accreditation guidelines or historical precedent.

With the reform movement, many aspects of education are being re-evaluated. Specifically, the value and importance of postsecondary courses and other related activities need to be re-examined. Generally, a program should focus on the skills and knowledge which are essential to the ultimate success of its graduates. Skills and information which may be "nice to know" but are not essential should be excluded from the music education curriculum.

The notion of musical independence (MI) is a benchmark by which students may

be evaluated. Where a typical musical achievement test measures certain specific skills, MI connects those skills with the actual production of music in real-time. Simply, MI reflects the product and not the process of musicianship.

Little is known about the relationships between MI and other indicators such as college GPA, time studied/practiced per week, or number of music courses taken and grades received. To fully examine such relationships, a variety of musical skills must be tested and compared to other student data, such as college GPA.

The instrumental directors at Ball State University, Florida State University, and Wichita State University agreed to participate in this follow-up research project. Their instrumental students took two different auditory-perception tests: Colwell's Musical Achievement Test #3 (MAT3) and Musical Achievement Test #4 (MAT4). Students listened to a cassette tape of the musical examples and marked their answers on an answer sheet. The tests required approximately 35 minutes each to administer and were easily scored. Since the MAT3 and MAT4 were designed to evaluate middle school and high school music students (not post-secondary students), norms for college music students were not available.

The subjects also completed the Instrumental College Survey-2 (ICS2) (see Appendix A). Since the research addressing post-secondary student outcome (MI) is limited, many ICS2 areas are not reflected in music education literature.

If MI can be successfully identified and measured, then the next logical step is to identify and evaluate the courses and activities that contribute to MI. This study examined the relationships between MI, the related academic courses, and other music/non-music activities.

II. PURPOSE

The first purpose of this study is to examine the relationships between MAT3/MAT4 and MI and to evaluate what extent secondary music achievement tests are appropriate for post-secondary use. Next, if MI can be successfully measured by MAT3/MAT4, which indicators, such as studying, practicing, course work and related grades, have the most influence on MI? Finally, what are the students' opinions and their perceptions of the faculty's opinions regarding the importance of different music

courses and activities on MI (i.e., eartraining, music history, private lessons, etc.)?

III. TEST QUESTIONNAIRE

This study used selected items from the ICS2 (see Appendix A).

Demographics (ICS2). The three demographic categories are as follows:

1. **General** questions sought information regarding each student's institution, instrumental ensemble, college grade point average (GPA), age, the number of hours practiced per week, and hours spent on non-music courses per week.

2. **College Courses and Grades.** Each student indicated the number of courses taken and their respective grades in each of the 10 course areas. These areas included private lessons (PL), eartraining (ET), theory (TH), keyboard/piano (KP), music history (MH), conducting (CO), general music education (ME), voice/choir (VC), instrumental ensemble (IE), and general academic courses (GA).

3. **Perceptions.** Using a 5-point Likert-type scale, the students evaluated the importance of each of the 10 course areas in music education. Next, the students indicated their perceptions of how important each area was to the faculty. Finally, they identified the most important and least important course areas in developing their musicianship.

Colwell's MAT3 and MAT4. Colwell's MAT3 and MAT4 were used to evaluate the musical independence of the following instrumental programs:

	Ball State University	Florida St. University	Wichita St. University
Top	Wind Ensemble (BWE)	Wind Ensemble (FWE)	Wind Ensemble (WWE)
Middle	Symphonic Band (BSB)	Symphonic Band (FSB)	Concert Band (WCB)
Bottom	University Band (BUB)	Concert Band (FCB)	N/A

These ensembles have different missions. The wind ensembles are the top (elite) performing ensembles at each institution. The middle ensembles, comprised of top and average instrumentalists, serve as training organizations, while the bottom ensembles are primarily recreational. To be admitted to an ensemble, the student's instrumental musicianship is evaluated by the audition process; faculty members listen and evaluate each student's playing skills. The better instrumentalists are selected to perform in the top ensemble.

Colwell's tests were used for this project because they best evaluate secondary (Bobbett, 1987, 1990b, 1991a) and postsecondary (Bobbett, 1989, 1990a, 1991b) student musical independence. The musical skills tested by MAT3 and MAT4 are of a higher level than skills tested by many other musical achievement tests (Bobbett, 1987). Also, these tests have previously determined reliability estimates and validity: most other musical achievement tests do not. Colwell (1970) used the Kuder Richardson 21 to evaluate the tests' internal consistency for grades 9-12 which ranged from 0.81 to 0.89 for MAT3 and 0.79 to 0.88 for MAT4. The MAT3 consists of four subtests: Tonal Memory (3ST1), Melody Recognition (3ST2), Pitch Recognition (3ST3), and Instrument Recognition (3ST4). The MAT4 consists of five subtests: Musical Style (4ST1), Auditory-Visual Discrimination (4ST2), Chord Recognition (4ST3 and 4ST4), and Cadence Recognition (4ST5).

IV. METHODOLOGY

The five questions related to this study are:

1. At each institution, is the top instrumental ensemble more musically independent than the bottom ensemble?
2. Are MI outcomes influenced by the grade students started band, college GPA, age, number of years students played their instrument, number of hours practiced per week, and the number of hours studied per week?
3. What college courses and activities influence MI the most and the least?
4. What are the important course areas that influence student MI?
5. Does the music faculty communicate to its students (through lectures, class assignments, and conversations) the things that are the most important in

developing MI?

In response to question 1, three analyses were conducted. First, descriptive and inferential analyses were used to evaluate the institution's and ensemble's MAT3, MAT4, and GT test data. Test data were studied first by school, then collectively. Mean scores were developed for the subtests (e.g., 3ST2), test scores (e.g., MAT4), and grand total (GT) test scores (combined mean score for MAT3 and MAT4). ANOVA was used to evaluate significant differences between institutions' or ensembles' outcome data, and the Scheffe was used to identify the differences. Second, permutation analysis was used to examine the trend line between ensembles. Third, skew statistical analyses were used to evaluate each ensemble's and institution's subtests, tests, and GT data.

To answer question 2, two general types of analyses were conducted. In the first analysis, the participants' MAT3 and MAT4 scores were summed, and a grand total (GT) score was developed for each student. Next, the student's grand total score was converted to a z-score. Finally, the top and bottom 25 MI students were identified and general demographic indicators (organization, grade level, major, and gender) were compared. Means were developed for each of the study's items. Finally, individual student data were compared to the general mean for each item, and anomalies were identified.

In the second analysis, non-music majors (n=78) were eliminated from the total participant population (n=354), leaving the music major (n=276) data for the rest of study. Next, the MAT3 and MAT4 scores were summed, and the grand total test scores were computed and converted to z-scores. Using the z-scores, the students were organized into five categories: high outcomes (HIO), medium high outcomes (MHO), average outcomes (AVO), medium low outcomes (MLO), and low outcomes (LOO). Mean scores for the five categories were compared to seven potential indicators of MI: the grade students started band, college GPA, age, years the students played their primary instrument, number of hours practiced per week, the number of hours studied per week, and the total number of hours the students studied/practiced per week (instrument practice time plus non-music studying time). The ANOVA and Scheffe were used to identify differences between outcome categories and the seven indicators of MI,

and the permutation statistics were used to evaluate the ordering of the five outcome categories.

In response to question 3, four general analyses were conducted. First, descriptive and inferential analyses (mean scores, z-scores, permutations, and ANOVA/Scheffe analysis) were used to compare the five MI outcome categories with both number of courses the students completed and their average grade in each of the 10 course areas. Second, the Pearson Product Moment Correlation statistic was used to compare outcomes (subtests, tests, and GT test) with the seven demographic indicators of MI and with the 10 course activities for both number of classes and average grade in each course area. Next, scattergrams were developed for the items with the largest correlation coefficients, and outliers were examined. Third, partial correlation analysis was used to assess the actual influence that each of the 10 class activities (demographic items, number of classes, and grades in each course area) had on MI. Fourth, content analysis was used to examine the difference in student opinions (regarding the course activities that contribute most and least to musicianship) between the top and bottom students.

In response to question 4, the data identified in the earlier analysis (questions 1-3) were grouped collectively and evaluated.

To answer question 5, mean scores, ranks, and z-scores were used to analyze the differences between the seniors and graduate students for Question 4 (*the student's opinion on how important each course activity is in developing musicianship*) and Question 5 (*from the student's perception, what is the faculty's opinion on how important each course activity is in developing musicianship*).

This study used the .05 level of significance.

V. FINDINGS

Below are the findings pertinent to the five research questions.

1. At each institution, is the top instrumental ensemble more musically independent than the bottom ensemble?

Both the MAT3 and MAT4 were administered to all the students participating in instrumental ensembles at Ball State University, Florida State University, and Wichita

State University. Mean scores were computed for all subtests, test scores, and grand total test scores. Table 1 illustrates that the top ensembles earned higher mean scores than the middle organizations, and the middle ensembles generally received higher mean scores than the bottom ensembles on most subtests, tests, and GT scores. There were several subtests where there was no significant difference between ensembles: Tonal Memory (3ST1--MAT3, Subtest #1) [*Ball State, Florida St., and Wichita St.*]; Instrument Recognition (3ST4)[*Ball St., Florida St., and Wichita St.*]; Chord Recognition (4ST4) [*Florida St. and Wichita St.*], and Cadence Recognition (4ST5) [*Florida St.*].

Permutation analysis was used to evaluate outcome data and ensembles. The 3ST4 (Florida St.) and 4ST4 (Florida St. and Wichita St.) were the two subtests where the first organization scored lower than the second or third ensemble. For all other trend-line analyses, the first ensemble scored higher than the second, and the second scored higher than the third for all subtests, tests, and GT mean scores.

Skew analysis was used to examine the ensemble and outcome data (Appendix B). Minium (1970, p. 51) states: "B [a *picture in the text of a positively skewed distribution*] might result from a test which is too difficult for the group taking it, and C [a *picture of a negatively skewed distribution*] from the opposite situation." Skews were developed for each of the subtests, tests, and GT for each ensemble, the institution's total participants, and for the study's participants. Collectively, positive and negative analyses were summed; there were 135 instances of negatively skewed items, and 9 instances of positively skewed items. When the institution's participants or total participants were collectively evaluated, the skews for all items were negative.

The skewed analysis items with a negative one or smaller skew (-1.00 to -3.00) were compared to items with a larger skew (-.99 to +1.00). The **BWE** (top Ball State ensemble) received four analyses with a small (≤-1.00) skew, BSB received three, and the BCB received two. The **FWE** (top Florida State ensemble) received 4 with a small skew, the FSB received 11, and the CB received 2. Maybe the **FSB** had weaker instrumentalists when compared to the other two Florida State organizations, for these few students greatly affected the skew analysis for the FSB. When further evaluating Florida State's participants, the bottom 6 out of 10 GT MAT scores were in the FSB.

Table 1 The ANOVA /Scheffe and permutation (≤16.7%) analysis used to evaluate differences and similarities between Institutions, and ensembles for the Music Achievement Test 3 (MAT3) and Music Achievement Test 4 (MAT4) subtests, test scores, and Grand Total (GT) scores.

	Organization						
	Top	Middle	Bottom	F-Score	p	Scheffe	Permutation
			BALL STATE UNIVERSITY				
n=	*44*	*52*	*31*				
MAT3							
3ST1	16.52	16.19	15.55	1.25	.2894	--	√
3ST2	14.84	14.21	11.77	8.77	.0003	2, 3	√
3ST3	15.05	14.73	12.10	9.22	.0002	2, 3	√
3ST4	13.43	12.75	12.32	4.08	.0192	2	√
MAT4							
4ST1	*14.77*	*11.75*	*10.32*	*17.65*	*.0001*	*1, 2*	√
4ST2	*17.46*	*16.75*	*15.16*	*7.04*	*.0013*	*2, 3*	√
4ST3	*15.91*	*14.77*	*12.97*	*8.83*	*.0003*	*2, 3*	√
4ST4	*14.02*	*13.42*	*13.32*	*2.30*	*.1048*	--	√
4ST5	*11.32*	*9.83*	*9.03*	*10.95*	*.0001*	*1, 2*	√
MAT3	**59.84**	**57.89**	**51.74**	**10.75**	**.0001**	**2, 3**	√
MAT4	**73.48**	**66.52**	**60.81**	**24.60**	**.0001**	**1, 2, 3**	√
GT	**133.32**	**124.40**	**112.55**	**21.22**	**.0001**	**1, 2, 3**	√
			FLORIDA STATE UNIVERSITY				
n=	*34*	*50*	*52*				
MAT3							
3ST1	17.03	16.84	16.81	.12	.887	--	√
3ST2	15.65	14.98	14.10	3.25	.0419	2	√
3ST3	16.82	15.82	14.58	6.09	.003	2	√
3ST4	13.32	13.50	13.15	.89	.4139	--	NO
MAT4							
4ST1	*18.5*	*17.02*	*14.33*	*25.66*	*.0001*	*2, 3*	√
4ST2	*18.65*	*16.82*	*16.35*	*5.48*	*.0052*	*1, 2*	√
4ST3	*16.32*	*16.28*	*14.90*	*4.74*	*.0103*	*2, 3*	√
4ST4	*13.50*	*13.60*	*13.35*	*.18*	*.8387*	--	NO
4ST5	*11.44*	*10.56*	*10.31*	*2.67*	*.0729*	--	√
MAT3	**62.82**	**61.14**	**58.64**	**4.15**	**.0179**	**2**	√
MAT4	**78.41**	**74.28**	**69.23**	**11.48**	**.0001**	**2, 3**	√
GT	**141.24**	**135.42**	**127.87**	**9.173**	**.0002**	**2, 3**	√
			WICHITA STATE UNIVERSITY				
n=	*53*	*38*					
MAT3							
3ST1	17.21	16.79		.86	.3567	--	√
3ST2	15.49	13.34		10.65	.0016	1	√
3ST3	15.43	13.08		9.72	.0025	1	√
3ST4	13.51	13.08		2.20	.1416	--	√
MAT4							
4ST1	*16.09*	*12.03*		*28.41*	*.0001*	*1*	√
4ST2	*16.81*	*15.11*		*4.76*	*.0317*	*1*	√
4ST3	*16.79*	*14.92*		*12.74*	*.0006*	*1*	√
4ST4	*13.32*	*13.42*		*.04*	*.85*	--	NO
4ST5	10.96	9.45		8.12	.0054	1	√
MAT3	**61.64**	**56.29**		**12.34**	**.0007**	**1**	√
MAT4	**73.94**	**64.92**		**20.10**	**.0001**	**1**	√
GT	**135.59**	**121.21**		**19.15**	**.0001**	**1**	√

Scheffe
1=1st - 2nd
2=1st - 3d
3=2nd - 3d

√ = Permutation (Three items ordered from larger (1st) to smaller (3d)) = ≤16.7%)

The WWE received 10 analyses with a small skew, and the WCB received two. Using the skew analysis, the instrumentalists in the BWE and WWE were more musically independent than the students in the BCB or WCB.

