AN INVESTIGATION OF HOLLAND'S THEORY OF VOCATIONAL PERSONALITIES AND WORK ENVIRONMENTS AS APPLIED TO UNDERGRADUATE MUSIC MAJORS

DISSERTATION

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements

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By

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Holland's theory of vocational personalities and work environments incorporates four theoretical constructs (congruence, consistency, differentiation and identity) which attempt to explain sources in variability of achievement and satisfaction among employed adults and college students. This study sought to: (1) investigate the relationship of Holland's constructs to academic achievement and educational satisfaction of undergraduate music majors; (2) investigate differences in all variables according to gender and degree major. Data were collected from undergraduate music majors (N = 100) enrolled at the University of North Texas using the Vocational Preference Inventory, My Vocational Situation, and the Music Major Satisfaction Questionnaire. Reliability for the Music Major Satisfaction Questionnaire was estimated at .92 using Cronbach's coefficient alpha. Pearson product-moment correlation coefficients indicated that: (1) congruence was significantly related to academic achievement and educational satisfaction; (2) identity was significantly related to academic achievement and educational satisfaction; (3) consistency was significantly related to academic achievement, but not to educational satisfaction; (4) differentiation was significantly related to academic achievement,
but not to educational satisfaction. Multiple regression using a stepwise entry method indicated that: (1) the identity construct was the best predictor of educational satisfaction scores; (2) identity was the best predictor of academic achievement scores.

The results of the study suggested: (1) it is unlikely that any single theory accounts for all dimensions of variability in achievement among college music majors. To arrive at a comprehensive model of achievement, it will be necessary to utilize constructs of several theories. Such a model should include Holland's constructs of identity, congruence, and possibly differentiation. (2) similarly, a comprehensive model of satisfaction should include Holland's constructs of identity and congruence. (3) Holland's classification system may distinguish among two traditionally held divisions of college music majors, performance majors and education majors. (4) music education majors and music performance majors differ on the social dimension of their vocational personalities.
ACKNOWLEDGEMENTS

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M. L. A.
# TABLE OF CONTENTS

**LIST OF TABLES AND FIGURES** ......................................................... v  
Chapter  

I. INTRODUCTION TO THE STUDY ....................................................... 1  
   Holland's Theory  
      Background Principles of Holland's Theory  
      Holland's Assumptions  
      The Hexagonal Model  
      Holland's Constructs  
      Holland's Personality Types  
      Holland's Classification System  
      Summary  
   Rationale  
   Definition of Terms  
   Purpose, Problems, and Related Questions  

II. SYNTHESIS OF RELATED LITERATURE ............................................. 32  

III. METHODOLOGY .................................................................................. 56  

IV. ANALYSIS OF THE DATA ..................................................................... 76  

V. SUMMARY, DISCUSSION, AND RECOMMENDATIONS ............................. 101  

APPENDIX A ........................................................................................... 116  

APPENDIX B ........................................................................................... 121  

APPENDIX C ........................................................................................... 126  

BIBLIOGRAPHY ....................................................................................... 128
# LIST OF TABLES AND FIGURES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DHOC Three-Letter Codes of Musical Occupations</td>
<td>20</td>
</tr>
<tr>
<td>2. Occupations Finder Three-Letter Codes of Musical Occupations</td>
<td>21</td>
</tr>
<tr>
<td>3. The College Majors Finder Three-Letter Codes of College Music Majors</td>
<td>21</td>
</tr>
<tr>
<td>4. Reliability Analysis of the MMSQ, Pilot Study Version</td>
<td>64</td>
</tr>
<tr>
<td>5. Reliability Analysis of the MMSQ, Main Study Version</td>
<td>65</td>
</tr>
<tr>
<td>6. Means and Standard Deviations of VPI Scales by Degree</td>
<td>77</td>
</tr>
<tr>
<td>7. Observed Three-Letter Codes</td>
<td>78</td>
</tr>
<tr>
<td>8. Pearson Correlation Coefficients</td>
<td>79</td>
</tr>
<tr>
<td>9. Multiple Regression Analysis of Satisfaction - Step 1</td>
<td>81</td>
</tr>
<tr>
<td>10. Multiple Regression Analysis of Satisfaction - Step 2</td>
<td>82</td>
</tr>
<tr>
<td>11. Multiple Regression Analysis of Satisfaction - Steps 3 and 4</td>
<td>82</td>
</tr>
<tr>
<td>12. Multiple Regression Analysis of Achievement - Step 1</td>
<td>84</td>
</tr>
<tr>
<td>13. Multiple Regression Analysis of Achievement - Step 2</td>
<td>84</td>
</tr>
<tr>
<td>14. Multiple Regression Analysis of Achievement - Steps 3 and 4</td>
<td>85</td>
</tr>
<tr>
<td>15. Means and Standard Deviations of Holland's Constructs by Gender and Degree Major</td>
<td>86</td>
</tr>
</tbody>
</table>
15. ANOVA - Congruence by Degree ........................................ 87
17. ANOVA - Consistency by Degree ....................................... 87
18. ANOVA - Differentiation by Degree ................................... 87
19. ANOVA - Identity by Degree ........................................... 88
20. ANOVA - Congruence by Gender ........................................ 88
21. ANOVA - Consistency by Gender ........................................ 88
22. ANOVA - Differentiation by Gender .................................... 89
23. ANOVA - Identity by Gender ............................................ 89
24. Means and Standard Deviations of Achievement and Satisfaction ........................................ 90
25. Means and Standard Deviations of Achievement and Satisfaction Scores by Gender ................ 90
26. Means and Standard Deviations of Achievement and Satisfaction Scores by Degree Major ........... 91
27. ANOVA - Achievement by Degree ...................................... 92
28. ANOVA - Satisfaction by Degree ........................................ 92
29. ANOVA - Achievement by Gender ...................................... 93
30. ANOVA - Satisfaction by Gender ........................................ 93
31. Means and Standard Deviations of VPI Scales ....................... 94
32. Means and Standard Deviations of VPI Scales by Gender .......... 95
33. ANOVA - Realistic by Degree .......................................... 95
34. ANOVA - Investigative by Degree ...................................... 96
35. ANOVA - Artistic by Degree ........................................ 96
36. ANOVA - Social by Degree ......................................... 96
37. ANOVA - Enterprising by Degree ................................. 97
38. ANOVA - Conventional by Degree ................................. 97
39. Scheffé - Procedure - Social by Degree ......................... 98
40. ANOVA - Realistic by Gender ..................................... 99
41. ANOVA - Investigative by Gender ................................. 99
42. ANOVA - Artistic by Gender ...................................... 99
43. ANOVA - Social by Gender ....................................... 100
44. ANOVA - Enterprising by Gender ............................... 100
45. ANOVA - Conventional by Gender ............................... 100

Figure
1. Hexagonal Model .................................................. 8
CHAPTER 1

INTRODUCTION TO THE STUDY

A number of vocational theories have attempted to explain sources of variability in occupational achievement and satisfaction among workers. John Holland’s theory of vocational personalities and work environments is one such theory. He suggests that occupational achievement and satisfaction can be predicted using our knowledge of the interaction between individuals’ vocational personalities and their work environment.¹ The theory has also been extended to college students by equating degree program with respective work environments.² Holland’s theory has received


confirmatory support in studies of both adult and college populations; however, in music-related settings, the theory has not been adequately investigated.\(^3\) The present study sought to investigate Holland's theory of vocational personalities and work environments as applied to undergraduate music majors.

**Holland's Theory**

Holland's theory consists of background principles, assumptions, and constructs which may not be familiar to most readers; therefore, a summary of the theory is presented here.

**Background Principles of Holland's Theory**

Holland's theory of vocational personalities and work environments is based on six background principles which provide the foundation for the assumptions and claims made by the theory.\(^4\) These six principles are presented here along with a summary of Holland's rationale for each.

1. **The choice of a vocation is an expression of personality.**\(^5\)

   Historically, vocational research assumed that a person's choice of vocation was related only to his or her occupational interests or preferences. A study by Baird suggested that, in addition to

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\(^3\)Dr. John L. Holland, interview by author, phone conversation, Denton, Texas, 14 July 1987.


\(^5\)Ibid.
interests, variables such as personality traits, self-ratings of ability, and life goals are related to occupational preferences.\(^6\) Holland, therefore, claims that when a person indicates a preference for a particular occupation, that preference is an indication of a person's vocational personality.

2. **Interest inventories are personality inventories.**\(^7\) Holland argues that if occupational interests are indicators of one's vocational personality, then interest inventories can be used to assess an individual's vocational personality.

3. **Vocational stereotypes have reliable and important psychological and sociological meanings.**\(^8\) People, through everyday experiences, develop a stereotypic impression of people in particular occupations. Preferences for or against certain occupations are expressions of an individual's perception of the type of people found working in those occupations. When viewed in this context, occupational preferences are indicators of a variety of psychological and sociological information related to a given person's vocational personality.

4. **The members of a vocation have similar personalities and similar histories of personal development.**\(^9\) If an individual's


\(^{8}\) Ibid., 9.

\(^{9}\) Ibid., 10.
vocational personality is influential in choosing an occupation, then occupations should attract and retain people with similar vocational personalities.