2. **Are MI outcomes influenced by the grade students started band, college GPA, age, number of years students played their instrument, number of hours practiced per week, and the number of hours studied per week?**

The MI scores for the study's participants were developed (n=354). MAT3 and MAT4 scores were combined to develop a grand total (GT) test score. Next, the GT test scores were converted to **z-scores.**

First, the top and bottom 25 MI students were identified and responses to each of the general items (e.g., instrument, organization, grade level) and demographic items were compared (Appendix C). Fifty-two percent of the top 25 students performed in the bottom two ensembles (n=13) and were freshman and sophomores (n=13), while 16% were non-music majors (n=4). Sixteen percent of the bottom 25 students played in the top organization (n=4), 24% were upper classmen (juniors exclusively) (n=6), and 40% were music majors (n=9). The top students averaged two more years playing their instrument (M=10.4, 8.5), started band one-half year later (M=6.1, 5.6), and were two years older (M=21.2, 19.2). Finally, the top 25 MI students had higher college GPAs (M=3.6, 2.9), practiced approximately twice as much per week as the bottom students (M=11.9, 6.3) and studied about half as much (M=3.8, 8.6) as the bottom students.

What are the unusual anomalies in the data? For instance, were there freshmen in the top ensemble and juniors/seniors in the bottom organization, or did the weaker MI students start band later than the top MI students? Students 1B (B=bottom 25 MI students), 2B, and 15B were juniors, music majors, and had a very high college GPA (GPA=3.8, 3.75, and 3.90, respectively); two of the students played in the top ensemble and the other performed in the middle organization. Alternatively, students 2T (T=top 25 students), 9T, 13T, and 20T were freshman and played in the middle ensemble. Students 8T and 19T played in the third ensemble but were in the top 6% of the students evaluated in this study. The average college GPA for the top 25 students averaged 3.6 GPA, but 3T, 4T, 8T, 11T, 24T, and 25T earned less than 3.2 GPA. The bottom 25 MI students averaged 2.9 GPA, but students 1B, 2B, 13B, 15B, and 20B received a 3.5 or higher GPA. Although the top students practiced twice as much as

the bottom students, students 1B, 2B, 4B, 17B, and 14B practiced more than 12 hours per week.

Second, the student's z-scores were organized into five groupings: high outcome (HIO) (+2.05Z to +1.00Z [n=55]), medium high outcome (MHO) (.99 Z to .25Z [n=103]), average outcome (AVO) (+.24Z to -.24Z [(n=64]), medium low outcome (MLO) (-.25Z to -.99Z [n=79]), and low outcome (LOO) (-1.00Z to -4.32Z [n=53]).

The five groupings were compared to seven potential indicators of MI: (1) grade student started band, (2) college grade point average (GPA), (3) age, (4) number of years the students played their band instrument, (5) number of hours practiced per week, (6) the number of hours studied per week, and (7) total hours studied (i.e., music plus academic course work [item 5 plus item 6]).

Appendix D illustrates that the HIO students started band later than other students (i.e., 6th grade instead of 5th grade), earned a higher college GPA, were older, had played their instrument more years, and practiced their instrument more per week, while the LOO students studied more hours per week.

Permutations were used to evaluate the seven activities with the five outcome groupings. The permutation statistic (*five items ordered from large to small = ≤,01*) also suggested that college GPA, student's age, number of hours practiced per week, and number of hours studied per week affect MI. The higher MI students earn higher college GPAs, are older, and practice more, but study less. Trend-line analysis indicated no direct relationship between MI and the grade when students started band, number of years they played their instrument, and hours studied per week after school (*i.e., practicing plus academic studying*). Note that the LOO students spend the most time studying after school (≈18 hours and 50 minutes), while the AVO students spend the least time (≈16 hours and 40 minutes).

3. What college courses and activities influence MI the most and the least?

The non-music majors were eliminated from the pool of participants, leaving 276 music majors to be evaluated. Participants responded twice for each of the 10 college course areas by indicating the: (a) **number of semester** (quarter) classes completed, and (b) **average grade** for each course area. Three types of statistical analysis--(1) permutation statistic plus the ANOVA statistic, (2) Pearson Product Moment

correlations, outlier analysis, and partial correlation statistic, and (3) content analysis--were used to evaluate both the number of classes a student took and the grade the student received in a particular class.

All GT outcome data was converted to z-scores. Z-score test data was used to organize music majors into five categories: **high outcome** (HIO) (+2.05 to +1.0 [n=48]), **medium high outcome** (MHO) (+.99 to +.25 [n=92]), **average outcome** (AVO) (+.24 to -.24 [n=64]), **medium low outcome** (MLO) (-.25 to -.99 [n=45]), and **low outcome** (LOO) (-1.00 to -4.00 [n=27]).

a. Mean Scores, Permutation Analyses, ANOVA Analyses

i. Number of Classes Completed

Is there a link between the number of courses music education students take in each of the 10 course areas and their musical independence? Mean scores were developed by category and for each of the 10 activities (See Appendix E, Question 2 [top half]). The HIO students took more private lessons (PL), theory (TH), music history (MH), and instrumental ensemble (IE) classes, while the MHO students took the most ear-training (ET), keyboard/piano (KP), conducting (CO), vocal (VC), and general academic (GA) classes. The LOO took the least number of classes in music education (ME), PL, ET, TH, MH, CO, and GA, and the MLO students had the least number of classes in KP, and VC. The ME course area data is unique--the MLO student completed the largest number of ME classes (M=2.9) but the LOO and AVO took very few ME classes (M=0.8, 1.0, respectively). The **permutation** analysis indicated that the number of courses the students took in PL, TH, MH, and IE strongly (≤1.0%) influenced their MI, while ET courses moderately (≤0.5) influenced their MI. The **ANOVA** analysis indicated a significant difference (≤.05) between the different categories for PL, ET, TH, MH, CO, and IE and no significant difference between the the KP, ME, VC, and GA activities. The Scheffe analysis indicated that PL, IE, and TH course activities received the most number of incidents where one outcome category differed from another (5, 3 and 2 times, respectively).

Finally, when the ANOVA analysis data (p≤.01) and the permutation analysis (p≤.01) were grouped, the primary course activities identified in both analysis were PL,

TH, and IE course areas and to a smaller degree, the ET and MH course areas.

ii. Grade

Are the students' grades in the different course areas an indicator of their MI? Again, the students' MI outcomes were organized into 5 categories and then used to evaluate the 10 course activities. The HIO students received the highest mean grade scores in PL, ET, TH, KP, IE, and GA classes, and the MHO students received the highest mean grade score in the MH, CO, and VC classes (see Appendix E, Question 3 [Bottom half]). The LOO students received the lowest mean grade in the ET, TH, KP, CO, and GA course areas, while the MLO students received the lowest mean grades in the PL, MH, VC, and IE courses. Note that the AVO students received the smallest mean grade score for the ME course activity, and the LOO received the largest mean grade score. Why do poor MI students receive the top ME grade and the average students receive the lowest?

The ANOVA analysis indicated no significant difference between the five outcome categories for the KP, ME, VC, and IE course activities; but, there were significant differences between the student's five outcome categories for the PL, ET, TH, MH, CO, and GA courses. The Scheffe analysis indicated that the course areas with the most differences between outcome categories were ET and TH. When the ANOVA analysis and permutation analysis are collectively grouped, the PL, ET, TH, MH, and GA are the five course areas where the student's grade might be an indicator of the student's MI. Permutation analysis evaluated the mean scores for the 10 areas with the 5 outcome categories. This analysis for grades for the five categories suggested that grades in ET, TH, and GA ($\leq .01$) course areas strongly influence the student's MI, and to a smaller ($\leq .05$) degree, the grades in PL might also influence their MI.

Finally, when both the **number of course** and **grade** analyses were viewed collectively, the PL, TH, and ET course areas were identified in both analyses. This suggests that these three courses may have the most influence on the student's MI. Additionally, the IE and GA course areas were strongly identified in only one analysis (number of course and grade respectively), suggesting that these courses may also

have an influence on the student's MI.

b. Correlation, Outlier, and Partial Correlation Analysis

The Pearson Product Moment correlation statistic was used compare outcome data with all other student activity/course data (see Appendix F). When MAT3 and MAT4 outcome data were evaluated, there was a large, significantly positive correlation between all tests (MAT3, MAT4, GT test). When tests or GTs were compared to the nine subtests, most were very large ($r \geq .45$ to .87), but 4ST5 (i.e., MAT4, Subtest 5) correlations were comparatively small ($r = .29$, .15, and .22, respectively).

Next, outcome data were compared to 6 demographic indicators and with the 10 course activities for both number of classes the student has completed and with the student's grade. The student's age and the number of classes for PL, MH, and IE were the four items where there were large ($r \geq .25$) positive correlations with the subtests, tests, and GT test (6, 8, 6, and 9, respectively). There was no relationship between MI outcomes (MAT3, MAT4, GT) and grades in the 10 course activities. There was a significant positive correlation between MI outcomes and the number of classes taken in three courses (PL, MH, and IE). Two of the six demographic indicators correlated with MI outcomes. Interestingly, the number of hours a week the student studies nonmusic course-work received negative correlations with most subtests, and with all tests and GT scores.

What are the important activities (demographic items and course activity items) that influence MI outcomes identified by Colwell's subtests, tests, or GT test scores? The 3ST2 (*Melody Recognition*), 3ST3 (*Pitch Recognition*), 4ST1 (*Musical Style-Composer*), 4ST2 (*Musical Style-Texture*), and 4ST3 (Auditory-Visual Discrimination) were the five subtests that were most influenced by the study's items. In addition, 3ST1 (*Tonal Memory*), 3ST4 (*Instrument Recognition*), 4ST4 (*Chord Recognition*), and 4ST5 (*Cadence Recognition*) received a small or negative influence by the study's items. The 4ST5 (*Cadence Recognition*) is a unique subtest; for although 3 items (*students grade they started band, student's grades in PL and in IE*) positively influenced it, there were 11 other items that negative influenced ($r \leq -.25$) the student's outcome: age, number of years the students played their instrument, number of hours practiced per week, the

number of completed courses in PL, TH, KP, CO, IE, and GA, and the grades the student received in CO and GA.

Outliers were examined in evaluating the influence between the student's age, the number of classes in PLs, MH, and IE and student's MI. Scattergrams were developed for the study's four items and the GT test data (See Figure 1). Although there is a positive correlation between these four items and the student's outcome, there are many examples in each of the four categories where students scored low on the GT test, but placed higher in the respective category. Alternatively, some students received a high MI score but were relatively young and had taken few PL, MH, and IE classes.

Before the partial correlation was run, the Kaiser statistic was used to evaluate each item's "independence". The VC items were eliminated before the partial correlation statistic was used because there was not enough responses for these two items (number of classes and grades). The partial correlation statistic was used to evaluate the study's items with the GT outcome score (see Appendix G). Five of the six demographic areas influenced MI, but age had a negligible influence. When the number of class and grade items were examined, the number of PLs classes, and the student's grade in ET, MH, and IE had the largest influence on MI (1%, 2%, 2%, 3%, respectively).

Students are learning musical skills, but identifying the things that contribute to learning is elusive. Note that none of the other nine course areas in the grouping of number of classes completed by a student, and seven items in the grouping of student's grade have a moderate (≤1%) influence on MI. In addition, although the study's items collectively accounted for 23% of the things that influence MI, 77% of the activities that influence on MI are missing. Finally, note that not one item in the demographic area, in the number of classes completed by the student grouping, or the grouping of student's grade received a percentage of influence larger than 5%!

c. Content Analysis

The participants were asked to identify the course(s) that helped their musicianship the most and the least. The GT scores were converted to z-scores and