5. Because people in a vocational group have similar personalities, they will respond to many situations and problems in similar ways, and they will create characteristic interpersonal environments. This principle is a logical outgrowth of the fourth principle. The notion that people with similar values and interests create a characteristic working environment has been indirectly supported by research on college populations. Astin and Holland classified each student according to the six theoretical personality types which best described that student's major field of study. The percentage of students in each of the six theoretical personality types represented the environmental profile of the college. For instance, a college that had the largest group of students majoring in artistic fields of study was classified as an artistic environment. Students were then asked to describe the overall environment of the college using an adjective checklist. Student descriptions of the overall college environment were positively correlated with the number of majors represented by the six theoretical types.

6. Vocational satisfaction, stability, and achievement depend on the congruence between one's personality and the environment in

10Ibid., 10-11.

which one works. A compatible (congruent) work environment is an environment which provides a person the opportunity to participate in preferred activities and to be associated with other people who share similar attitudes and values. Such an environment provides a support system which is conducive to higher levels of occupational satisfaction, stability, and achievement.

**Holland's Assumptions**

Holland's theory is explained further through four assumptions which describe six vocational personalities and six corresponding work environments, the interaction of the personality and environment, and a variety of vocational and educational behaviors which result from this interaction.

1. In our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, or conventional. Holland's six categories represent a model to which a particular individual's vocational interests can be compared. The category or model with the greatest similarity to an individual's vocational interests represents that individual's primary personality type. A person's vocational personality can be assessed in several different ways: scores from interest inventories, choice of vocation, work history or pre-employment aspirations.

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13 Ibid., 2.

14 Ibid., 3.
2. **There are six model environments:** realistic, investigative, artistic, social, enterprising, and conventional. Vocational environments are characterized by the kind of work involved and the attitudes and values of the people who work in the environment. For example, if the teaching profession generally requires social skills and abilities and is comprised largely of social types of people, then teachers work in social environments.

3. **People search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles.** Simply stated, people tend to seek employment where their co-workers share common values and attitudes and where the job requirements allow them to use their unique skills and abilities.

4. **Behavior is determined by an interaction between personality and environment.** If we have knowledge of a person's vocational personality and the respective work environment, behavior can be predicted in the areas of occupational satisfaction, stability, and achievement. Holland believes that, in the case of a college student, academic achievement and educational

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15 ibid.
16 ibid., 3-4.
17 ibid., 4.
18 ibid., 2-4.
19 ibid., 4.
satisfaction can be predicted from the interaction of the student's vocational personality and his or her chosen field of study.\textsuperscript{20}

The Hexagonal Model

Holland et al. proposed a hexagonal model which represents the relationships among the six personality types.\textsuperscript{21} Degrees of similarity are indicated by the relative distances between the vertices of a hexagon (SEE FIGURE 1). Theoretically, personality types and work environments which are adjacent on the hexagon share the greatest number of similarities, while opposing categories share few similarities. Categories which are neither adjacent or opposite represent an intermediate degree of similarity.

The relations among types, or the psychological resemblances among types, are assumed to be inversely proportional to the distances among types... the shorter the distance between any two types, the greater their similarity or psychological resemblance. For example, Realistic and Investigative are close together... therefore, they resemble one another. In contrast, Investigative and Enterprising types are far apart; therefore they are very different. Investigative and Social types are at an intermediate degree of resemblance.\textsuperscript{22}

\textsuperscript{20} Ibid., 53-57.


\textsuperscript{22} Ibid.
Figure 1. Hexagonal Model.\textsuperscript{23}

\textsuperscript{23}Holland, \textit{Making Vocational Choices}, 29.
Holland's Constructs

As previously stated, Holland's theory is founded on four assumptions which describe six vocational personalities and six corresponding work environments, the interaction of the personality and environment, and a variety of vocational and educational behaviors which result from this interaction. In an effort to be more specific about the vocational and educational behaviors suggested by the main assumptions, Holland introduced four constructs (congruence, consistency, differentiation and identity) which attempt to explain sources of variability in occupational achievement and satisfaction.

Congruence

Congruence refers to the degree of compatibility between a person's vocational personality and the work environment. In the case of a college student, congruence refers to the degree of compatibility between the student's vocational personality and his or her field of study. One purpose of the hexagonal model is to illustrate varying degrees of congruence between the six vocational personalities and work environments. For example, a college student with an artistic vocational personality majoring in an artistic field of study represents the highest degree of congruence. A college student with an artistic vocational personality majoring in an adjacent field of study (either investigative or social) represents a somewhat lower degree of congruence. A college student with an artistic vocational personality majoring in a field of study which is neither adjacent or opposing (realistic or enterprising) represents
yet a lower degree of congruence, while a college student with an artistic vocational personality majoring in an opposing field of study (conventional) represents the lowest degree of congruence. Holland's definition of congruence is as follows:

Different types require different environments. For instance, Realistic types flourish in Realistic environments because such an environment provides the opportunities and rewards a Realistic type needs. Incongruence occurs when a type lives in an environment that provides opportunities and rewards foreign to the person's preferences and abilities—for instance, a Realistic type in a Social environment.24

Congruence, then, refers to the degree of compatibility between a college student's vocational personality and his or her field of study. According to the theory, high levels of congruence are associated with high levels of academic achievement and educational satisfaction among college students.25

Consistency

Consistency is the degree of relatedness between the primary and secondary personality types of an individual. A person's primary personality type is the category (realistic, investigative, artistic, social, enterprising, and conventional) which best describes that person's vocational interests. The next category with the greatest similarity to an individual's vocational interests is the secondary personality type. For example, a college student whose primary

24 Ibid., 5.

25 Ibid., 31.
personality type is artistic and whose secondary personality type is investigative represents a high degree of consistency because, according to Holland, the artistic and investigative personality types share a number of similarities. In terms of the hexagonal model (Figure 1), the artistic and investigative categories are adjacent. A college student whose primary vocational personality is artistic and whose secondary vocational personality is conventional represents a low degree of consistency because the artistic and conventional categories are opposite on the hexagonal model, thus they share relatively few similarities. Finally, a college student whose primary personality type is artistic and whose secondary personality type is realistic represents a moderate degree of consistency because these categories are only moderately similar. In terms of the hexagonal model, these categories are neither adjacent nor opposite. Holland offers the following definition for consistency. According to Holland, high levels of consistency are associated with high levels of academic achievement and educational satisfaction among college students.26

Within a person or an environment, some pairs of types are more closely related than others. For example, Realistic and Investigative types have more in common than Conventional and Artistic types. Consistency is the degree of relatedness between personality types or between environmental models. Degrees of consistency or relatedness are assumed to affect vocational preference.27

26 Ibid., 31.

27 Ibid., 4-5.
Differentiation

Differentiation is the degree to which a person resembles one or more personality types. A highly differentiated individual would resemble only one of the six personality types. A poorly differentiated individual would be an individual who equally resembles all six personality types. According to Holland, high levels of differentiation are associated with high levels of academic achievement and educational satisfaction among college students. Holland offers the following definition for differentiation.

Some persons or environments are more clearly defined than others. For instance, a person may closely resemble a single type and show little resemblance to other types, or an environment may be dominated largely by a single type. In contrast, a person who resembles many types or an environment that is characterized by about equal numbers of the six types is undifferentiated or poorly defined. The degree to which a person or environment is well defined is its degree of differentiation. 28

Identity

Holland defines identity as the possession of a clear and stable picture of one's goals, interests, and talents. 29 An individual who possesses a high degree of identity is one who expresses little if any doubt as to their career aspirations. According to Holland, identity, consistency, and differentiation attempt to describe the clarity and focus of the individual; therefore, they are three

28 Ibid., 5.

29 Ibid.
different constructs for describing similar phenomenon.\textsuperscript{30} Research findings regarding the validity of the consistency and differentiation constructs have been mixed; therefore, Holland introduced the identity construct as an alternative, and possibly more useful, construct than either consistency or differentiation.\textsuperscript{31} Theoretically, high levels of identity are associated with high levels of academic achievement and educational satisfaction among college students.

Combinations of Holland's Constructs

As previously indicated, Holland's constructs may be interrelated. In discussing the relative influence of each construct on vocational satisfaction and achievement, Holland claims that congruence of the person-environment interaction is the most influential, differentiation is the next most influential, while consistency is the least influential.\textsuperscript{32} In the 1985 revision of his theory, Holland did not speculate on the relative influence of the identity construct.

In summary, Holland's constructs attempt to explain sources of variability in academic achievement and educational satisfaction among college students. The identity construct was introduced in the 1985 revision of Holland's theory as a possible alternative to the

\textsuperscript{30}ibid.

\textsuperscript{31}ibid., 28.

\textsuperscript{32}ibid., 51.
consistency and differentiation constructs. In addition, Holland suggests that the constructs may be interrelated with the congruence construct being the important in explaining sources of variability in academic achievement and educational satisfaction among college students.

**Holland’s Personality Types**

The following section provides a summary of Holland’s six personality types along with a description of what each type is like, how types differ from each other, and a description of predicted behavior patterns.

**Realistic**

A person with a realistic vocational personality (1) prefers realistic occupations or situations in which one can engage in preferred activities and avoid the activities demanded by social occupations or situations; (2) uses realistic competencies to solve problems at work and in other settings; (3) perceives self as having mechanical and athletic ability and lacking ability in human relations; (4) values concrete things or tangible personal characteristics—money, power, and status.\(^{33}\) The following is a list of adjectives associated with a realistic vocational personality.

\(^{33}\text{Ibid., 19.}\)
Asocial  Materialistic  Self-effacing
Conforming  Natural  Inflexible
Frank  Normal  Thrifty
Genuine  Persistent  Uninsightful
Hard-headed  Practical  Uninvolved

Investigative
A person with an investigative vocational personality (1) prefers investigative occupations or situations in which one can engage in preferred activities and competencies and avoid the activities demanded by enterprising occupations or situations; (2) uses investigative competencies to solve problems at work and in other settings; (3) perceives self as scholarly, intellectual, having mathematical and scientific ability, and lacking in leadership ability; (4) values science.\(^3\)\(^4\) The following is a list of adjectives associated with an investigative vocational personality.

Analytical  Independent  Rational
Cautious  Intellectual  Reserved
Critical  Introspective  Retiring
Complex  Pessimistic  Unassuming
Curious  Precise  Unpopular

Artistic
A person with an artistic vocational personality (1) prefers artistic occupations or situations in which one can engage in

\(^3\)\(^4\)ibid.

\(^3\)\(^5\)ibid., 19-20.

\(^3\)\(^6\)ibid., 20.
preferred activities and competencies and avoid the activities demanded by conventional occupations or situations; (2) uses artistic competencies to solve problems at work and in other settings; (3) perceives self as expressive, original, intuitive, nonconforming, introspective, independent, disorderly, having artistic and musical ability, and ability in acting, writing, and speaking; (4) values esthetic qualities.\textsuperscript{37} The following is a list of adjectives associated with an artistic vocational personality.

\begin{table}
\begin{tabular}{llll}
Complicated & Imaginative & Intuitive \\
Disorderly & Impractical & Nonconforming \\
Emotional & Impulsive & Original \\
Expressive & Independent & Sensitive \\
Idealistic & Introspective & Open\textsuperscript{38}
\end{tabular}
\end{table}

Social

A person with a social vocational personality (1) prefers social occupations and situations in which one can engage in preferred activities and competencies and avoid activities demanded by realistic occupations and situations; (2) uses social competencies to solve problems at work and in other settings; (3) perceives self as liking to help others, understanding others, having teaching ability, and lacking mechanical and scientific ability; (4) values social and ethical activities and problems.\textsuperscript{39} The following adjectives are associated with social vocational personalities.

\textsuperscript{37}Ibid., 20-21.

\textsuperscript{38}Ibid., 21.

\textsuperscript{39}Ibid.
Ascendant Cooperative Patient Friendly Generous Helpful Idealistic Empathic Kind Persuasive Responsible Sociable Tactful Understanding Warm

Enterprising

A person with an enterprising vocational personality (1) prefers enterprising occupations or situations in which one can engage in preferred activities and avoid the activities demanded by investigative occupations and situations; (2) uses enterprising competencies to solve problems at work and in other situations; (3) perceives self as aggressive, popular, self-confident, sociable, possessing leadership and speaking abilities, and lacking scientific ability. The following list of adjectives are associated with enterprising vocational personalities.

Acquisitive Adventurous Agreeable Ambitious Domineering Energetic Exhibitionistic Excitement-seeking Extroverted Flirtatious Optimistic Self-Confident Sociable Talkative

Conventional

A person with a conventional vocational personality (1) prefers conventional occupations or situations in which one can

40 Ibid.

41 Ibid., 21-22.

42 Ibid., 22.
engage in preferred activities and avoid the activities demanded by artistic occupations or situations; (2) uses conventional competencies to solve problems at work and in other situations; (3) perceives self as conforming, orderly, and as having clerical and numerical ability; (4) values business and economic achievement. The following adjectives are associated with conventional vocational personalities.

Careful  Inflexible  Persistent
Conforming  Inhibited  Practical
Conscientious  Methodical  Prudish
Defensive  Obedient  Thrifty
Efficient  Orderly  Unimaginative

Holland’s Classification System

A practical outgrowth of Holland’s theory is a classification system which organizes occupations into six main categories which correspond to the six personality types and work environments. The main categories are abbreviated according to the first letter of each (r = realistic, i = investigative, etc.). Occupations are classified according to a three-letter code. The first letter indicates the category which best represents the kind of work involved and the type of people found in a given occupation, while the second and third letters represent additional information to help distinguish among different occupations within the main categories. For example, the three-letter code for an instrumental musician might

\[43\text{ibid.}\]

\[44\text{ibid., 23.}\]
be AER. A code of AER indicates that the occupation of instrumental musician is dominated by people with artistic vocational personalities and the skills needed are artistic in nature, while the second and third letters provide additional information which distinguishes the occupation of instrumental musician from other occupations classified as artistic.

The Dictionary of Holland Occupational Codes (DHOC) is a listing of 12,099 occupations found in the Dictionary of Occupational Titles which has been indexed according to Holland's theory.45 A vocational counselor could use a client's three-letter code to locate occupations in the DHOC that are compatible with the client's vocational personality. The Occupations Finder, another source of occupations classified according to Holland's theory, includes 501 of the most commonly found occupations in the United States. TABLE 1 and TABLE 2 contain lists of the music-related occupations found in the DHOC and the Occupations Finder respectively.

A recent publication, The College Majors Finder, is another example of the application of the Holland classification system.46 The College Majors Finder is an aid for students searching for a


compatible degree program. College students use their three-letter code to locate a program of study which closely resembles their interests, skills, and abilities. According to the manual, codes for college majors were determined by matching the college major to the corresponding occupation listed in the DHOC. Codes for majors which did not have a corresponding occupation were determined by the agreement of two out of three members of a panel of professional counselors. Table 3 contains a list of the music related college majors found in The College Majors Finder.

### TABLE 1

<table>
<thead>
<tr>
<th>Occupation</th>
<th>DHOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Musician</td>
<td>AER</td>
</tr>
<tr>
<td>Choral Director</td>
<td>AES</td>
</tr>
<tr>
<td>Music Director</td>
<td>AES</td>
</tr>
<tr>
<td>Music Teacher</td>
<td>AES</td>
</tr>
<tr>
<td>Orchestra Conductor</td>
<td>AES</td>
</tr>
<tr>
<td>Singer</td>
<td>AES</td>
</tr>
<tr>
<td>Composer</td>
<td>ASE</td>
</tr>
<tr>
<td>Arranger</td>
<td>AEI</td>
</tr>
<tr>
<td>Orchestrator</td>
<td>AEI</td>
</tr>
<tr>
<td>Music Therapist</td>
<td>ESI</td>
</tr>
</tbody>
</table>


47 Ibid., 22.
### TABLE 2

**Occupations Finder Three-Letter Codes of Musical Occupations**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musician</td>
<td>ASI</td>
</tr>
<tr>
<td>Music Teacher</td>
<td>ASI</td>
</tr>
<tr>
<td>Orchestra Director</td>
<td>ASI</td>
</tr>
</tbody>
</table>


### TABLE 3

**The College Majors Finder of Three-Letter Codes of College Music Majors**

<table>
<thead>
<tr>
<th>College Major</th>
<th>CMF Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music</td>
<td>ASI</td>
</tr>
<tr>
<td>Music Education</td>
<td>AES</td>
</tr>
<tr>
<td>Music History</td>
<td>SEI</td>
</tr>
<tr>
<td>Musical Instrument Repair</td>
<td>REI</td>
</tr>
<tr>
<td>Music Performance</td>
<td>AER</td>
</tr>
<tr>
<td>Music Theory and Comp.</td>
<td>ASI</td>
</tr>
</tbody>
</table>

Summary

John Holland has proposed a vocational theory which organizes people into six vocational personality types: realistic, investigative, artistic, social, enterprising, and conventional while work environments are organized into six categories which correspond to the personality types. Holland asserts that people search for occupations that are compatible with their vocational personalities and avoid occupations that are not compatible. Additionally, behavior is assumed to be the result of the interaction between the vocational personality and the work environment. The theory has been extended to college students whose chosen fields of study function as the work environment. Holland's theory includes four constructs (congruence, consistency, differentiation, and identity) which attempt to explain sources of variability in academic achievement and educational satisfaction among college students.

Rationale

Research in music education has concerned itself with the formidable task of investigating dimensions of occupational achievement and satisfaction among musicians. One approach to the study of occupational satisfaction is to identify and categorize areas of occupational dissatisfaction as seen in the studies of Calder, Rhinehart, and White. Studies by Barth and Coleman have

48R. W. Calder, "Factors Influencing Male Music Education Graduates of Certain Pennsylvania Institutions of Higher Education to Leave or Not to Leave the Profession" (Ph.D. diss., Pennsylvania State University, 1962); C. B. Rhinehart, "Incidence and Causes of
attempted to establish relationships between personality and occupational satisfaction with little success.\textsuperscript{49} Still others have investigated suspected relationships between personality and occupational achievement, again with little success.\textsuperscript{50} In general, these studies suffer from the lack of a theoretical frame of reference for developing a sound rationale.