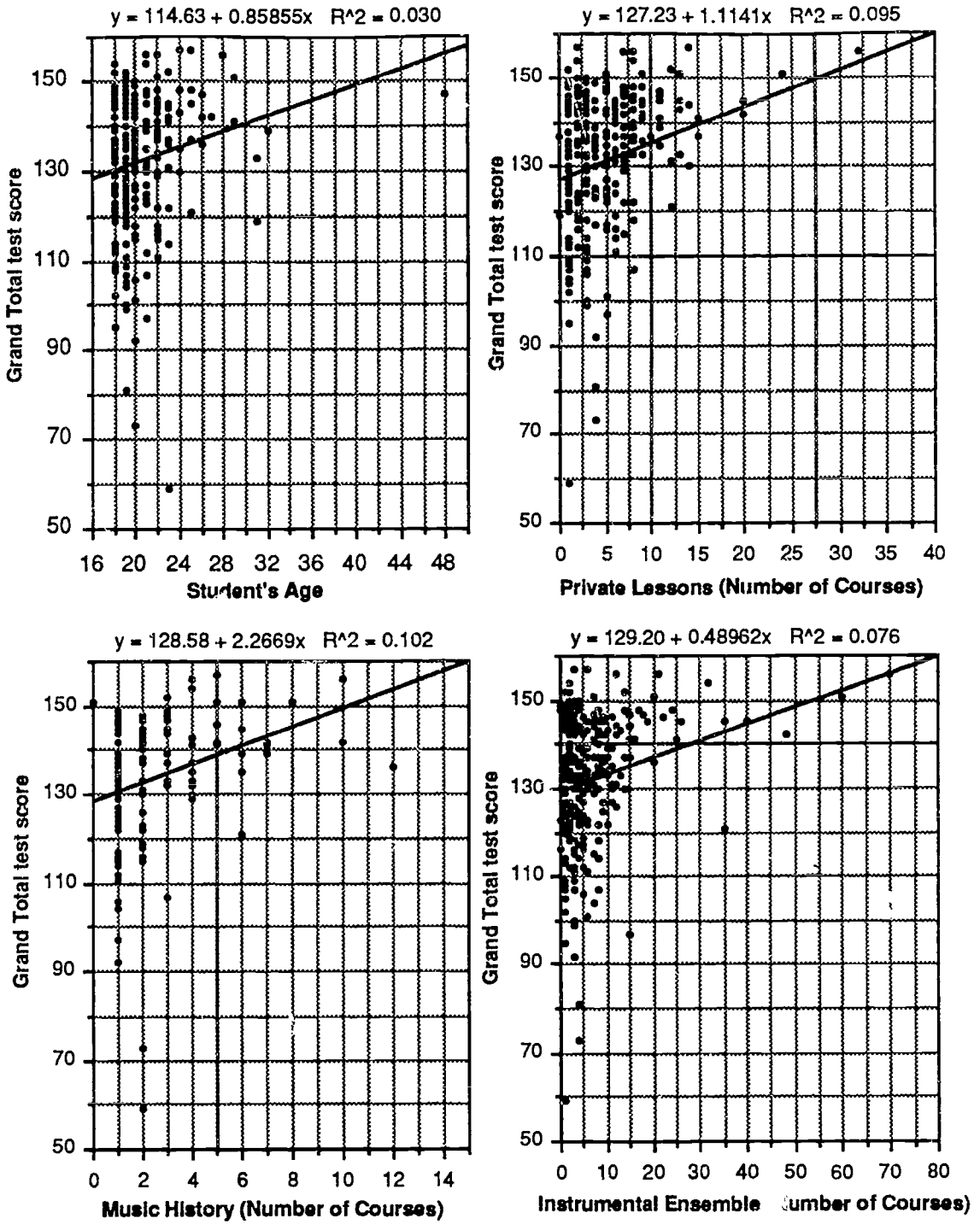


Figure 1. Scattergram analysis for the four items with the largest positive correlations between Grand Total outcome data and the study's items (see Appendix D, p XX).

the responses from the top 25 and bottom 25 MI students were examined.

The top MI students selected most of the same items that the bottom MI students chose. The PL course was identified the most (68%, 64%, respectively). The top MI students selected many of the same courses as the bottom MI students chose; they just identified them more often. Both identified IE (48%, 25%, respectively), TH (32%, 12%, respectively), CO (16%, 12%, respectively), and "ALL" (12%, 4%, respectively). In addition, the top MI students identified 45 courses and the bottom MI students identified 34-- one third fewer courses identified than the top MI students. Finally, ET, KP, ME, VC, and GA were identified either once or not at all by either group.

4. **What are the important course areas that influence student MI?**

Information concerning what course activities influence MI might be gathered from several sources, such as: (1) trend-lines (permutations) between freshman and graduate students, (2) mean scores for number of classes and grades for the 10 course activities for freshman and seniors, (3) factor analysis of the 10 activities (*selected by a panel of experts*) used in the ICS2, and (4) opinions of top and bottom MI students (see Table 2).

Permutation analysis for number of classes and grades were used (see Appendix E, p XX) to evaluate the trend lines between HIO and LOO students. The number of courses might reflect the student's priority of one class activity over another, while the student's grades in a course reflects the "need to know" or urgency of mastering an important course and while ignoring the content of a less important course. The trend line suggests that better music education students are different from weaker students. The trend line analysis for number of classes a student completed suggests that **PL, ET, TH, MH** and **IE** (item 1) (see Table 2) are linked to the student's MI. Student's grade analysis suggests that the **PL, ET, and TH,** course activities are positively related to MI, while **GA** is negatively linked to MI (item 2).

When the mean number of classes data were examined, HIO students have higher mean scores for **PL, TH, MH,** and **IE** (Item 3), and MHO students have higher mean scores for ET, KP, CO, and VC. The mean grade analysis illustrated that HIO students received higher grades for **PL, ET, TH, KP, IE,** and **GA** (Item 4), while the MHO students received high grades for MU and CO, and VC. The LOO student's mean

Table 2. Summary analysis of permutation, mean score, correlation, partial correlation, and z-score analysis for the 10 course areas.

	PL	ET	TH	KP	MH	CO	ME	VC	IE	GA
Questions #2 and #3 (Appendix D)										
1. Permutations-Number	X	X	X		X				X	
2. Permutations-Grades	X	X	X							O
3. Number Classes(HIO)	X	X			X				X	
4. Student Ave. Grade (HIO)	X	X	X	X					X	X
5. Low Mean - Number (LOO)	X	X	X		X	X	X		X	
6. Low Mean - Grade (LOO)					O					
7. ANOVA-Number				O			O	O		O
8. ANOVA-Grade				O				O	O	
Correlations/Partial Correlations (Appendix E & F)										
9. Correlation Analysis	X				X				X	
10. Partial Correlation Analysis	X	X		X		X				
Student's / Faculty (Appendix G)										
11. Grad. Students - High/Low	X	X		O	X	O	O	X	X	O
12. Faculty - High /Low	X	X	X		X		O			O
13. Grad.: Z-Score - Student	X	X							X	
14. Grad.: Z-Score - Faculty	X	X	X				O		X	O
Content Analysis										
15. Important activities	X		X			X			X	
Total	12	10	7	-1	5	2	-3	-1	8	-4

X = +1 = A positive influence
O = -1 = A negative /questionable influence

score were the smallest for PL, ET, TH, MH, CO, ME, and IE (Item 5). The MLO student received the largest mean score in the number of classes data analysis for ME, and the LOO students received the largest mean grade in MH (Item 6). The ANOVA analysis for the number of courses indicated no differences between the mean scores for KP, ME, VC, and GA (Item 7). The ANOVA analysis for grades indicated no differences in KP, VC, and IE (item 8).

Correlation analysis (see Appendix F) adds additional light to the issue of identifying specific courses that most influence MI. The items with the most influence on MI were the number of PL, MH, and IE classes (item 9). Using partial correlation analysis (see Appendix G), the number of private lesson (PL) classes was the single

item that positively influenced the students MI by more than one percent, while student's average grade in ET, KP, and CO slightly influenced the student's MI (Item 10). Note that although the PL activity is identified in both analyses, correlation analysis and partial correlation analysis identified different course activities.

The students rated the importance of each activity in developing musicianship. Additionally, the students rated how important each of the 10 activities was for the faculty (see Appendix H). Graduate students rated KB, CO, ME, and GA the least important in developing musicianship, and rated PL, ET, MH, VC, and IE the highest (item 11). When the graduate students rated the importance of these 10 course areas for the faculty, they rated PL, ET, TH, and IE the highest, and ME and GA the lowest (Item 12).

When z-scores were used to evaluate the graduate data (Q#4), PL, ET, and IE consistently received a positive +.5 z-score (Item 13). The graduate students indicated that PL, ET, TH, and IE activities were the most important ($\leq$ +.5 z-score) for the faculty, and ME and GA were the least important (Item 14).

The content analysis indicated that the top MI students consider the PL, IE, TH, and CO class activities the most important in developing MI, while the other course areas were rarely mentioned (Item 15).

Therefore, using a mixed-method summary analysis, private lessons, theory, eartraining, and instrumental ensemble courses were collectively identified as contributing the most to a student's musical independence, and music history and conducting had a moderate influence. Finally, the KP, ME, VC, and GA course activities were seen as having little or no positive relationship to the student's MI.

5. Does the music faculty communicate to its students (through lectures, class assignments, and conversations) the things that are the most important in developing MI?

The student's philosophy on how musicianship is developed (Q#4) was compared to the student's perception of the faculty's philosophy of music education (Q#5) (see Appendix G). Senior and graduate music students should be the top post-secondary instrumental musicians; they have been taught by the faculty for four or more years. Are there differences between the students' and faculties' musical

philosophies? Senior and graduate students' opinions on the importance of course areas in developing musicianship were compared to the senior and graduate students' perception of how the faculty rates each of the 10 course activities.

Mean scores, RKs, and z-scores were used to analyze the differences between the senior and graduate students for Question 4 (student's musicianship) and Question 5 (*faculty's priorities*). When the senior and graduate students rated the 10 activities for Questions 4 (students) and Question 5 (faculty), they rated the faculty slightly higher on all 10 activities--the one exception was for the graduate students for the GA course area. When the ranking was compared, there was no more than a one ranking difference. The two exceptions (a two ranking difference) occurred when seniors rated CO, and when graduate students rated KP. When the z-scores were compared, there were no more than one-half z-score difference between the senior and graduate students for Questions 4 and 5 (see Appendix I, Section A, p 40).

Next, the students' and faculties' differences were evaluated. The students thought that the faculty would rate the ten course activities slightly higher than the students. The GA activity was the one exception--the faculty rating was slightly lower than the students' rating. Although students place slightly less emphasis on each of the 10 activities than do the faculty, their ratings for each course activity are comparable.

VI. CONCLUSIONS

1. The MAT3 and MAT4 are Effective Musical Independence Tests

Colwell's MAT3 and MAT4 were designed to evaluate middle and high school students, not postsecondary students. However, many interesting observations and evaluations were made using these musical achievement tests on postsecondary instrumental students. This study evaluated differences between ensembles, grade levels (freshmen to graduate), and different levels of MI. In addition, this study identified postsecondary courses that promote the student's MI and other course activities that had very little influence on the student's MI (see Appendix E). These achievement tests were also used to study the impact that postsecondary courses and activities *collectively* have on MI (see Appendix G). Finally, these tests successfully

verified and confirmed that directors and faculty know, understand, and evaluate their students (student ensemble placement) on the important musical skills that are generally recognized by good musicians.

This study also noted several reasons why Colwell's tests might be inappropriate for postsecondary use. First, several subtests were not as successful (3ST1, 3ST4, and 4ST4) in differentiating good and weak students as were other subtests. Neither test *individually* portrayed as accurate a picture of student MI as both tests *collectively* (MAT3 and MAT4)(see Table 1). Second, the tests appear to be too easy for most postsecondary music education students (Appendix B).

In summary, Colwell's music achievement tests generally revealed many insights into how musicianship is developed by the typical postsecondary student. Historically, many musicians and music educators have argued that musicianship cannot be measured with conventional testing methods. Using these tests collectively, postsecondary student MI was successfully evaluated using auditory paper-and-pencil tests. Thus, Colwell's MAT3/MAT4 are effective MI tests for evaluating postsecondary students and programs.

2. Some Demographic Data Relate to Musical Independence

This study indicated that college GPA, age, and the number of hours practiced per week were *positively* linked to student musical independence, and hours studied per week was *negatively* linked to musical growth (the more students study academic courses, the less they practice/play their instrument). It is unclear how the grade in which the student starts band and the number of years the student has played their instrument influences musical growth.

There is a debate nationally between representatives of two music education philosophies. One group believes the instrumental band student should begin band in the late middle school grades (6th or 7th grade), while the other group supports students starting band in elementary school (4th and 5th). The latter educators would argue that to have bi-lingual students, start them in kindergarten or first grade; or to play violin, start the students when they are three years old (Mozart's training or Suzuki method). However, with the tight budgets in education, the first philosophy often

prevails. This study lends support to the position of starting in the later grades (see Appendix D).

Many factors affect when to start band or how many years the students have played their instrument. Some aspects of contemporary band programs are greatly influenced by sports bands (marching band for football and pep band for indoor sports). Typically, sports band music does not demand the musicianship or finesse required by significant concert repertoire. Sports band music is often homophonic rather than polyphonic and emphasizes loud dynamics (it must be heard over the cheering sports fans). Thus, musicianship and sports bands are often not congruent: one tends to emphasize quality and the other quantity. Many beginning band members are initially attracted to instrumental programs as a result of seeing and hearing sports bands rather than through exposure to symphonic concert bands. One recent study indicated that 84% of a high school student's performances are marching related (Bobbett, 1990b). Consequently, beginning band may not attract students who are mainly interested in developing musicianship.

Many school band programs are pressured by school administrators to perform at many school sports events while little or no attention is given to establishing a comprehensive instrumental music program with sound educational goals and objectives. Additionally, many band directors are content to pursue the less demanding "goals" of fun, entertainment, and participation. Many students are attracted to band because they will be exposed to and expected to perform "pop" music (fun and entertainment) (Bobbett, 1991a). It may therefore seem unfair to evaluate the MI of postsecondary instrumental students when their school training may have revolved around the demands of sports bands and entertainment, rather than the development of musicianship.

Excellence, hard work, discipline, and high levels of discrimination are not typical characteristics of today's public schools. Because instrumental students are not expected to obtain a high level of musical excellence, it seems obvious that the grade the students started band or the number of years the students have played their instrument are not major factors or indicators of student MI.

Would these two indicators have the same relationship to MI if band was

structured like a high school or college math curriculum? In math, the students have to master specific skills taught in Algebra I before they are eligible for Algebra II. Trigonometry and Calculus are taught after Algebra. Since there is a difference between one year of math and two years of math, instructors are accountable for teaching specific math skills at each level. If secondary instrumental music classes are to receive the academic credit deserved by all of the fine arts, they must be accountable to standards higher than that of playing pep tunes at the next sports event.

At the postsecondary level, are reasonable standards of competency in musical performance (major and minor scales, thirds, arpeggios, etudes, solo repertoire) set for each level of study? Do students with four years of postsecondary study measure up to these standards? Without accountability, there is no credibility!

3. Some Course Areas Relate to Musical Independence

The essential benchmark in music education should be musicianship. Educators cannot teach and inspire students to make great music if they have never made great music themselves. One cannot teach musicianship without first having musicianship. Thus, postsecondary instrumental curricula should emphasize how well the students play their instruments while restructuring or de-emphasizing other areas such as keyboard, conducting, general music education, music history, and voice. Presently, these course areas appear to be esoteric, academic exercises, having a small correlation with developing musicianship (see Table 2). If musical independence is the benchmark by which a course is selected or eliminated, then some courses, as presently taught, should either be de-emphasized or restructured.

The music student needs to practice and perform music individually and with other musicians. When students learn a musical skill exclusively from textbooks, they often miss the subtleties and idiosyncrasies of music. Subtle discrimination skills are learned only through the student's collective musical experiences. Simply, book knowledge divorced from practical experience has limited value. The music student needs to practice and perform the music either individually or with other musicians. The question then arises as to how meaningful college academic music courses are in developing musical independence.

Below is a discussion of some problems often encountered in postsecondary music education. *None of these examples reference any music instructor at the three institutions used in this study.*

Private lessons and instrumental ensembles are two of the most important classes in the music education curriculum (see Table 2); both require the students to play instruments. They are two of the primary music activities in learning musicianship. First, students must learn how to play their instruments competently by taking private lessons and performing solos. Second, they need to learn the "finer points" of music by playing in an ensemble. Musical knowledge, listening, technique, tone, phrasing, and articulation (scales, etudes, solos, etc) are taught by the private teacher, while other skills such as intonation, blending, sonority are learned through ensemble playing. These skills must be mastered the "old-fashioned way"--hard work (many hours per week practicing and playing in ensembles) plus the right environment (competent instructors).

The private teacher is the backbone of a good music education department. An ensemble conductor cannot remediate what has been neglected and never taught by the student's private teacher. How should a college instrumental instructor be evaluated who performs some of the most demanding pieces in the literature, but whose students cannot transfer to other institutions because they are too weak on their instrument? How does it reflect on a private teacher when the college conductor has to hire many professional instrumentalists to assist during the ensemble's rehearsals and performances because the teacher's students cannot adequately perform the music? Excellent instrumental private teachers have many excellent students! Also, as in all areas of life, politics unfortunately come into play to the detriment of the student and the institution. What does it say about a private teacher when he/she places his/her students in the ensemble's top section (1clarinet, 1st trumpet, etc.) and places other students, many far superior to the teacher's students, in the bottom section in the ensemble? Should weak instrumentalists be sheltered and excellent instrumentalists be penalized? Chair placement based on seniority or politics makes a fool of the institution, the other instrumentalists, and the private teacher. A music educator who promotes seniority needs to be asked: should weak instrumentalists represent the

music education profession? Musicianship is more than politics and seniority. Students should not have to be wary of spurious teachers.

Instrumental Ensemble class reinforces individual instrumental performing skills, while providing an opportunity to play with other instrumentalists and to experience and understand a large variety of musical sonorities. Ensemble classes are rated by students and faculty as the most important courses in the music education curriculum for developing musicianship (Appendix H). The students learn to apply many of the skills taught by the private teacher such as scales, thirds, chord progressions, phrasing, intonation, and rhythmic patterns. Solo performance (with a piano), quartets, and large ensembles such as band and orchestra are all valuable in developing musicianship. Post-secondary institutions should require music students to spend more time per week in the ensemble activity.

Theory and eartraining are also essential courses in developing musicianship (see Table 2). The students learn many music fundamentals in these courses. As a doctor needs to learn anatomy, or a mathematician needs to master calculus, a musician needs to master the fundamentals of music. Graduate students and faculty members recognize the importance of these courses in developing musicianship (Appendix H), but this relationship has not been clearly understood by many underclassmen. If these fundamentals are important, why are they only moderately linked to many of the MAT3/MAT4 subtests (Appendix F)? Are these courses being taught as academic exercises where the students and faculty rarely relate these musical skills taught in theory or eartraining to the actual production of music? Often students are required to write a chord progression (theory) or identify a particular music form, but they never understand the important linkage between these skills and the actual production of music. Students should be expected to actually perform their theory assignments on their instruments, and to identify musical forms by actively listening to different musical examples (listening is a higher-level skill than knowledge). The authors suggest that theory and eartraining courses would have a larger impact on developing musicianship (see MI Hierarchy, Figure 2).

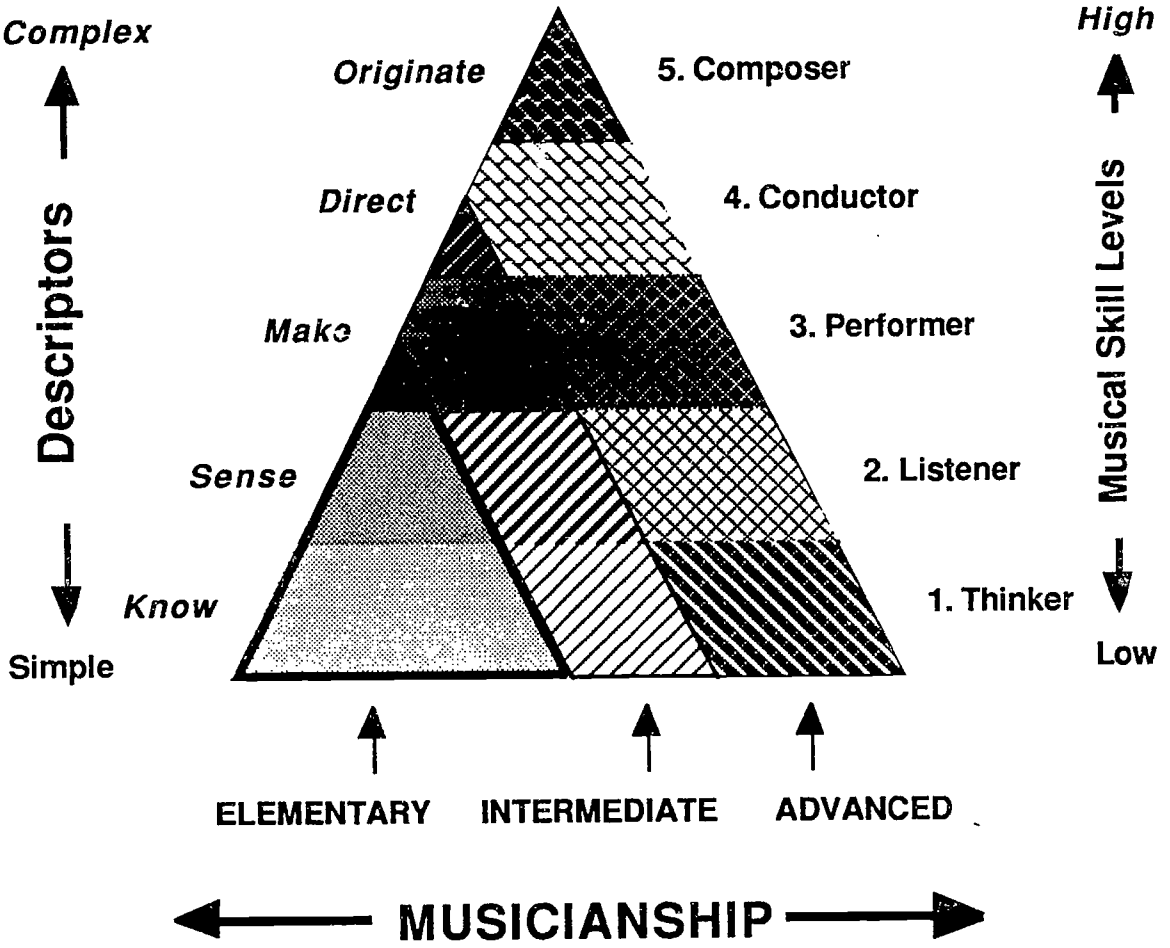
Conducting is a unique course in the music education curriculum. It is a higher-level musical skill that should be taught after the students master their instrument (see

Figure 2). The conducting course teaches the student to supervise other musicians, discriminate between good and bad musicianship, and shape and structure the musical performance. Sometimes conducting is taught by having the students wave their hands to the meter of the pre-recorded music or by instructing the student to mimic a "professional" conductor viewed on video tape. While these teaching techniques may have nominal value, looking like a conductor and conducting are quite different; one is a puppet and the other one creates and shapes music. In these negative examples, the student is never allowed to shape a phrase, balance the 1st, 2nd, and 3rd clarinets, identify and resolve intonation problems, or correct rhythmic, articulation, or dynamic problems. How much faith would you have in a conductor who rehearsed a piece of music for months, but never realized--until the last ten minutes of the dress rehearsal--that the trumpets were playing the wrong transposition ("B-flat" instead of "C trumpet")?

The only way musicians can identify musical problems is to have first learned and experienced musicianship by actually playing their instruments (*private lessons*) and performing with other musicians (*instrumental ensemble*). Since conducting is a higher level musical skill, other skills such as knowing musical facts, listening and identifying different musical sounds, and performing the music (Bobbett, 1989-*Hierarchy above*) need to be learned first. Many music education programs place conducting as just another required course in the undergraduate curriculum (*after two years of theory*). Should music education students, regardless of their musical skills, be allowed to pay the tuition and register for "Conducting 301"?

Music History class is another postsecondary course that needs to be re-evaluated and restructured. Typically, music history professors might open Grout's A History of Western Music and start assigning the chapter on ancient music and finish with the chapter on twentieth century music. Identifying when Beethoven was born, or "dropping the needle" and then requiring the student to identify the composer and movement might be a typical method of teaching music history, but it does not help develop musicianship. Alternatively, if the students had to perform the music reflective of both musical period and composer, they would know, through personal experience, the differences between Baroque, Classical, Romantic, and Serial music *(a posteriori analysis: many of the top MI students had trouble discriminating Handel's and*

Figure 2 Hierarchy of Musical Independence (MI), Bobbett, 1989)



Schoenberg's music [4ST1]).

Many general music education classes should be restructured. Graduate students and faculty members rate general music education classes among those least important in developing musicianship (Appendix H). Non-music, education classes should also be re-examined. State mandated education classes, often taught by college professors with little or no recent secondary class-room teaching experience, have severely cut into the time that instrumental music students can spend learning to be come better musicians.

Today, music students complete a state prescribed curriculum, graduate with acceptable GPA's and become certified by the state to teach. They may easily look good on paper, but be poor musicians and poor music educations. In some instances it is apparently more desirable to look like an educator than to actually be one.

The authors know of a state-certified band director who never took the first music education course because he received a performance degree from a music conservatory. After taking over a band of 13 students, four years later he had more students in all-state band than any high school band in the state's history. This band director never took the first woodwind, brass, or method classes, but knew music. When he didn't know the fingerings, embouchure, or other idiosyncrasies of the other band instruments, he read a band method book, or sought information from other competent instrumentalists. Today, we have music graduates who know all the current musical gimmicks, use all the catchy buzz-words, and generally look and sound like trained music educators, but are they good music educators? As one famous TV commercial stated: "Charlie, we are not interested in tuna with good taste, but tuna that tastes good!"

Should music administration be solely a leadership activity, or is musicianship a prerequisite for music administration? Should music administrators know, understand, and promote the musical fundamentals as part of the postsecondary curriculum? Leading by example is a proven method of guiding the music education department. In order to have credibility with students, faculty, and the community at large, a music administrator should be an outstanding performer and musician. Hypothetically, if a music administrator's "claim to fame" was playing a tin-whistle, accordion, and

electronic harp with the college band (meeting the faculty performance requirements), but never performed a single legitimate piece of music for his/her peers, should they represent the music education profession as a music administrator? Would others trust their judgement in leading the music education department into the 21st century, selecting competent faculty members, and making sound curricula decisions? Music administrators should do more than manage the affairs of the music department; they need to promote musical excellence.

4. Music educators should not stereotype students

If one or two negative or positive characteristics are known about a student (e.g., student's grade, time practiced per week, grade level, college major, etc.), it is easy to make stereotypical conclusions. Below are just a few of many myths that are often generalized in music education:

Myth #1 **Students grade level reflects their musical skills.** Three of the most MI students were freshmen, and the two worst MI students were juniors (see Appendix C).

Myth #2 **The most MI instrumentalists play in the top ensemble.** Approximately 50 percent of the most MI students performed in the 2nd or 3rd instumental ensemble (see Appendix C).

Myth #3 **Music majors are more MI than non-music majors.** Sixteen percent of the top 25 MI students were non-music majors (see Appendix C).

Myth #4 **The more years a student plays an instrument, the more MI the student becomes.** Twenty percent of the most MI students have played less than 8 years, and 28% of the worst MI students have played 11 years or more (see Appendix C).

Myth #5 **The more students practices their instrument, the more MI they become.** Thirty six percent of the most MI students practice less than seven hours per week, and 20% of the least MI students practice more than 12 hours per week. Perhaps, what the student practices affects MI more than how much the student practices.

Myth #6 **Student grades are a good indicator of the level of MI.** Generally, the top MI students have higher GPAs than the lower MI students, but 20% of the top MI students have GPAs lower than 3.25 (two have GPA's lower than 3.1), and 20% of the worst students have GPAs higher than 3.5.

Myth #7 **The more postsecondary music education courses taken, the more MI the student becomes.** Private lessons, instrumental ensemble, and

music history are linked to the student's MI, but eartraining, theory, keyboard/piano, conducting, general music education, and general academic course work are not (Appendix F).

Myth #8 **A music program at one good university is generally the same as one at another good university.** Sixty four percent of the top students are from one university and 36% attend the other two universities.

Myth #9 **All music education courses promote musicianship.** Generally, private lessons, theory, eartraining, and instrumental ensemble are strongly linked to musicianship, but conducting, music education classes, voice/choir, music history, and general academic have little positive impact on the the student's MI (Table 2).

VII. A CAVEAT

Music is a blue-collar job, but unfortunately, academia has tried to elevate it to the status of a white-collar position. Extensive course work, at both the undergraduate and graduate level, does not guarantee musical excellence. Mastering one's instrument is a good first step in developing musicianship, while performing as a solcist or in an ensemble is a second good step. Finally, the students need to understand and hear what has been performed, for these musical skills are directly linked to the mastery of music fundamentals.

It 24% of the things that influence MI are identified (demographic indicators, number of courses, student grades), where is the missing 76%? Students are learning musical skills, but how and where are they learning these skills? As a suggestion, is it the *quality* instead of *quantity* of time spent practicing, guidance from their peers, informal faculty instruction, design weakness of the instrument that is used to measure MI outcomes (*MAT3 and MAT4 are to easy for postsecondary use*), or a flaw in the structure/design of the ICS2? Simply, would you make a bet in Las Vegas when you know 24% of an issue, but do not know the remaining (missing) 76%?