Logically then, investigating dimensions of occupational achievement and satisfaction would be greatly enhanced by the guidance of a well accepted vocational theory. John Holland's theory

\textsuperscript{49} W. Barth, "Some Personality and Temperament Characteristics of Selected School Music Teachers" (Ph.D. diss., The University of North Carolina at Greensboro, 1961); M. Coleman, "The Relationship of Personality Traits and Satisfaction of Music Teachers" (Ph.D. diss., North Texas State University, 1987).

of vocational personalities and work environments attempts to explain sources of variability in occupational achievement and satisfaction. Holland proposes a theory which organizes people into six personality types and occupations into six categories corresponding to the personality types. Behavior is assumed to be the result of the interaction between the personality and the work environment. In addition, Holland includes four constructs (congruence, consistency, differentiation, and identity) which attempt to identify sources of variability in occupational achievement and satisfaction.

Congruence refers to the degree of compatibility between a college student's vocational personality and his or her major field of study. Theoretically, high levels of congruence are associated with high levels of occupational achievement and satisfaction. In context of the present study, college students majoring in congruent fields of study are hypothesized to exhibit higher levels of academic achievement and educational satisfaction than students majoring in an incongruent field of study.

Support for this notion is provided by previous research. Wiggins et al. investigated the relationship of congruence to job satisfaction among teachers. Results indicated that teachers in congruent environments were significantly more satisfied than teachers in incongruent environments.  

reported by Mount and Muchinsky in a study of employed adults.\textsuperscript{52} Nafziger, Holland, and Gottfredson investigated congruence as a predictor of satisfaction with a population of college students. The results of this study indicated that students who were least like the Holland code for their major field of study were the least satisfied and students whose field of study matched their Holland code indicated the highest degree of satisfaction.\textsuperscript{53} Similar results were found by Morrow in a sample of college students and by Werner in a sample of high school students.\textsuperscript{54} Research findings have generally supported Holland's definition of congruence in a variety of studies involving college, adult and high school populations; however, no studies have investigated the relationship of congruence to academic achievement and educational satisfaction among undergraduate music majors. The present study sought to fulfill this needed confirmatory research.

Consistency refers to the degree of relatedness between the primary and secondary vocational personality types of an individual. Theoretically, high levels of consistency are associated with high


levels of occupational achievement and satisfaction. In context of the present study, college students who possessed a high degree of consistency were hypothesized to exhibit higher levels of academic achievement and educational satisfaction than students who possessed a low degree of consistency.

In a study involving college students classified as social types, Wiley and Magoon found that academic achievement was significantly related to consistency. Similar results were found by Barak and Rabbi with college students representing all six of Holland's types. Contrary to the previously mentioned studies, O'Neil failed to find a significant relationship between academic achievement and consistency in a group of male college students classified as investigative types. In addition, Nafziger, Holland and Gottfredson failed to find a significant relationship between satisfaction with one's degree program and consistency in a population of college students representing all six of Holland's personality types. Research regarding the relationship of


personal consistency to academic achievement and educational satisfaction among college students therefore has yielded mixed results.

Holland admits that the evidence supporting the present definition of consistency is limited and he indicates that additional research is needed before the construct should be revised or dropped from the theory. In an effort to provide the additional evidence suggested by Holland, consistency is included in the present study.

Differentiation refers to the degree to which a person resembles one of more of Holland's vocational personality types. College students who possess a high degree of differentiation are hypothesized to exhibit higher levels of academic achievement and educational satisfaction than college students who possess a lower degree of differentiation. In a study involving all six personality types, Holland found that differentiation was significantly related to stability of vocational choice. In contrast, O'Neil failed to find a significant relationship between achievement and differentiation in a group of male college students classified as investigative types. Nafziger, Holland and Gottfredson also


O'Neil, "Holland's Theoretical Signs of Consistency and Differentiation," 166-73.
failed to find a significant relationship between satisfaction with one's degree program and differentiation with a population of college students representing all six personality types. Again, research findings are seemingly contradictory. As was the case for the consistency construct, Holland indicates that the evidence supporting the differentiation construct is limited; however, additional research, such as the present study, is needed before the construct should be revised or eliminated from the theory.

Identity refers to the possession of a clear and stable picture of one's goals, interests, and talents. According to Holland, college students who possess a high degree of personal identity are hypothesized to exhibit higher levels of academic achievement and educational satisfaction than college students who possess a lower degree of identity. Identity, as a theoretical construct, was presented by Holland in the 1985 revision of his theory; therefore, research is limited. No studies, to date, were located which have investigated the relationship of identity to occupational achievement and satisfaction. Identity is included in the present study to provide data which either supports or refutes this thesis.

According to Holland, the aforementioned constructs are interrelated, and may be arranged in a hierarchical order of importance as follows: congruence is the most influential in predicting vocational satisfaction and achievement, differentiation is next, and consistency is the least influential. Holland did not

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speculate about the relative influence of the identity construct. In addition to investigating the relationship of each of Holland's constructs to academic achievement and educational satisfaction among undergraduate music majors, the present study sought to verify the order of importance among Holland's constructs. The author believes that the present study is the first to include identity in such a comparison.

**Definition of Terms**

The following section defines the specialized terminology used in Holland's theory of vocational personalities and work environments. The definitions presented here have been paraphrased from Holland's own definitions in order to emphasize the specific aspect of each construct that pertains to the present study.

**Congruence** - congruence refers to the degree of compatibility between an undergraduate music major's vocational personality and his or her chosen field of study.

**Consistency** - consistency refers to the degree of relatedness between an undergraduate music major's primary and secondary personality types.

**Differentiation** - differentiation refers to the degree to which an undergraduate music major resembles one or more of Holland's vocational personalities.

**Identity** - identity refers to the degree to which an undergraduate music major possesses a clear and stable picture of his or her goals, interests, and talents.

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Purpose, Problems, and Related Questions

The purpose of this study was to investigate Holland's theory of vocational personalities and work environments as applied to undergraduate music majors. The purpose suggested two research problems: (1) to investigate the relationship of Holland's constructs to academic achievement and educational satisfaction of undergraduate music majors; (2) to investigate differences in all variables according to gender and degree major. Specifically, the related questions were:

1. Is there a statistically significant relationship between levels of congruence and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?

2. Is there a statistically significant relationship between levels of consistency and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?

3. Is there a statistically significant relationship between levels of differentiation and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?

4. Is there a statistically significant relationship between levels of identity and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?

5. What is the relationship between educational satisfaction and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors?
6. What is the relationship between educational achievement and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors?

7. Are there significant differences in mean scores of the congruence, consistency, differentiation, and identity variables among undergraduate music majors grouped by (a) degree program, and (b) gender?

8. Are there significant differences in mean scores of the academic achievement and educational satisfaction variables among undergraduate music majors grouped by (a) degree program? (b) gender?

9. Are there significant differences in the mean scores on the interest scales of the Vocational Preference Inventory among undergraduate music majors grouped by (a) degree program? (b) gender?
CHAPTER II

SYNTHESIS OF RELATED LITERATURE

Chapter two includes studies which have investigated the relationship of Holland's theoretical constructs to occupational achievement and satisfaction in both college and adult populations. In addition, music education studies related to occupational achievement and satisfaction have been reviewed.

Holland's Constructs

Congruence

Morrow tested the effectiveness of Holland's construct of congruence in predicting college students satisfaction with their major.\footnote{J. M. Morrow, "A Test of Holland's Theory of Vocational Choice," \textit{Journal of Counseling Psychology} 18 (1971): 422-25.} Upperclassmen majoring in mathematics and sociology ($N=323$) were selected for the study. Congruence was assessed using the first letter of the \textit{Vocational Preference Inventory}, i.e. congruence occurred when the first letter of the student's personality type matched their college major. All other combinations were classified incongruent. Satisfaction was assessed with a questionnaire, developed by the researcher, which consisted of three items. Test-retest reliability over a period of five weeks was reported to be .89. The results indicated that...
mathematics majors classified as congruent had significantly higher mean satisfaction scores than mathematics majors classified as incongruent. Sociology majors classified as congruent did not have significantly higher mean satisfaction scores than sociology majors classified as incongruent. Morrow concluded that Holland's definition for congruence was supported with a group of college mathematics majors, but not for sociology majors.

The findings of Morrow were extended to a large college population including all six types by Nafziger, Holland, and Gottfredson. Nafziger, Holland, and Gottfredson investigated congruence as a predictor of satisfaction with a population of college students. Two of the questions to be investigated were: (1) Are college students in congruent college environments more satisfied than students in incongruent college environments? (2) Do the different degrees of congruency result in different levels of student satisfaction? A sample of students was obtained from two colleges. The Self-Directed Search was given to 1,183 students at school 'A' who were participating in an orientation program for freshman and transfers in the summer of 1972. In the spring of 1973, all students who could be located were mailed the Inventory of Educational Experience and Opinion. A total of 746 questionnaires were returned of which 601 were usable. A similar procedure was conducted at school 'B' which produced a sample of 1,277 from an

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original sample of 2,508. Students were classified as one of the six personality types using the Self-Directed Search. The Inventory of Educational Experience and Opinion, consisting of three scales, was used to assess satisfaction. The split-half reliabilities adjusted with the Spearman-Brown formula were .86, .81, and .89.