In our present educational environment, educators are always interested in short-cuts. Music educators are often exposed to new methods of mastering musicianship. Publishers constantly update, revise, and promote new method books that make teaching band or an instrument easier. Today, instead of learning conducting by

conducting a good, live ensemble, the students conduct the pre-recorded record, or instead of mastering eartraining by listening to the sounds, chords, or chord progressions played on a piano or other "real instruments", the student listens to computer-generated sound. How valuable are these shortcuts?

VIII REFERENCES

Bobbett, G. C. Identifying music achievement for students participating in outstanding instrumental programs (Doctoral dissertation, University of Tennessee-Knoxville, 1987).

Bobbett, G. C. Postsecondary programs' musical independence and related academic/musical experiences. Paper presented at the annual meeting of the Mid-South Educational Research Association, Little Rock, AK, November, 1989 (ERIC Document Reproduction Service No. ED 313 449).

Bobbett, G. C. Evaluating students musical growth: freshman to graduate level, Tennessee Education, 1990, 19, 17-24.

Bobbett, G. C. A profile of rural Appalachian band directors and their band programs. Paper presented at the annual meeting of the Mid-South Educational Research Association, New Orleans, LA, 1990. (ERIC Document Reproduction Service No. ED 329 394).

Bobbett, G. C., & Bobbett, N. C. Musical independence and contributing academic/musical experiences for students in good rural appalachian schools, Paper presented at the annual meeting of the Mid-South Educational Research Association, Lexington, KY, 1991. (ERIC Document Reproduction Service No. SO 022 275).

Bobbett, G. C., & Dorothy, Wayne F. Postsecondary student's musical independence and related high school/college experiences. Paper presented at the annual meeting of the National Band Association (NBA), Chicago, 1991. (ERIC Document Reproduction Service No. EC 300 312).

Bobbett, G. C., French, R. L., & Achilles, C.M. What policymakers can learn from school report cards: analysis of tennessee's report cards on schools, Paper presented at the annual meeting of the Mid-South Educational Research Association, San Francisco, CA , April,1992 (ERIC Document Reproduction Service No. TM 018 929).

Colwell, Richard. Musical Achievement Test 3 and 4, Interpretive Manual. City: Follett Education Corporation, 1970.

Minium, Edward W. (1970). Statistical Reasoning in Psychology and Education. New York: John Wiley & Son, 1970.

Scagnoli, Joseph R., Bobbett, G. C., & Dorothy, Wayne F. Band accountability and assessment, National Band Association Journal, 1992, 32, 63-64.

Authors Notes

The authors would like to thank Dr. James Croft, Director of Bands at Florida State University, Dr. Joseph Scagnoli, Director of Bands at Ball State University, and Dr. Victor Markovich, Director of Bands at Wichita State University, and their instrumental students for participating in this research project. In addition, the authors would like to make a special thanks to Dr. Richard Colwell for developing these music achievement tests plus his enthusiastic sponsorship and encouragement of this project.

Additional research papers will be forthcoming from this study examining other post-secondary issues such as: (a) High school music activities (How important is All-state Band, Concert Festival, private lessons, etc.?), (b) College music activities (How important during practice/private lessons are activities such as scales, etudes, thirds/arpeggios, band music, sight-reading, etc.?), and (c) Musicianship (What do good musicians emphasize--tone, intonation, phrasing, technique, dynamics, rhythm, form, etc--to develop musicianship during practicing, band rehearsals, and private lessons?).

INSTRUMENTAL COLLEGE SURVEY-2

A. General

Social Security Number_____ **Instrument** _____

1. Instrumental Organization _____
2. College rank: (Fr) (So) (Jr) (Sr) (Masters) (Doctoral)
3. College major: Music ( ), Non-music ( )
4. Total years you have played your band instrument (*grade school to present*): _____
5. What grade did you start band?_____

- Gender (M) (F)
- College GPA _____
- Age _____

B. College Course Work

1. How many hours a week do you:
   a. Practice Instrument _____
   b. Study non-music course work _____
2. Number of semester (quarter) classes you have completed in each area
3. Your average grade in each area (*A-B-C-D-F*)

	Private (Inst.) Lessons	Ear training	Theory	Keyboard/Piano	Music History	Conducting	Music Education	Voice/Choir	Inst. Ensemble	General Academic

5 = VERY important, 4=Important, 3=Somewhat Important, 2=Little Importance, 1=NOT important

Using the following scale for Questions 4-5, ***RATE*** *each activity as to its importance in:*

4. Developing musicianship
5. In your opinion, how would the music faculty **RATE** each area's importance?
6. The music course(s) that helped your musicianship the **most**? _____ **Least**? _____

C. High School Music Activities

1. High school GPA _____
2. ACT score _____ SAT score _____
3. Excellent high school musicians emphasize _____
4. How many **YEARS** did you participate in each of these high school activities?

	All-State Band	All-State Orchestra	All-State Jazz Band	All-State Choir	Concert Festival	Solo-Ensemble	Marching Contests	Private Lessons	Church/Community Choir	High School Jazz Band	Community Band

5 = Very important, 4 =Important, 3 =Somewhat Important, 2 =Little Importance, 1 = Not important

Using the following scale for Questions 5-6, ***RATE*** *each activity as to its importance in developing* ***MUSICIANSHIP****:*

5. Your **Musical Development**
6. In your opinion, how would your high school **Band Director** rate each area's importance?

D. College Music Activities

1. The percentage (%) of time you use a metronome during practicing?_____

Make sure Questions 2 and 3 each add up to 100%

What percentage (%) of time do you spend on the following activities during:

2. **Individual Practicing**

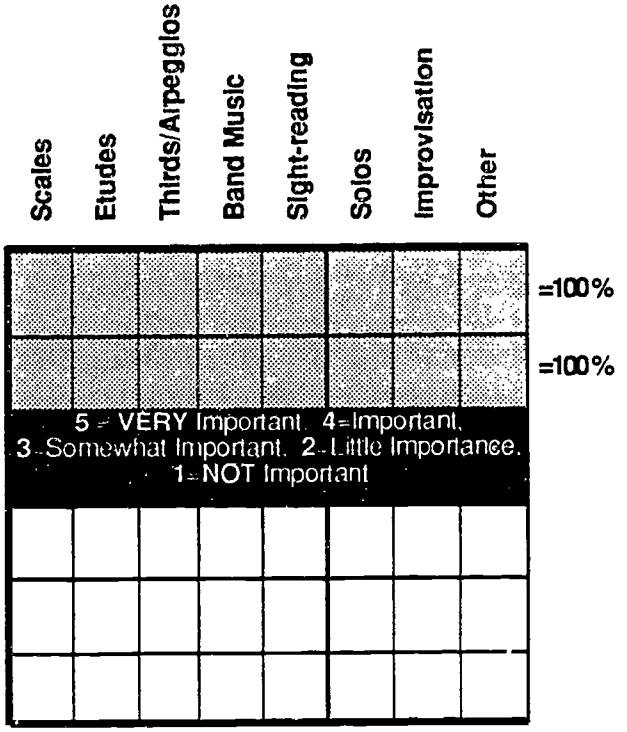
3. **Private Lessons** (*Major Inst.*)

Using the following scale for Questions 4-6, give YOUR PERCEPTION of how the following individuals would **RATE** each activity's importance in developing **MUSICIANSHIP**:

4. **Yourself**

5. Your private instrumental **Teacher**

6. Your college **Band Director**



7. Number of minutes per month you make a audio/video recording of your playing _____
8. Number of minutes per week you ask a **classmate/friend/faculty member** (*exclude private instrument teacher*) to listen/critique your instrument playing _____

E. Musicianship

Make sure Questions 1, 2, and 3 each add up to 100%

What percentage (%) of time is spent practicing / thinking about these music items during:

1. **Individual Practicing?**

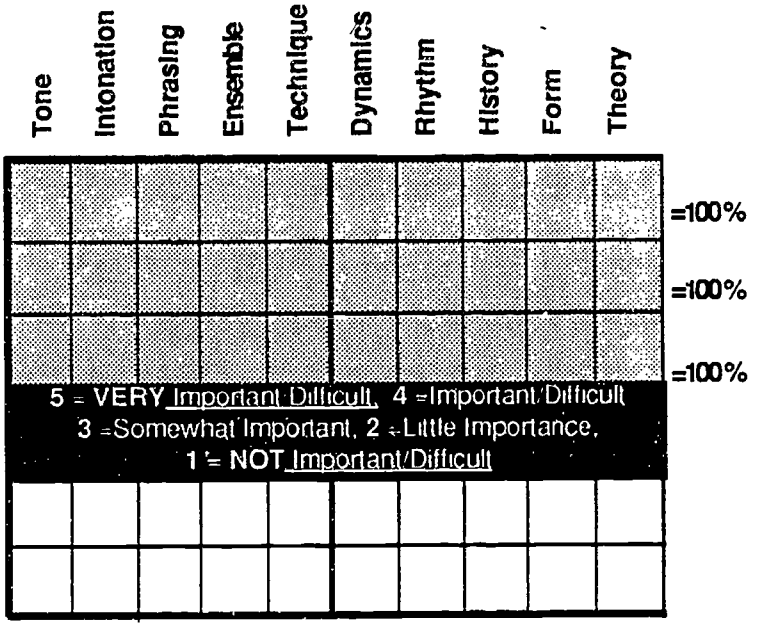
2. **Band Rehearsal?**

3. **Private Lessons ?**

*Using the following scale for Questions 4-5, **RATE** each activity in developing musicianship from the following perspectives:*

4. Its **Importance**

5. How **Difficult** is it to learn/master

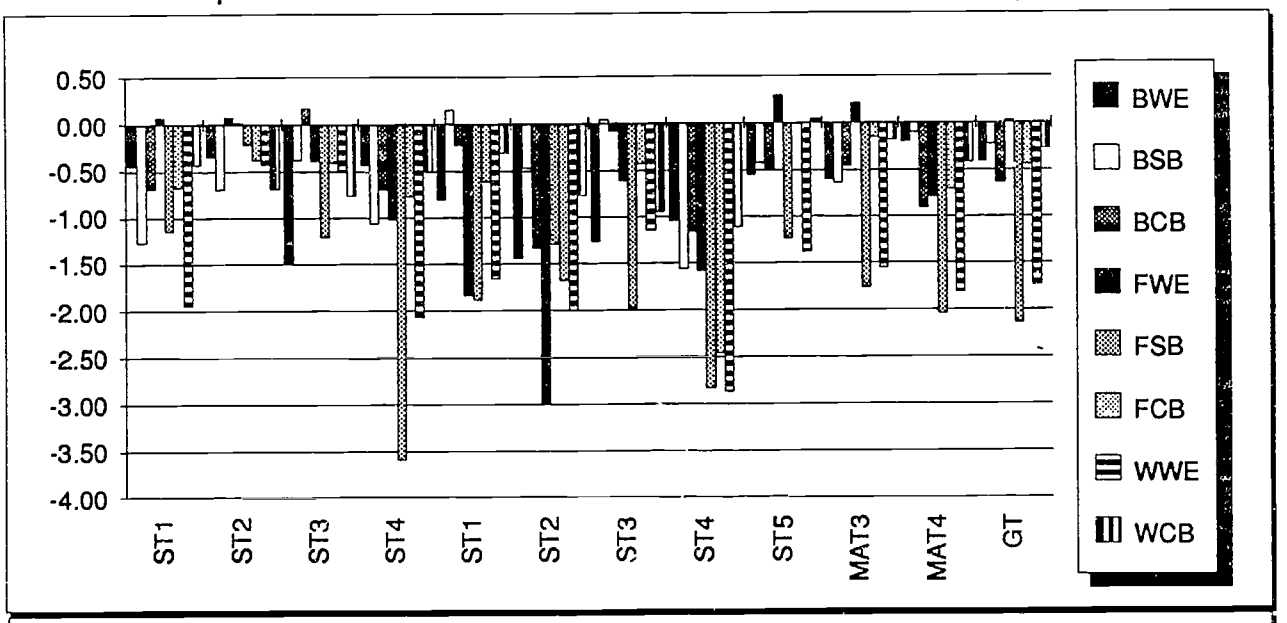


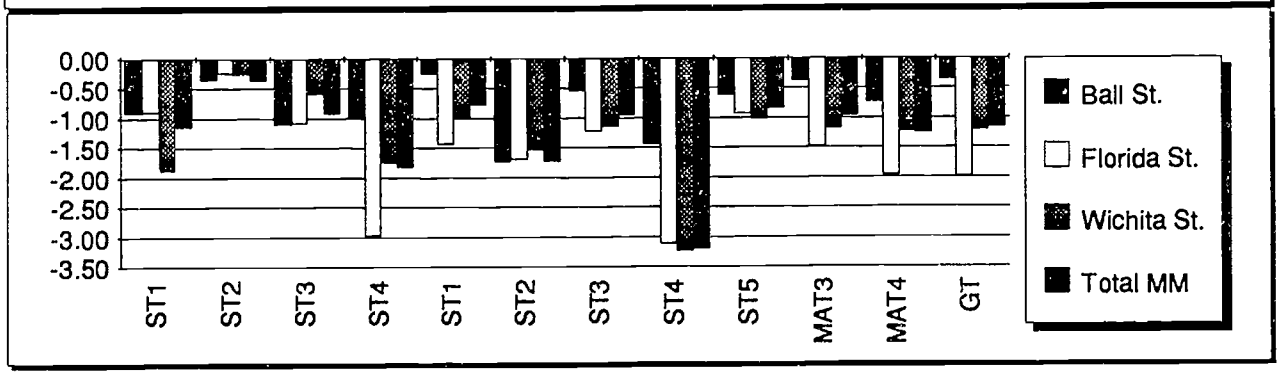
6. When Performing, **excellent** instrumental musicians listen to/emphasize_____
while **poor** instrumental musicians listen to/emphasize _____

Skewness

Music Majors

SCHOOL		MAT3				MAT4					Tests		
Ball St.	*n*	**ST1**	**ST2**	**ST3**	**ST4**	**ST1**	**ST2**	**ST3**	**ST4**	**ST5**	**MAT3**	**MAT4**	**GT**
Ball WE	*41*	-0.45	-0.35	**-1.50**	-0.43	-0.81	**-1.44**	**-1.26**	**-1.05**	-0.55	-0.61	-0.21	-0.41
Ball SB	*42*	**-1.28**	-0.70	-0.38	**-1.07**	0.15	-0.48	0.04	**-1.56**	-0.43	-0.64	-0.10	-0.23
Ball CB	*15*	-0.69	0.08	0.17	-0.70	-0.23	**-1.34**	-0.08	**-1.16**	-0.50	-0.46	-0.91	-0.64
Florida St.													
Florida WE	*32*	0.07	0.02	-0.39	**-1.02**	**-1.84**	**-2.99**	-0.61	**-1.58**	0.29	0.22	-0.80	0.03
Florida SB	*45*	**-1.15**	-0.22	**-1.22**	**-3.59**	**-1.89**	**-1.29**	**-1.99**	**-2.83**	**-1.24**	**-1.77**	**-2.05**	**-2.15**
Florida CB	*34*	-0.67	-0.38	-0.41	-0.78	-0.62	**-1.68**	-0.44	**-2.46**	-0.01	-0.15	-0.72	-0.45
Wichita St.													
Wichita WE	*47*	**-1.95**	-0.42	-0.51	**-2.07**	**-1.66**	**-2.00**	**-1.15**	**-2.87**	**-1.38**	**-1.56**	**-1.81**	**-1.74**
Wichita CB	*20*	-0.43	-0.69	-0.77	-0.51	-0.31	-0.77	**-0.96**	**-1.12**	0.05	-0.18	-0.42	-0.28
PROGRAMS													
Ball St.	98	-0.90	-0.35	**-1.10**	**-1.00**	-0.25	**-1.74**	-0.54	**-1.44**	-0.61	-0.39	-0.74	-0.36
Florida St.	111	-0.89	-0.24	**-1.08**	**-2.97**	**-1.43**	**-1.69**	**-1.23**	**-3.11**	-0.93	**-1.48**	**-1.96**	**-2.00**
Wichita St.	67	**-1.87**	-0.26	-0.58	**-1.74**	**-0.99**	**-1.53**	**-1.15**	**-3.23**	**-1.02**	**-1.18**	**-1.23**	**-1.21**
Total MM	276	**-1.14**	-0.36	-0.91	**-1.83**	-0.78	**-1.72**	**-0.96**	**-3.20**	-0.84	**-0.96**	**-1.25**	**-1.16**





Top & Bottom 25 MI Students

Total Study's Sample (n=376)

Top

	School	Instrument	Organization	Year	Major	# Yrs/Inst.	Grade. St. Band	Gender	College GPA	Age	Hrs. Pract. /Wk	Hrs Studied /Wk	GT test score	Z-Score
1 T	Ball St. U.	Brass	First	Graduate	Music	16	5	Male	3.89	•	5	4	163	2.05
2 T	Florida St. U.	Brass	Second	Fresh.	Non-music	7	6	Female	3.98	18	10	•	157	1.69
3 T	Wichita St. U.	Percussion	First	Graduate	Music	•	6	Male	3.70	25	20	5	157	1.69
4 T	Wichita St. U.	Brass	First	Senior	Music	12	6	Male	3.20	24	2	0	157	1.69
5 T	Florida St. U.	Woodwind	First	Senior	Music	12	5	Female	3.96	22	9	5	156	1.62
6 T	Florida St. U.	Woodwind	First	Graduate	Music	17	9	Female	3.90	28	21	0	156	1.62
7 T	Wichita St. U.	Brass	First	Senior	Music	10	6	Male	3.60	21	28	0	156	1.62
8 T	Florida St. U.	Brass	Third	Senior	Music	10	7	Male	2.46	21	1	0	154	1.50
9 T	Florida St. U.	Brass	Second	Fresh.	Music	9	5	Male	3.85	18	10	8	154	1.50
10 T	Florida St. U.	Brass	Third	Fresh.	Non-music	10	9	Male	3.20	19	10	4	152	1.38
11 T	Wichita St. U.	Brass	First	Senior	Music	10	6	Female	3.50	23	13	2	152	1.38
12 T	Florida St. U.	Brass	Second	Soph.	Music	9	6	Female	3.26	18	7	7	152	1.38
13 T	Florida St. U.	Brass	Second	Fresh.	Music	8	6	Female	3.83	19	7	5	152	1.38
14 T	Florida St. U.	Brass	First	Graduate	Music	13	8	Male	3.50	22	23	0	151	1.32
15 T	Florida St. U.	Woodwind	Second	Fresh.	Non-music	6	7	Male	3.70	17	4	20	151	1.32
16 T	Florida St. U.	Brass	First	Graduate	Music	18	8	Male	3.90	29	20	0	151	1.32
17 T	Florida St. U.	Woodwind	First	Soph.	Music	6	9	Male	3.40	19	12	3	151	1.32
18 T	Wichita St. U.	Brass	First	Senior	Music	14	6	Male	3.80	•	10	0	151	1.32
19 T	Florida St. U.	Woodwind	Third	Soph.	Music	8	7	Male	3.40	19	14	5	150	1.26
20 T	Florida St. U.	Brass	Second	Fresh.	Music	7	6	Female	3.40	19	12	•	150	1.26
21 T	Ball St. U.	Brass	First	Soph.	Music	7	6	Male	3.64	20	5	7	150	1.26
22 T	Wichita St. U.	Woodwind	Second	Soph.	Non-music	13	4	Female	4.00	19	5	10	150	1.26
23 T	Florida St. U.	Woodwind	Second	Soph.	Music	5	9	Male	3.50	19	12	4	149	1.20
24 T	Ball St. U.	Brass	First	Soph.	Music	9	5	Female	3.03	19	7	5	149	1.20
25 T	Florida St. U.	Woodwind	Second	Soph.	Music	10	7	Female	3.00	19	10	10	149	1.20
	Mean					10.4	6.1		3.6	21.2	11.9	3.8	153.7	1.5

Bottom

1 B	Florida St. U.	Brass	Second	Junior	Music	10	7	Male	1.80	23	14	0	59	-4.32
2 B	Wichita St. U.	Brass	First	Junior	Music	11	5	Male	2.13	20	14	10	73	-3.46
3 B	Ball St. U.	Woodwind	Third	Fresh.	Non-music	9	4	Female	3.60	19	2	15	78	-3.15
4 B	Florida St. U.	Woodwind	Second	Soph.	Music	12	6	Female	3.10	19	15	0	81	-2.97
5 B	Ball St. U.	Brass	Third	Soph.	Non-music	11	4	Male	1.60	20	1	25	82	-2.91
6 B	Wichita St. U.	Woodwind	Second	Fresh.	Non-music	3	•	Female	•	18	10	13	82	-2.91
7 B	Ball St. U.	Woodwind	Second	Fresh.	Non-music	9	5	Female	2.07	18	2	14	87	-2.60
8 B	Florida S U.	Brass	Third	Fresh.	Non-music	9	5	Male	2.96	18	8	8	89	-2.48
9 B	Wichita St. U.	Woodwind	First	Fresh.	Non-music	10	4	Female	2.50	18	3	4	92	-2.30
10 B	Ball St. U.	Woodwind	Third	Soph.	Music	10	5	Female	2.00	20	5	8	92	-2.30
11 B	Wichita St. U.	•	Second	Senior	Non-music	•	7	•	2.30	•	4	9	93	-2.24
12 B	Ball St. U.	Brass	Third	Soph.	Non-music	6	7	Male	3.50	19	1	9	94	-2.17
13 B	Ball St. U.	Percussion	Third	Fresh.	Music	8	6	Female	2.57	18	7	5	95	-2.11
14 B	Ball St. U.	Brass	Third	Fresh.	•	7	6	Male	•	•	2	5	95	-2.11
15 B	Wichita St. U.	Brass	First	Junior	Music	11	7	Male	3.90	21	10	0	97	-1.99
16 B	Ball St. U.	Woodwind	Third	Fresh.	Non-music	8	6	Female	2.80	19	2	16	97	-1.99
17 B	Ball St. U.	Brass	Second	Fresh.	Music	8	6	Male	2.10	19	12	8	99	-1.87
18 B	Wichita St. U.	Brass	Second	Fresh.	Non-music	7	5	Male	•	19	5	•	99	-1.87
19 B	Ball St. U.	Woodwind	Third	Fresh.	Non-music	4	7	Female	2.30	19	2	•	100	-1.81
20 B	Ball St. U.	Woodwind	First	Soph.	Music	9	5	Female	3.75	19	6	6	100	-1.81
21 B	Wichita St. U.	Brass	Third	Junior	Music	11	5	Male	2.60	20	14	5	101	-1.75
22 B	Ball St. U.	Percussion	Third	Fresh.	Music	9	6	Male	1.75	18	5	•	102	-1.68
23 B	Ball St. U.	Woodwind	Third	Junior	Non-music	10	5	Female	2.80	20	3	20	103	-1.62
24 B	Ball St. U.	Woodwind	Second	Fresh.	Non-music	7	6	Female	3.20	18	10	30	103	-1.62
25 B	Wichita St. U.	Woodwind	Second	Junior	Non-music	13	4	Female	2.50	21	4 •		104	-1.56
	Mean					8.5	5.6		2.93	19.2	6 3	8.6	89.2	-2.5

Box=Anomaly ???

7 Demographic Indicators of Music Independence

Demographic Indicators	5 Outcome Categories HIO M	MHO M	AVO M	MLO M	LOO M	ANOVA F-Score	p	Scheffe	Permutation
1 Grade Started Band	**6.06**	6.00	*5.57*	5.71	*5.57*	2.20	0.0682		
2 College GPA	**3.56**	3.34	3.24	3.07	*2.82*	17.49	0.0001	2,3,4,6,7,9	≤.01
3 Age	**21.14**	20.59	19.73	19.66	*19.34*	4.63	0.0012	4	≤.01
4 Years Played Instrument	**9.96**	9.49	8.94	9.26	*8.71*	1.69	0.1513		
5 Hours/WK Practicing	**11.67**	11.52	9.84	8.56	*7.89*	5.48	0.0003	4,6,7	≤.01
6 Hours/WK Studying	*5.77*	6.49	6.63	9.52	**10.63**	6.24	0.0001	3,4,7,9	≤.01
7 *Work (items 5+6)*	17.47	18.07	*16.69*	18.04	**18.85**	0.556	0.6947		

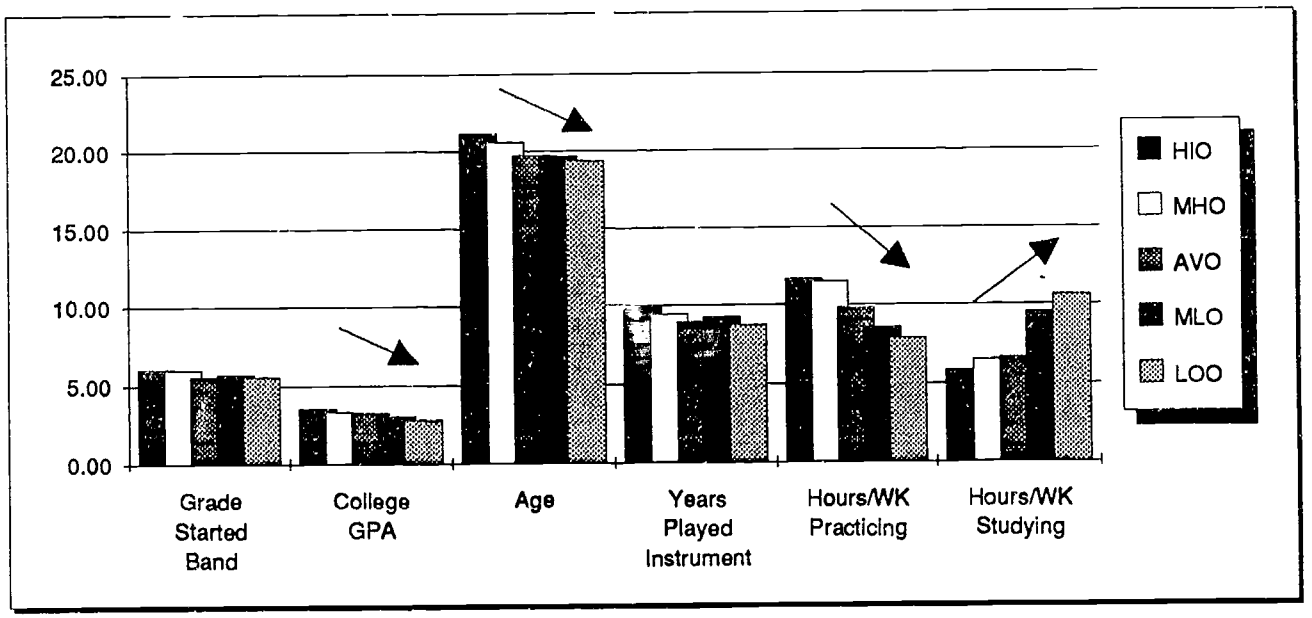
Musical Outcomes

HIO = High Outcome
MHO = Medium High Outcome
AVO = Average Outcome
MLO = Medium Low Outcome
LOO = Low Outcome

Scheffe

1. HIO vs. MHO	6. MHO vs. MLO
2. HIO vs. AVO	7. MHO vs. LOO
3. HIO vs. MLO	8. AVO vs. MLO
4. HIO vs. LOO	9. AVO vs. LOO
5. MHO vs. AVO	10. MLO vs. LOO

Bold = Largest Mean Score
Underline/Italics = Smallest Mean Score
Arrow = Permutation Analysis/trend-lines