The environment of each student was assessed using Holland's six environmental categories by coding his or her major field of study. Three levels of congruence were defined using the hexagonal model. Although four levels of congruence are produced when using the hexagon, the two lower levels were combined. Results indicated that students whose types were least like the Holland code for their major field of study were the least satisfied and students in major fields of study with Holland codes that matched their types indicated the greatest satisfaction.

Werner investigated Holland's construct of congruence with a group of vocational high school students. The importance of Werner's study was the successful application of Holland's theory to a high school population. Werner hypothesized that congruent students would have higher mean achievement scores, higher mean satisfaction scores and lower rates of attrition than incongruent students. The population included 594 vocational high school students from eight occupational centers in New York. Six occupational training programs were selected to represent Holland's six work environments. Data were gathered using the Vocational

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Preference Inventory, the Kuder Preference Record, the Personal Data Questionnaire, and the Student Rating Sheet.

Congruence was defined as the agreement of the Vocational Preference Inventory classification of each student and the occupational environment having the same first letter. All other combinations were considered incongruent. Satisfaction was measured with a questionnaire developed by the researcher and achievement was assessed using teacher ratings. The results indicated that congruence students had significantly higher mean achievement scores than incongruent students. In addition, boys who were classified as congruent had significantly higher mean satisfaction scores than incongruent boys, however no significant differences were found for girls.

Mount and Muchinsky investigated the relationship between congruence and job satisfaction (N=362) of employed adults in five of Holland's six environmental categories. The artistic category was eliminated because of difficulty in obtaining subjects. The Self-Directed Search and the Job Descriptive Index (JDI) were used to gather data. Two hypotheses were tested: (1) Total scores on the JDI would be highest for workers in congruent environments, (2) Scores on the work scale of the JDI would be highest for workers in congruent environments. Congruence was defined as a subject whose one-letter personality code, obtained from the Self-Directed Search was identical to the first letter of the occupational code found in

the Occupations Finder. Results indicated that overall satisfaction and satisfaction with work scores were significantly higher for congruent workers than for incongruent workers for all environments except the social environment. The authors concluded that Holland's construct of congruence was conditionally supported.

Wiggins et al. investigated the relationship of congruence to job satisfaction among teachers.5 The authors hypothesized that overall job satisfaction would be the highest for teachers in congruent environments. Mailings were sent to seventy-five teachers in five of the six Holland categories, for a total of 375. The enterprising category was excluded from the study since no teaching occupations listed in the Occupations Finder represented this type. A total of 247 teachers returned the questionnaires.

The Vocational Preference Inventory (VPI) was used to assess the vocational personality of each teacher and the Hoppock Job Satisfaction Blank was used as a measure of job satisfaction. Congruence was determined by comparing subject's three-letter VPI codes to the three-letter codes for the respective teaching fields found in The Occupations Finder using the Compatibility Index. The results indicated that teachers in congruent environments were significantly more satisfied than teachers in incongruent environments. The author's findings supported Holland's definition of the congruence construct.

In summary, congruence, or the compatibility between personality and work environment, appears to play an important role in varying levels of occupational achievement and satisfaction. Exceptions, however, were reported by Morrow and Mount and Muchinsky. Both studies reported that satisfaction was not related to congruence for social subjects. One plausible explanation for these contradictory findings is that the social type, by definition, may find satisfaction in a wider range of work environments than the other five types identified by Holland.

In general, studies have reported positive results for adults, college students, and high school vocational students, however, no study was located which investigated the relationship of congruence to achievement and satisfaction among musicians. The present study sought to provide this needed confirmatory research.

Consistency

Wiley and Magoon investigated Holland’s consistency construct among a group of undergraduate students classified as social types using the Self-Directed Search. Three questions were investigated: (a) Is consistency level related to persistence? (b) Is consistency level related to cumulative grade point average for persisters? (c) Is consistency level related to cumulative grade point average for nonpersisters? A sample of 211 students were randomly selected from a group of 1,957 students who completed

the Self-Directed Search in their first year of college. Persistence and achievement data were obtained from the university records eight years after the students enrolled. Nonpersistence was defined as not receiving a baccalaureate degree from the school during the past eight years and also not attending the university during the past four years. Academic achievement was defined as the student's cumulative grade point average and was determined at graduation for persisters and at the point of attrition for nonpersisters. Wiley and Magoon's findings supported Holland's definition of consistency. Subjects with high levels of consistency exhibited significantly higher levels of persistence and achievement than subjects with low levels of consistency.

Barak and Rabbi investigated persistence, stability, and achievement in college using Holland's construct of consistency.\(^7\) Persistence was defined as whether or not students dropped out of school during a five year period. Stability was defined as whether or not the student changed his or her major during a five year period. Achievement was defined as the student's cumulative grade point average. When students registered at the university, students were asked to list his or her choice of majors in order of preference. Subjects (N=293) were selected using a stratified random sampling procedure and classified into four levels of consistency according to the first-letter codes of their first two choices. Four levels of

consistency were needed instead of the usual three because of the possibility of a tie between codes. Codes were determined for each of forty-three degree majors using ten judges who were graduate students in counseling psychology and who were familiar with Holland's classification system. The researchers concluded that consistency was significantly related to persistence, stability, and achievement for college students thus supporting Holland's definition.

O'Neil investigated the relationship of consistency to academic potential and achievement of male college students (N=127) over a four year period.\(^8\) The sample consisted of students who obtained high consistency (IR), middle consistency (IS), or low consistency (IE) on the Self-Directed Search. Academic achievement was defined as the student's cumulative grade point average over a period of four years. Academic potential was defined as the student's scores of the Scholastic Aptitude Test (SAT) which had been taken during their senior year in high school. The results indicated that there were no differences between the three levels of consistency with regard to SAT scores or cumulative grade point average. O'Neil concluded that Holland's definition of consistency was not supported with a group of undergraduate males classified as investigative types.

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Nafziger, Holland, and Gottfredson investigated consistency as a predictor of satisfaction of a population of college students.\textsuperscript{9} One of the questions to be investigated was: (1) Are the differentiation and consistency of a student’s personality profile related to a college satisfaction? Consistency was defined according to the hexagonal model by using the first two letters of the student’s personality profile on the \textit{Self-Directed Search}. The \textit{Inventory of Educational Experience and Opinion}, consisting of three scales, was used to assess satisfaction. The results indicated that there were no significant differences in levels of consistency and levels of satisfaction, therefore, Holland’s definition of consistency was not supported.

In summary, research findings regarding Holland’s definition of consistency have been mixed. The importance of the relatedness of the primary and secondary vocational personality types of an individual is still unclear. Holland, in the 1985 revision of the theory, indicated that additional research was needed before the construct should be revised or eliminated from the theory.\textsuperscript{10} An investigation of the consistency construct is included in the present study in an effort to clarify the relative importance of the construct within Holland’s theory.

\textsuperscript{9}Nafziger, Holland, and Gottfredson, “Congruency as a Predictor of Satisfaction,” 132-39.

Differentiation

O'Neil investigated the relationship of differentiation to academic potential and achievement of male college students over a four year period. Two of the research questions were as follows: (1) Do Holland's levels of differentiation show differential academic aptitude for entering college freshmen? (2) Do Holland's levels of differentiation indicate differential academic achievement over a four year college period? Differentiation was defined as the absolute difference between the subject's highest and lowest scores on the Self-Directed Search. Subjects were then divided into two groups, high and low differentiation, using the mean differentiation score. Academic achievement was defined as the student's cumulative grade point average and academic potential was defined as the student's score on the Scholastic Aptitude Test (SAT) taken when the subjects were seniors in high school.

O'Neil found that high differentiated subjects scored higher on the SAT test than low differentiated subjects. However, no differences were found between high and low differentiated subjects with regard to academic achievement. O'Neil concluded that differentiation was a good predictor of academic potential, but not of educational achievement. Holland's definition of differentiation was partially supported.

Wiggins et al. investigated job satisfaction of teachers using

11O'Neil, "Holland's Theoretical Signs of Consistency and Differentiation," 166-73.
Holland's construct of differentiation. The authors hypothesized that teachers (N=247) with highly differentiated scores on the Vocational Preference Inventory would be more satisfied with their jobs than teachers with undifferentiated scores. Differentiation was determined by the absolute difference between the highest and lowest scores on the first six scales of the Vocational Preference Inventory. The results of the study indicated that differentiation scores successfully predicted levels of job satisfaction as described by Holland.

Nafziger, Holland, and Gottfredson investigated differentiation as a predictor of satisfaction with a population of college students. One of the questions to be investigated was (1) Are the differentiation and consistency of a student's personality profile related to college satisfaction? Differentiation was initially calculated by subtracting the lowest score from the highest score on the first six scales of the Self-Directed Search, then subjects were grouped using the median as the dividing point into a high-differentiation group and a low-differentiation group. The results of the study indicated that differentiation levels were not significantly different from levels of satisfaction.