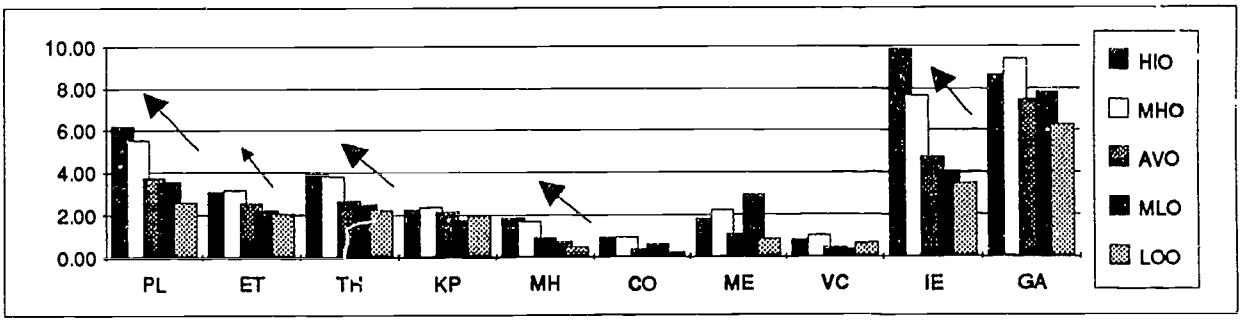
Question #2

Mean number of Semister Courses Completed

Music Majors

n=

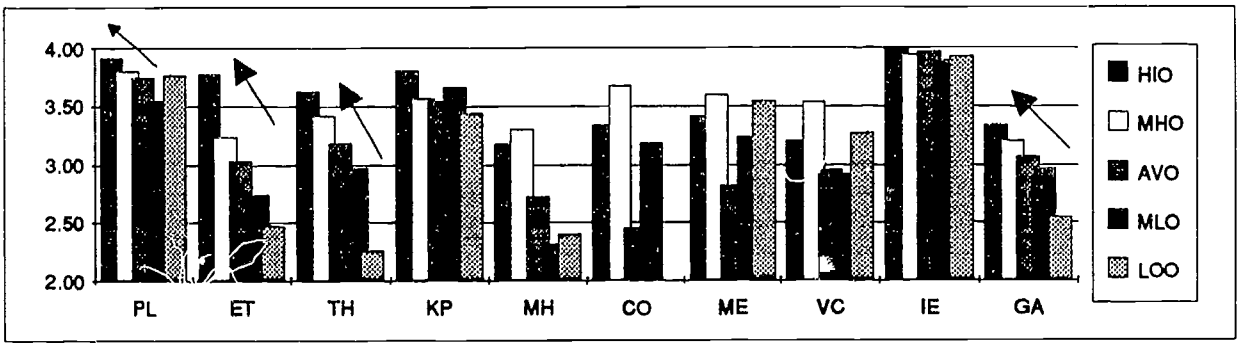
	Musical Outcome Catetgories					ANOVA			
	48 HIO M	*92* MHO M	*64* AVO M	*45* MLO M	*27* LOO M	F-Score	P	Scheffe	Permutation
1 Private Lessons (PL)	6.21	5.55	3.76	3.58	*2.63*	6.45	.000	2,3,4,6,7	≤ 1%
2 Eartraining (ET)	3.08	3.20	2.58	2.23	*2.07*	4.03	.004		≤.05
3 Theory (TH)	3.94	3.85	2.69	2.51	*2.26*	5.79	.000	6,7	≤ 1%
4 Keyboard/Piano (KP)	2.30	2.41	2.16	*1.77*	1.96	1.38	.243		
5 Music History (MH)	1.88	1.69	0.90	0.72	*0.48*	4.84	.001		≤ 1%
6 Conducting (CO)	0.90	0.96	0.37	0.61	*0.22*	2.53	.041		
7 Music Education (ME)	1.81	2.24	1.08	2.95	*0.85*	1.35	.252		
8 Voice/Choir (VC)	0.81	1.02	0.46	*0.37*	0.67	1.56	.185		
9 Instrumental Ensemble (IE)	9.89	7.67	4.73	4.05	*3.44*	5.27	.000	2,3,4	≤ 1%
10 General Academics (GA)	8.67	9.41	7.48	7.85	*6.27*	0.54	.710		



Question #3

Student's Grade in Each of the 10 Academic Areas

	Musical Outcome Catetgories					ANOVA			
	HIO	MHO	AVO	MLO	LOO	F-Score	P	Scheffe	Permutation
1 Private Lessons (PL)	3.92	3.80	3.74	*3.55*	3.77	2.87	.024	3	≤.05
2 Eartraining (ET)	3.77	3.24	3.03	2.74	*2.48*	12.94	.000	1,2,3,4,6	≤ 1%
3 Theory (TH)	3.63	3.42	3.19	2.97	*2.26*	11.94	.000	3,4,6,9,10	≤ 1%
4 Keyboard/Piano (KP)	3.81	3.56	3.54	3.67	*3.44*	1.42	.228		
5 Music History (MH)	3.18	3.31	2.72	*2.32*	2.40	3.99	.004	6	
6 Conducting (CO)	3.33	3.68	2.46	3.18	*2.00*	4.10	.004		
7 Music Education (ME)	3.41	3.60	*2.82*	3.24	3.55	2.32	.060		
8 Voice/Choir (VC)	3.21	3.54	2.96	*2.92*	3.27	0.76	.556		
9 Instrumental Ensemble (IE)	4.00	3.94	3.97	*3.90*	3.92	0.48	.748		
10 General Academics (GA)	3.34	3.21	3.07	2.97	*2.55*	4.75	.001	4,6	≤ 1%



Musical Outcomes Categories

HIO = High Outcome
MHO = Medium High Outcome
AVO = Average Outcome
MLO = Medium Low Outcome
LOO = Low Outcome

Permutation Analysis

Large Arrow (Per.) = ≤.01; Small arrow = ≤.05
Dotted underline = Permutation (≤.01 (5 items or ≤.05 (4 items)

Maximum or Minimum Analysis

Bold = Largest Mean Score
Underline/italics - = Smallest Mean Score

Sche

1. HIO vs .... 6. MHO vs MLO
2. HIO vs AV(7. MHO vs LOO
3. HIO vs ML(8. AVO vs LOO
4. HIO vs LO(9. AVO vs LOO
5. MHO vs A\ 10. MLO vs LOO

Correlation Matrix

Music Majors (n=276)

1. Outcome Data	MAT3				MAT4					Tests			Summary	
A. Tests	3ST1	3ST2	3ST3	3ST4	4ST1	4ST2	4ST3	4ST4	4ST5	MAT3	MAT4	GT		Total
1 MAT-GT	.84	.75	.83	.62	.83	.79	.55	.68	.22	.97	.97	1.00		
2 MAT3	.86	.81	.87	.57	.70	.73	.45	.63	.29	1.00	.88	.97		
3 MAT4	.77	.64	.75	.64	.89	.79	.61	.67	.15	.88	1.00	.97		
B. Subtests (MAT3 & MAT4)														
1 3ST1	1.00	.53	.65	.60	.63	.76	.23	.72	.06	.86	.77	.84		
2 3ST2	.53	1.00	.65	.19	.47	.43	.52	.33	.37	.81	.64	.75		
3 3ST3	.65	.65	1.00	.31	.60	.63	.43	.43	.28	.87	.75	.83		
4 3ST4	.60	.19	.31	1.00	.58	.55	.13	.65	.12	.57	.64	.62		
5 4ST1	.63	.47	.60	.58	1.00	.64	.54	.47	-.04	.70	.89	.83		
6 4ST2	.76	.43	.63	.55	.64	1.00	.19	.61	-.15	.73	.79	.79		
7 4ST3	.23	.52	.43	.13	.54	.19	1.00	.11	.06	.45	.61	.55		
8 4ST4	.72	.33	.43	.65	.47	.61	.11	1.00	.09	.63	.67	.68		
9 4ST5	.06	.37	.28	.12	-.04	-.15	.06	.09	1.00	.29	.15	.22		
2. Items Data														
A. Six Demgraphic Indicators														
1 Grade	.29	-.02	.06	.17	-.03	.14	-.15	.26	.35	.14	.12	.13	3	3
2 Co. GPA	-.09	.21	.16	-.18	.13	.00	.09	-.47	-.21	.07	-.06	.00	-1	-1
3 Age	.04	.24	.29	.08	.38	.35	.25	-.01	-.34	.22	.29	.27	+6/-1	5
4 Yrs/Inst.	-.05	.13	.11	.02	.09	.18	.25	-.07	-.44	.08	.08	.08	+1/-1	0
5 Hr Pract.	-.06	-.04	.10	.02	-.03	-.15	.10	-.02	-.30	.00	-.10	-.05	-1	-1
6 Hr. Study	-.40	-.42	-.53	-.33	-.48	-.43	-.60	-.18	.08	-.54	-.55	-.56	-10	-10
B. Number of Courses Students Have Completed														
1 B2 PL	.21	.35	.41	.18	.40	.35	.35	.12	-.27	.38	.37	.39	+8/-1	7
2 B2 ET	-.02	.11	-.01	-.11	.09	.19	-.32	.02	-.15	.01	-.01	.00	-1	-1
3 B2 TH	-.02	.24	.11	-.06	.20	.29	-.14	-.01	-.28	.12	.10	.11	+1/-1	0
4 B2 KB	.23	.21	.19	.00	.31	.30	.20	.23	-.48	.22	.25	.24	+3/-1	2
5 B2 MH	-.01	.29	.31	.01	.43	.32	.12	-.05	-.19	.22	.29	.26	6	6
6 B2 CO	.07	-.03	.06	-.15	.12	.24	-.26	.10	-.25	-.02	.04	.01	-2	-2
7 B2 ME	-.05	-.07	.04	-.09	.16	.18	-.22	-.05	-.09	-.05	.04	.00	0	0
8 B2 VC	-.02	-.03	.20	-.23	.15	.14	.04	-.07	-.24	.01	.07	.04	0	0
9 B2 IE	.30	.34	.42	.03	.32	.34	.29	.15	-.31	.38	.32	.36	+9/-1	8
10 B2 GA	.07	-.01	.11	-.01	.36	.33	-.01	.20	-.43	.05	.23	.15	+2/-1	1
C. Student's Grades for Respective Course Areas														
1 B3 PL	-.08	.19	-.09	-.05	-.17	-.25	-.07	-.19	.44	.01	-.14	-.07	+1/-1	0
2 B3 ET	.08	.41	.25	-.26	-.05	-.09	.43	.00	.09	.22	.09	.15	+3/-1	2
3 B3 TH	-.09	.47	.15	-.19	.09	-.12	.34	-.24	.00	.17	.04	.10	2	2
4 B3 KB	-.08	.01	-.02	-.11	.36	-.22	-.21	-.06	.20	-.05	-.27	-.17	-1	-1
5 B3 MH	-.05	.15	.03	-.01	.31	.01	.11	.02	-.16	.05	.14	.10	1	1
6 B3 CO	-.11	-.18	-.23	-.14	-.01	.07	-.24	-.23	-.48	-.21	-.19	-.20	-1	-1
7 B3 ME	-.21	.03	-.08	.02	.05	.26	-.10	-.26	-.06	-.08	-.17	-.13	-2	-2
8 B3 VC	.20	.03	.19	.04	.06	.33	.01	-.15	-.05	.15	.12	.14	1	1
9 B3 IE	-.07	.26	.25	-.15	-.06	-.14	.20	-.14	.28	.13	.01	.07	3	3
10 B3 GA	-.05	-.10	.06	-.11	.09	-.02	.03	.31	-.29	-.05	-.08	-.07	-2	-2
Summary	+2/-1	+6/-1	+6/-1	-2	+7/-2	+7/-3	+6/-3	+1/-3	+3/-11	+2/-1	+5/-1	+3/-1		
Total	1	5	5	-2	5	4	3	-2	-8	1	4	2		

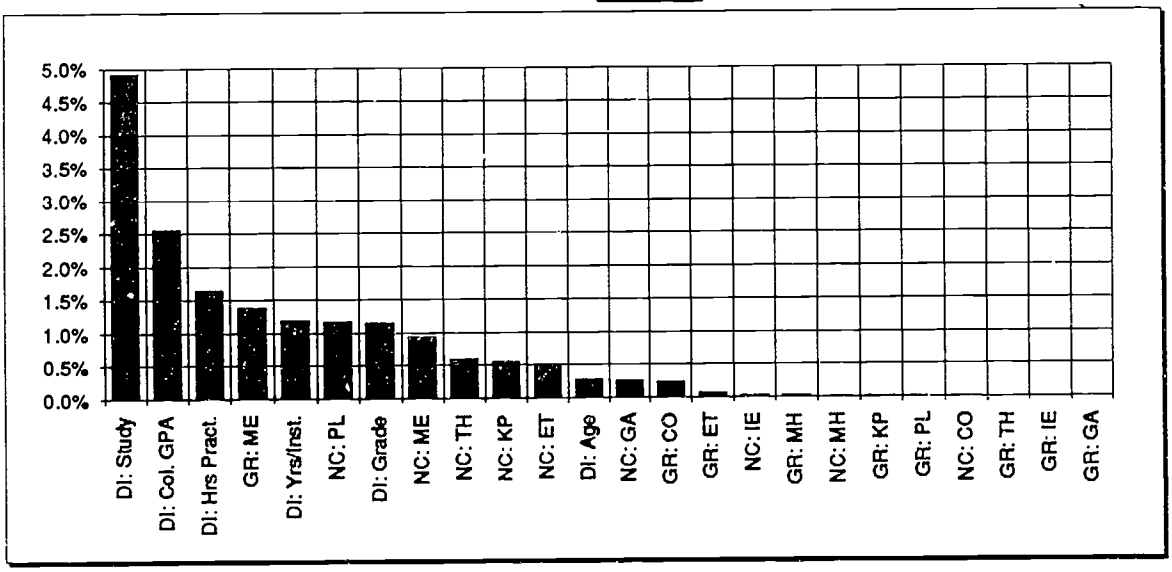
1. Outcome Data
Shaded = Relatively Small Correlations