Research findings regarding Holland's definition for differentiation have been mixed. As was the case for the consistency construct, Holland indicated that the evidence

12Wiggins et al., "Job Satisfaction," 112-121.

supporting the definition of differentiation is limited; however, additional research is needed before the construct should be revised or eliminated from the theory. Differentiation is included in the present study in an effort to clarify the importance of the construct within Holland's theory.

Identity

Consistency and differentiation are theoretical constructs which describe how clearly a person has defined himself or herself. Following a number of studies which questioned the validity of each, Holland proposed an alternate construct for describing the clarity of an individual's vocational goals. Identity, as a formal construct,

14Holland, Making Vocational Choices, 51.

was introduced in the 1985 revision of Holland's theory. At present, no studies were located which investigated the relationship of identity to occupational achievement and satisfaction; however, the results of this investigator's pilot study suggested that identity should be included in the present study.

In summary, Holland has proposed four theoretical constructs; congruence, consistency, differentiation and identity which describe phenomena related to occupational achievement and satisfaction. Research results have supported Holland's claim that people who work in a congruent environment achieve higher and are more satisfied that people who work in an incongruent environment. The consistency and differentiation constructs have received mixed results in the literature, however, the present study will include these constructs in an effort to clarify their role and importance within Holland's theory. Finally, the present study included Holland's identity construct. Although no studies were found which investigated the relationship of identity to academic achievement and educational satisfaction, the results of the pilot study suggested that Holland's identity construct be included in the present study.

**Music Studies**

This section reviews: (1) studies which investigated sources of occupational dissatisfaction among musicians, (2) studies which investigated the relationship between personality and occupational satisfaction among musicians, and (3) studies which investigated the relationship between personality and occupational achievement.
among musicians.

Occupational Dissatisfaction Among Musicians

One approach to the study of occupational satisfaction of musicians is to identify and categorize areas of occupational dissatisfaction. Calder investigated factors influencing male music education graduates of certain Pennsylvania institutions of higher education to leave or not to leave the profession. A sample of 207 (119 teachers who had left the profession and eighty-eight who had not entered the profession) were identified through a post card survey. Subjects were mailed a questionnaire designed by the researcher.

Results indicated that the most significant influences to leave the profession in order of importance were; (1) opportunity for another position, (2) opportunity for advancement too limited, (3) unsatisfactory maximum salary potential, (4) inadequate physical plant and equipment, (5) beginning salary too low, (6) administration disinterested in and unsympathetic toward music educator's problems, (7) administration seemed to consider the music program primarily for public relations, (8) administration showed a lack of interest in raising musical standards of the school and/or community, (9) unsatisfactory teaching schedule, and (10) student's standards not conducive to raising and maintaining musical

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standards. In spite of the importance of financial factors, seventy-six per cent said they would not have left the profession only for money. Reasons of recent graduates deciding not to enter the profession are in order of importance; (1) unsatisfactory maximum salary potential, (2) beginning salary too low, (3) opportunity for another position, (4) opportunities for advancement too limited, and (5) musical immaturity of public school students.

Rhinehart investigated the incidence and causes of withdrawal from public school music teaching.\(^\text{17}\) A questionnaire developed by the researcher was mailed to music graduates of Florida State University between 1950 and 1956 and to those receiving doctoral degrees in music through 1960. Of the original sample of 377, Rhinehart reported a return rate of seventy-two per cent. The results indicated that the primary reason males leave the profession of music education was salary, while females reported that marriage and moving to an area where music teachers were not needed as being the primary reason for leaving the profession. Of the respondents, seventy-two per cent of the males and sixty-five per cent of the females no longer teach music in the public schools. Of those still teaching, sixty per cent of the males and forty-five per cent of the females stated that they at one time had seriously considered leaving the profession.

White investigated the social characteristics and occupational situation of music educators in the United States.\(^\text{18}\) A sub-

\(^{17}\) C. B. Rhinehart, "Incidence and Causes of Withdrawal from Public School Music Teaching" (Ph.D. diss., Florida State University, 1963).
problem of White’s study was to determine factors which cause one to leave the profession. Subjects were randomly selected from two states from each of the six divisions of the Music Educators National Conference. A questionnaire, developed by the researcher, was mailed to 2,000 subjects with a low return rate of fifty-six per cent. The findings of White’s study are based on the first one thousand usable questionnaires. White reported that most music teachers are happy in the profession, but also notes that over fifty per cent had seriously considered leaving the profession. Inadequate salary was the reason most often cited.

In summary, the studies cited above investigated areas of occupational dissatisfaction among musicians. Each study reported a similar list of problem areas, with salary cited as the most important. These studies have made valuable contributions in the identification of problem areas which influence the occupational satisfaction of musicians. Other dimensions of occupational satisfaction are described by a number of vocational theories. One such theory is Holland’s theory of vocational personalities and work environments. Certain aspects of Holland’s theory have been successfully used as a frame of reference in the study of occupational satisfaction among adults and college students, however, no study was located which investigated the application of Holland’s theory to the study of occupational satisfaction among

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musicians.

**Personality and Satisfaction Among Musicians**

In the field of music education, two studies have investigated the relationship between personality and occupational satisfaction among music teachers. Barth investigated the relationship of personality and temperament characteristics to school music teacher effectiveness. The total sample (N=316) was divided into two groups. One group (N=156) consisted of selected instrumental and choral-general music teachers which represented the top ten per cent of school music teachers. Twenty two music education specialists nominated the selected group. The other group (N=150) represented music teachers in general. Cattell’s Sixteen Personality Factor Questionnaire and the Thurstone Temperament Schedule were used to assess twenty three different personality factors.

Barth concluded that there were no personality or temperament differences between the selected sample and the general sample, i.e. between high achievers and teachers in general, however differences were noted when the two groups were separated according to expressed satisfaction. Selected teachers who expressed the highest degree of satisfaction were found to be higher in general mental ability, perseverance, persistence, more self-sufficient, more accepting, outgoing, understanding, 

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permissive, more confident, self-secure, less tense and anxious, more active, possessed more leadership qualities, and were more emotionally stable than unselected teachers who had expressed lesser degrees of satisfaction.20

Coleman investigated the relationship between personality traits and job satisfaction of music teachers.21 The sample included 107 former music teachers who were selected from the graduate music education population at North Texas State University from the summer of 1983 to the summer of 1985. Data were gathered using the Minnesota Satisfaction Questionnaire and the California Psychological Inventory.

Coleman found no significant differences in overall satisfaction between males and females based on the Minnesota Satisfaction Questionnaire. Additionally, he found no significant differences between males and females on the various scales of the California Psychological Inventory. Coleman therefore concluded that males and females could be treated as a single population in regards to satisfaction and personality traits.

Coleman found that music teachers scored significantly higher than the national norm on eight scales of the California Psychological Inventory. These scales included; Dominance, Capacity for status, Sociability, Social presence, Self-acceptance,
Achievement via conformance, Achievement via independence and Psychological mindedness. The population scored significantly lower than the national norm on the scales of Sense of well-being and Self-control. When satisfaction scores and personality traits were compared, Coleman found no significant relationships.

The methodology of both studies cited above are similar. Each researcher identified a group of satisfied music teachers and a group of unsatisfied music teachers, administered a personality test, and reported any significant differences between the two groups. Neither study, however, presented a convincing rationale or theoretical framework to support the research questions. The present study utilizes Holland's constructs and related research as theoretical support for the research questions. According to Holland, educational satisfaction is dependent upon: (1) the degree of compatibility (congruence) between the student's vocational personality and the degree program; (2) the degree of relatedness (consistency) between the primary and secondary personality types; (3) the degree to which a student resembles one or more of Holland's vocational personalities (differentiation); (4) the degree to which a student possesses a clear and stable understanding of his or her goals, interests, and talents. The present study sought to verify these claims.

**Personality and Achievement Among Musicians**

Investigating possible relationships between personality characteristics and occupational achievement has been the subject
of considerable research in vocational literature. Musicians, particularly, have been interested in this relationship as evidenced by the large number of studies in the area. The following section reviews a representative sample of these studies.

Beaver investigated the personality and value characteristics of successful high school band directors in North Carolina. The population was divided into two groups: Group one contained fourteen successful band directors as selected by a jury. Group two contained twenty-three band directors chosen at random from a list published by the North Carolina Department of Public Instruction. Data were collected using the Guilford-Zimmerman Temperament Survey, the Study of Values and a questionnaire developed by the researcher. Beaver concluded that; (1) successful high school band directors are more active than the average adult male, (2) successful high school band directors are less masculine than the average adult male.

Barth investigated the relationships of personality and temperament characteristics to school music teacher effectiveness. The total sample (N=316) was divided into two groups. One group (N=156) consisted of selected instrumental and


choral-general music teachers which represented the top ten percent of school music teachers. Twenty-two music education specialists nominated the selected group. The other group (N=160) represented music teachers in general. Cattell’s Sixteen Personality Factor Questionnaire and the Thurstone Temperament Schedule were used to assess twenty-three different personality factors.

Barth found only one factor which distinguished effective music teachers from music teachers in general; Factor B on Cattell’s Sixteen Personality Factor Questionnaire. Effective music teachers scored significantly higher than the control group in general mental ability. Beyond this finding, no personality differences were found between the two groups.

Bullock investigated personality traits, job satisfaction attitudes, training and experience histories of superior teachers of junior high school instrumental music in New York. A total of 125 superior junior high teachers of instrumental music were nominated by other music teachers. Of these, twenty-seven agreed to participate in the study. Data were collected using the Sixteen Personality Factor Questionnaire, the Minnesota Satisfaction Questionnaire, the Training and Experience Questionnaire, and the Personal Interview Schedule. The latter two instruments were developed by the researcher for the purposes of the study. Bullock concluded that superior junior high school instrumental music

\[\text{24}^\text{J. C. Bullock, “An Investigation of the Personality Traits, Job Satisfaction Attitudes, Training and Experience Histories of Superior Teachers of Junior High School Instrumental Music in New York State” (Ph.D. diss., University of Miami, 1974).}\]
teachers are shy, sober, humble and reserved. Superior teachers are self-sufficient people who are concerned with compensation but not about praise they receive from their jobs. They enjoy doing things for other people and they are creative people with high ego strength. They are realistic, tough-minded, conscientious, persistent and conservative.

Lutz investigated the personality characteristics and experiential backgrounds of successful high school instrumental music teachers. The sample included 103 high school instrumental music teachers. Success was determined by ratings from administrators, fellow teachers and students. The sample was classified as seventy-five successful and twenty-eight unsuccessful. Personality data were gathered using the Minnesota Multiphasic Personality Inventory.

Findings indicated that when successful teachers were compared to unsuccessful teachers, successful teachers: (1) were less committed to compulsive, neurotic behaviors, (2) were less moody, (3) were better able to reconcile their internal problems, (4) were more capable of deep emotional response, (5) were better able to profit from experience, (6) had a higher degree of emotional morale, (7) worked harder for social approval, (8) were less hostile, (9) were more flexible, (10) worried less, (11) had broader interests, (12) were happier and more self-satisfied, (13) were

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more people oriented, (14) were more self-confident with regard to their professional and personal lives.

Mann investigated the relationships that exist between festival ratings, teacher background, teacher personality, teaching techniques, band student characteristics, and school conditions among public high school band directors in Mississippi.26 One hundred thirty-two of the 156 directors who entered bands in the 1978 Mississippi High School Band Festival participated in the study. Data were collected using the Eysenck Personality Inventory and a questionnaire developed by the researcher. Mann concluded that there were no relationships between personality variables and success (achievement) of high school band directors in Mississippi.

Picerno investigated personal characteristics of successful music teachers in Erie County, New York.27 A sample of fifty-nine music teachers were selected from members of the Erie County Music Teachers Association. A jury of ten members categorized the sample into one of three categories: superior teachers, average teachers, and below-average teachers. Data were gathered using the Minnesota Teacher Attitude Survey, questionnaire, observation, and interview. From the results of this study, Picerno concluded that most factors which distinguish the superior teacher are related to


human relationships. Picerno suggests that a person striving to be a
superior teacher should develop those characteristics which improve
human understanding.

In general, achievement studies of musicians seem to share a
rationale and methodology similar to those investigating
occupational satisfaction. Each study identifies a group of high
achievers and low achievers, administered a personality test, and
reports any significant differences between the two groups. Given
the lack of a theoretical frame of reference, it is not surprising that
the findings are in general disagreement. The present study differs
from the previously mentioned studies by utilizing Holland's
constructs and related research as theoretical support for the
research questions. According to Holland, academic achievement is
dependent upon the same phenomena cited for educational
satisfaction. The present study sought to verify these claims.
CHAPTER III

METHODOLOGY

The purpose of this study was to investigate Holland's theory of vocational personalities and work environments as applied to undergraduate music majors. The specific research questions were:

1. Is there a statistically significant relationship between levels of congruence and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?
2. Is there a statistically significant relationship between levels of consistency and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?
3. Is there a statistically significant relationship between levels of differentiation and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?
4. Is there a statistically significant relationship between levels of identity and (a) academic achievement and (b) educational satisfaction of undergraduate music majors?
5. What is the relationship between educational satisfaction and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors?
6. What is the relationship between educational achievement and a linear composite of the congruence, educational achievement and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors?
7. Are
there significant differences in mean scores of the congruence, consistency, differentiation, and identity variables among undergraduate music majors grouped by (a) degree program, and (b) gender? (8) Are there significant differences in mean scores of the academic achievement and educational satisfaction variables among undergraduate music majors grouped by (a) degree program? (b) gender? (9) Are there significant differences in the mean scores on the interest scales of the Vocational Preference Inventory among undergraduate music majors grouped by (a) degree program? (b) gender?

Sample
A sample of one hundred junior and senior music majors enrolled at the University of North Texas during the spring semester of 1988 volunteered to participate in the study. Of these one hundred subjects, seventeen were juniors and eighty-three were seniors. The sample population consisted of fifty-eight males and forty-two were females. Subjects were enrolled in one of four degree majors: instrumental performance, instrumental music education, vocal music education or jazz studies. Subjects were contacted through classroom instructors and private teachers. This process continued until twenty-five subjects in each of the four music degrees represented agreed to participate in the study. Subjects ranged in age from seventeen years to thirty-seven years with a mean age of 23.4.
Instruments

In order to answer the research questions, it was necessary to obtain a measure of the subject's vocational personality. Three instruments are available which report data in terms of Holland's classification system; the Vocational Preference Inventory, the Self-Directed Search, and the Strona-Campbell Interest Inventory. The Vocational Preference Inventory was selected for the present study because the brief inventory yields reliable data in the shortest amount of time.

The Vocational Preference Inventory (VPI) is a vocational interest inventory composed of 160 occupational titles. Subjects are asked to respond to each item regarding whether or not the occupation is appealing. If subjects are undecided, they are instructed to omit the item. According to the manual, subjects should be over fourteen years of age and should have normal intelligence.

The VPI usually takes from fifteen to thirty minutes to complete. The VPI can be used: (1) as a brief personality inventory for high school and college students, as well as employed adults, (2) as a helpful addition to a battery of personality inventories, (3) as an interest inventory, (4) as an assessment technique for the investigation of career theory and behavior. The present study

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2 Ibid., 1.
used the VPI for the purpose of assessing the vocational personality of undergraduate music majors in accordance with Holland's theory.

Internal consistency (KR-20) for the VPI for employed adults and college students range from .85 to .91 for males and .86 to .91 for females.\(^3\) Test-retest reliability over a period of six weeks for college seniors on the first six scales ranged from .74 to .98.\(^4\) For the purposes of the present study, this investigator judged the VPI to be a reliable instrument.

The VPI has been intercorrelated with a variety of personality tests. These tests include the California Psychological Inventory, the Sixteen Personality Factor Questionnaire, the Edwards Personal Preference Schedule, and the Guilford-Zimmerman Temperament Survey.\(^5\) The results of these tests yielded positive support for the construct validity of the VPI. A number of studies have compared the VPI to the Strong-Campbell Interest Blank.\(^6\) In general, the results indicate that the scales of the VPI and the Strong-Campbell Interest Blank are similar. For the purposes of the present study, the VPI was judged by the investigator to be a valid instrument.

\(^{3}\)Ibid., 3.

\(^{4}\)Ibid.

\(^{5}\)Ibid., 19-22.

\(^{6}\)Ibid.
My Vocational Situation (MVS) is a brief diagnostic test composed of three scales: (1) vocational identity, (2) occupational information, (3) barriers. The MVS is a self-administered test which can be completed in ten minutes or less. Internal consistency (KR-20) for college students and workers on the vocational identity scale of My Vocational Situation is .89. The first scale was developed to provide as an assessment of Holland's identity construct. Construct validity for the MVS was established by the authors in a study reported in the Manual for My Vocational Situation. The scales of the MVS were correlated with the number and variety of vocational aspirations. The results indicated that individuals with high levels of identity have a small number of occupational aspirations. An additional investigation of the construct validity of the MVS involved 2343 high school students from six rural and urban counties. For this sample, the Vocational Identity scales of the MVS was significantly related to expressed occupational concerns (p < .001).


8 Ibid., 3.


10 Ibid., 4.

11 Ibid., 6.
Development of the Music Major Satisfaction Questionnaire

In order to answer the research questions, an instrument capable of measuring college student's satisfaction with their major field of study was needed. A review of the literature revealed a number of instruments available for assessing job satisfaction of adults. Coleman assessed job satisfaction of music teachers using the Minnesota Satisfaction Questionnaire, Wiggins et al. assessed job satisfaction of teachers in general using the Hoppock Job Satisfaction Blank, and Mount and Muchinsky assessed satisfaction levels of a group of employed adults using the Job Descriptive Index. Studies involving college populations most often utilized instruments adapted from the previously mentioned instruments.

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Following an examination of the available instruments used to assess job satisfaction among adults and their respective adaptations for college students, none were found suitable for the purposes of the present study; therefore, a new instrument for assessing a college student's satisfaction with his or her degree major was developed for the study. Called the Music Major Satisfaction Questionnaire (MMSQ), this instrument was subjected to a series of analyses.