2. Items Data
Box = Correlations that are ≥ +.25
Shaded = Negative Correlations ≤ -.25

Partial Correlations

Total matrix sampling adequacy: 0.628

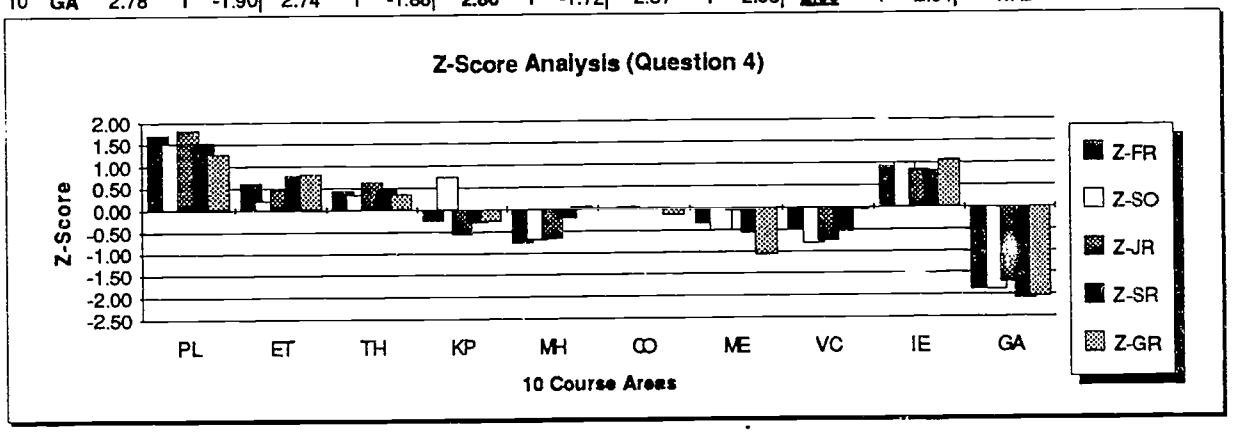
		MAT-GT R	MAT-GT R^2
6 Demographic Indicators (DI)			
1	DI: Grade Starting Band	.11	1.1%
2	DI: College GPA	-.16	2.6%
3	DI: Age	.05	0.3%
4	DI: Yrs Played Instrument	-.11	1.2%
5	DI: Hours Practicing per week	-.13	1.6%
6	DI: Hours Studying per Week	-.22	4.9%
	Total		11.7%
Number of completed courses (NC)			
7	NC: Private Lessons (PL)	.11	1.2%
8	NC: Eartraing (ET)	-.07	0.5%
9	NC: Theory (TH)	.08	0.6%
10	NC: Keyboard/Piano (KP)	.08	0.6%
11	NC: Music History (MH)	-.01	0.0%
12	NC: Conducting (CO)	.01	0.0%
13	NC: Music Education (ME)	-.10	0.9%
14	NC: Instrumental Ensemble (IE)	-.02	0.0%
15	NC: General Academics (GA)	.05	0.3%
	Total		4.1%
Grades (GR) in each course area			
16	GR: Private Lessons (PL)	-.04	0.2%
17	GR: Eartraing (ET)	.12	1.5%
18	GR: Theory (TH)	.02	0.1%
19	GR: Keyboard/Piano (KP)	.13	1.7%
20	GR: Music History (MH)	-.05	0.3%
21	GR: Conducting (CO)	.04	0.2%
22	GR: Music Education (ME)	.17	2.9%
23	GR: Instrumental Ensemble (IE)	.05	0.3%
24	GR: General Academics (GA)	-.06	0.4%
	Total		7.4%
	Grand Total Sum		23.2%



Question #4

Students rating the importance of each course area in developing musicianship

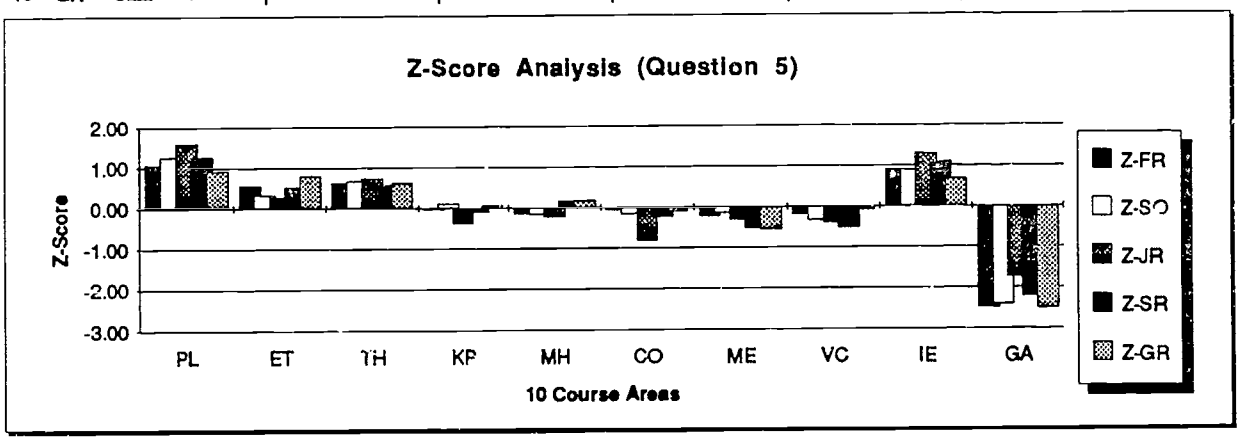
		Freshman			Sophomore			Junior			Senior			Graduate			Z-Scores			
		M	RK	Z	M	RK	Z	M	RK	Z	M	RK	Z	M	RK	Z	Max	Min	Diff.	RK
1	PL	4.92	10	1.72	4.89	10	1.52	4.86	10	1.83	4.89	10	1.55	4.96	10	1.28	1.83	1.28	0.55	5
2	ET	4.27	8	0.62	4.07	6	0.22	4.07	7	0.47	4.36	8	0.79	4.55	8	0.82	0.82	0.22	0.60	6
3	TH	4.17	7	0.46	4.15	7	0.35	4.16	8	0.63	4.14	7	0.47	4.14	7	0.36	0.63	0.35	0.28	3
4	KP	3.75	5	-0.25	4.41	8	0.75	3.47	4	-0.56	3.61	4	-0.29	3.59	3	-0.26	0.75	-0.56	1.31	10
5	MH	3.44	2	-0.77	3.48	3	-0.70	3.41	3	-0.67	3.67	5	-0.21	3.86	6	0.05	0.05	-0.77	0.82	8
6	CO	3.90	6	0.01	3.95	5	0.04	3.79	6	-0.01	3.83	6	0.03	3.68	4	-0.15	0.04	-0.15	0.19	1
7	ME	3.69	4	-0.36	3.61	4	-0.51	3.76	5	-0.07	3.42	2	-0.56	2.86	2	-1.08	-0.07	-1.08	1.01	9
8	VC	3.63	3	-0.46	3.42	2	-0.81	3.36	2	-0.75	3.44	3	-0.54	3.78	5	-0.05	-0.05	-0.81	0.76	7
9	IE	4.46	9	0.94	4.57	9	1.01	4.29	9	0.85	4.39	9	0.83	4.77	9	1.07	1.07	0.83	0.24	2
10	GA	2.78	1	-1.90	2.74	1	-1.88	2.80	1	-1.72	2.37	1	-2.08	2.00	1	-2.04	-1.72	-2.08	0.36	4



Question #5

Students' perception of the faculty's rating each course area in developing musicianship

		Freshman			Sophomore			Junior			Senior			Graduate			Z-Scores			
		M	RK	Z	M	RK	Z	M	RK	Z	M	RK	Z	M	RK	Z	Max	Min	Diff.	RK
1	PL	4.89	10	1.07	4.97	10	1.25	4.79	10	1.58	4.97	10	1.26	5.00	10	0 91	1.58	0.91	0.67	8.0
2	ET	4.65	7	0.56	4.49	7	0.33	4.18	7	0.29	4.49	7	0.54	4.90	9	0.80	0.80	0.29	0.51	6.0
3	TH	4.68	8	0.62	4.67	8	0.68	4.39	8	0.74	4.51	8	0.57	4.75	7	0.63	0.74	0.57	0.17	1.0
4	KP	4.37	6	-0.04	4.38	6	0.12	3.86	4	-0.38	4.06	5	-0.11	4.25	5	0.07	0,12	-0.38	0.50	5.0
5	MH	4.32	4	-0.15	4.23	3.5	-0.17	3.93	6	-0.24	4.24	6	0.16	4.35	6	0.18	0.18	-0.24	0.42	3.0
6	CO	4.36	5	-0.06	4.23	3.5	-0.17	3.65	2	-0.83	3.97	4	-0.25	4.10	3	-0.10	-0.06	-0.83	0.77	9.5
7	ME	4.28	2	-0.23	4.24	5	-0.15	3.89	5	-0.32	3.79	2	-0.52	3.70	2	-0.55	-0.15	-0.55	0.40	2.0
8	VC	4.30	3	-0.19	4.14	2	-0.34	3.85	3	-0.41	3.79	2	-0.52	4.11	4	-0.09	-0.09	-0.52	0.43	4.0
9	IE	4.81	9	0.90	4.78	9	0.89	4.66	9	1.31	4.86	9	1.10	4.80	8	0.68	1.31	0.68	0.63	7.0
10	GA	3.22	1	-2.49	3.06	1	-2.42	3.22	1	-1.74	2.66	1	-2.23	1.95	1	-2.51	-1.74	-2.51	0.77	9.5



Bold = Largest Mean Score
Uuderline/Italics = Smallest Mean Score

DATA (See Appendix F)

Q#4: Student

		Senior			Graduate		
		M	RK	Z	M	RK	Z
1	PL	4.89	10	1.55	4.96	10	1.28
2	ET	4.36	8	0.79	4.55	8	0.82
3	TH	4.14	7	0.47	4.14	7	0.36
4	KB	3.61	4	-0.29	3.59	3	-0.26
5	MH	3.67	5	-0.21	3.86	6	0.05
6	CO	3.83	6	0.03	3.68	4	-0.15
7	ME	3.42	2	-0.56	2.86	2	-1.08
8	VC	3.44	3	-0.54	3.78	5	-0.05
9	IE	4.39	9	0.83	4.77	9	1.07
10	GA	2.37	1	-2.08	2.00	1	-2.04

Q#5: Faculty

Senior			Graduate		
M	RK	Z	M	RK	Z
4.97	10	1.26	5.00	10	0.91
4.49	7	0.54	4.90	9	0.80
4.51	8	0.57	4.75	7	0.63
4.06	5	-0.11	4.25	5	0.07
4.24	6	0.16	4.35	6	0.18
3.97	4	-0.25	4.10	3	-0.10
3.79	2	-0.52	3.70	2	-0.55
3.79	2	-0.52	4.11	4	-0.09
4.86	9	1.10	4.80	8	0.68
2.66	1	-2.23	1.95	1	-2.51

ANALYSIS

A

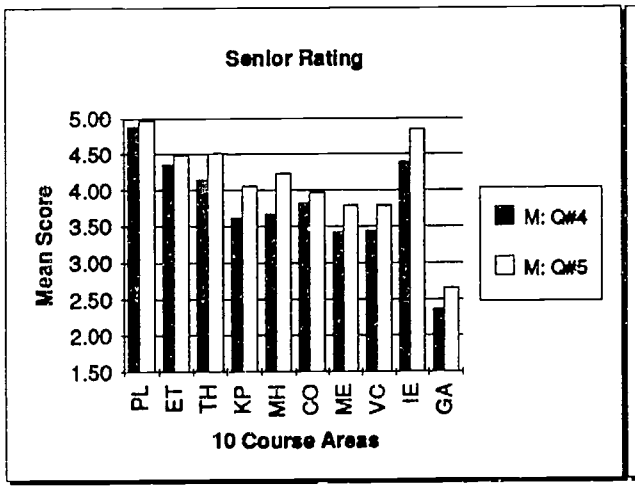
Difference (Q#4 minus Q#5)

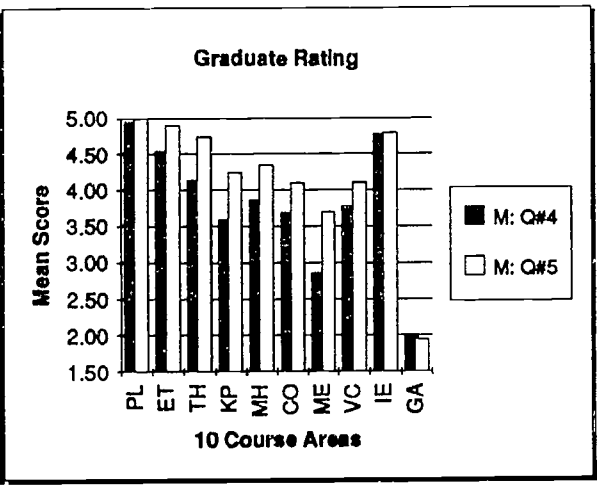
		Senior			Graduate			
		M	RK	Z			M	RK	Z
1	PL	-0.08	0	0.29	1	PL	-0.04	0	0.37
2	ET	-0.13	1	0.25	2	ET	-0.36	-1	0.02
3	TH	-0.38	-1	-0.10	3	TH	-0.61	0	-0.27
4	KP	-0.45	-1	-0.18	4	KP	-0.66	-2	-0.33
5	MH	-0.57	-1	-0.37	5	MH	-0.49	0	-0.13
6	CO	-0.14	2	0.28	6	CO	-0.42	1	-0.05
7	ME	-0.37	0	-0.04	7	ME	-0.84	0	-0.53
8	VC	-0.35	1	-0.02	8	VC	-0.33	1	0.04
9	IE	-0.47	0	-0.27	9	IE	-0.03	1	0.39
10	GA	-0.29	0	0.15	10	GA	0.05	0	0.47

B

Difference (Senior/Graduate: Q#4 and Q#5)

		Senior			Graduate		
		M: Q#4	M: Q#5		M: Q#4	M: Q#5
1	PL	4.89	4.97	1	PL	4.96	5.00
2	ET	4.36	4.49	2	ET	4.55	4.90
3	TH	4.14	4.51	3	TH	4.14	4.75
4	KP	3.61	4.06	4	KP	3.59	4.25
5	MH	3.67	4.24	5	MH	3.86	4.35
6	CO	3.83	3.97	6	CO	3.68	4.10
7	ME	3.42	3.79	7	ME	2.86	3.70
8	VC	3.44	3.79	8	VC	3.78	4.11
9	IE	4.39	4.86	9	IE	4.77	4.80
10	GA	2.37	2.66	10	GA	2.00	1.95





43