The pilot study version of the MMSQ consisted of twenty items, adapted from earlier studies (SEE APPENDIX A). In order to minimize the effects of set response, ten of the twenty items were negatively stated and distributed in random order. A 5-point Likert-type scale was used, ranging from strongly agree to strongly disagree. The pilot study version of the MMSQ was pretested with a population (N = 7) of undergraduate music majors to insure that the time required to complete the questionnaire was reasonable and to determine if the students found any items to be ambiguous. All students completed the questionnaire in less than six minutes and reported no difficulty in responding to all items.

The MMSQ was then administered to eighteen undergraduate music majors as part of the pilot study. In selecting a procedure for reliability estimation, this investigator determined that a test-retest design presented two problems; (1) negative effects of repetition, (2) impracticality of requesting additional time from teachers already pressed for class time. The decision was,
therefore, made to employ an internal consistency model for estimating reliability. Reliability for the pilot study version of the MMSQ was estimated at .90 using Cronbach's coefficient alpha. While considered adequate for the purposes of the present study, further efforts were made to improve the reliability of the instrument.

In addition to providing an internal consistency estimate, Cronbach's coefficient alpha procedure was used to provide an item analysis of the MMSQ. TABLE 4 presents the reliability analysis for the pilot study version of the MMSQ. The corrected item total correlations suggested that items eleven and twenty were not related to the other items. These items were eliminated in the main study version of the MMSQ (SEE APPENDIX B).

The final version of the MMSQ was administered to 100 undergraduate music majors as part of the main study. Reliability for the final version of the MMSQ was estimated at .92 using Cronbach's coefficient alpha. For the purposes of the present study, this investigator judged the MMSQ to be a reliable instrument for group measurement.

TABLE 5 presents the reliability analysis for the main study version of the MMSQ. The corrected-item total correlations range from .3753 to .7955. Because all items were generally correlated, it was assumed that the instrument measured from largely the same domain, thereby providing a limited measure of the content validity of the MMSQ.
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<thead>
<tr>
<th>Item</th>
<th>Corrected-Item Total Correlation</th>
<th>Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
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<td>.4965</td>
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<tr>
<td>2</td>
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<td>19</td>
<td>.5004</td>
<td>.8921</td>
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<tr>
<td>20</td>
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<td>.9045</td>
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</table>

n = 18
### TABLE 5

Reliability Analysis of the MMSQ
Main Study Version

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<th>Alpha if Item Deleted</th>
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</thead>
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<td>3</td>
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<td>4</td>
<td>0.5954</td>
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<tr>
<td>5</td>
<td>0.6235</td>
<td>0.9202</td>
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<tr>
<td>6</td>
<td>0.6288</td>
<td>0.9197</td>
</tr>
<tr>
<td>7</td>
<td>0.5663</td>
<td>0.9213</td>
</tr>
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<td>8</td>
<td>0.6836</td>
<td>0.9184</td>
</tr>
<tr>
<td>9</td>
<td>0.6031</td>
<td>0.9203</td>
</tr>
<tr>
<td>10</td>
<td>0.7064</td>
<td>0.9188</td>
</tr>
<tr>
<td>11</td>
<td>0.6595</td>
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</tr>
<tr>
<td>12</td>
<td>0.7955</td>
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<td>0.6071</td>
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<tr>
<td>18</td>
<td>0.6703</td>
<td>0.9196</td>
</tr>
</tbody>
</table>

n = 100
Assessment of Holland's Constructs

Congruence

Congruence refers to the degree of compatibility between a person's vocational personality and the work environment. In context of the present study, congruence is the degree of compatibility between an undergraduate music major's vocational personality and his or her major field of study. A measure of congruence for each subject was determined by comparing the subject's vocational personality to the subject's major field of study. In order to accomplish this task, the student's vocational personality was determined using the highest three scores on the first six scales of the Vocational Preference Inventory (VPI). A three-letter environmental code was determined using the mean scores on the first six scales of the VPI for all subjects enrolled in each of the four degree majors. For instance, to determine the environmental code for instrumental performance majors, VPI scores for all instrumental performance majors (N = 25) were totaled and divided by twenty-five. The highest three mean scores on the first six scales of the VPI then became the environmental code for instrumental performance majors. At this point, it was possible to compare a subject's three-letter code with the subject's environmental code representing his or her major field of study. Personality codes and environmental codes were compared using the lachan Index of Agreement. For example, if an instrumental

14R. Lachan, "A Measure of Agreement for Use with the Holland Classification System," Journal of Vocational Behavior 24
music education major's VPI code was ASE and the environmental code for instrumental music majors was ASE, then a congruence score of twenty-eight was assigned to that individual indicating a perfect match between the first, second and third personality types.

**Consistency**

People can be characterized by their resemblance to each of the six theoretical personality types. For example, a person could most resemble an artistic type, next an enterprising type, and so on, until a hierarchy is established including all six types. This hierarchy represents the individual's vocational personality. The primary and secondary types of a person's pattern are used to determine the consistency of the subject's vocational interests. Consistency is the degree of relatedness between the primary and secondary personality types of an individual.

For the purposes of the present study, consistency was determined by comparing the subject's two highest scores on the first six scales of the VPI. The hexagonal model is used to determine the degree of relatedness between the two highest scales. Three levels of consistency are possible. For instance, a subject whose highest VPI scale was artistic would be classified as having a high degree of consistency if his or her second highest scale was social or investigative. The same subject would be classified as

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having a moderate degree of consistency if his or her second highest VPI scale was realistic or enterprising. Finally, an artistic subject would be classified as having a low degree of consistency if his or her second highest VPI scale was conventional. Consistency scores can range from one to three with a score of three representing the highest level of consistency.

Differentiation

Differentiation is the degree to which a person resembles one or more vocational personalities. For example, a person may exhibit a clear preference for occupations from only one of the six occupational classifications and show very little interest in any of the other five categories. Such an individual would be described as possessing a high degree of differentiation. By contrast, an individual may exhibit preferences for occupations equally among all six categories. This individual would be described as poorly defined. For the purposes of the present study, differentiation was determined using the absolute difference between the highest and lowest raw scores on the first six scales of the VPI. For example, a person's whose highest score on the first six scales of the VPI was twelve and whose lowest score was three would have a differentiation score of nine. Differentiation scores can range from zero to fourteen with a score of fourteen representing the highest level of differentiation.

\[16\text{ibid.}\]
Identity

Consistency and differentiation are theoretical constructs which describe how clearly a person has defined himself or herself. Both consistency and differentiation have received mixed support in the literature, therefore, Holland proposed another construct (identity) which describes the clarity of an individual’s vocational goals. Identity is the possession of a clear and stable picture of one’s goals, interests, and talents. Individuals who possess a high degree of identity are assumed to have a small number of clearly defined occupational goals.

For the purposes of the present study, identity was determined using the first scale (Vocational Identity) of My Vocational Situation. The Vocational Identity scale consists of eighteen true-false items. A subject’s Identity score is the total number of false answers. Values can range from zero to eighteen with a score of eighteen representing the highest level of identity.

Educational Satisfaction

Educational satisfaction was assessed using the Music Major Satisfaction Questionnaire (MMSQ). A satisfaction score for each student was derived from eighteen items in Part II of the MMSQ. Values can range from eighteen to ninety with a score of ninety representing the highest degree of educational satisfaction. Reliability for the MMSQ was estimated at .92 using Cronbach’s

17 Ibid., 28.
18 Ibid., 5.
coefficient alpha and was, therefore, judged to be a reliable instrument for group measurement.

**Academic Achievement**

This investigator acknowledges that scholars disagree on how to define achievement. Studies involving adults often define achievement in terms of job success. In music studies, contest ratings, supervisor ratings, peer ratings, etc. have been utilized as measures of achievement. Achievement at the college level is often measured by the student's cumulative grade point average, thus the present study will refer to achievement as academic achievement. For the purposes of this study, academic achievement was defined as the student's cumulative grade point average. Cumulative grade point averages were obtained, with written permission of the subject, from the registrar's office at The University of North Texas.

**The Pilot Study**

A pilot study was conducted during the 1987 summer session at The University of North Texas. All analyses for the pilot study were executed using the SPSS-X Information Analysis System.

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Release 2.1 on the IBM compatible National Advanced Systems
AS/8083 mainframe computer located at the University of North
Texas. The Vocational Preference Inventory, My Vocational
Situation, and the Music Major Satisfaction Questionnaire were
administered by the researcher to undergraduate music students
during regularly scheduled classes with the cooperation of the
instructor. A brief discussion of the purpose of the study was given
to each class along with instructions for the completion of the three
instruments. Completion time for all three instruments ranged from
twenty-five to forty-five minutes, therefore it was determined that
the data for the main study could be realistically obtained during a
single class session of fifty minutes or more. Eighteen subjects (10
male, 8 female) participated in the pilot study. Their ages ranged
from eighteen to thirty-two with a mean age of 22.2. The major
fields of study represented were woodwind performance (N = 1),
instrumental music education (N = 15), choral music education
(N = 1) and jazz studies (N = 1). Seventeen students were classified
as seniors and one student was classified as a sophomore.

Results of the Pilot Study

The first research question was: Is there a statistically
significant relationship between levels of congruence and (a)
academic achievement and (b) educational satisfaction of
undergraduate music majors? For the pilot study, a single
environmental code was determined using the three highest group
mean scores on the first six scales of the VPI because the size of
the population did not permit an environmental code to be
determined for each major field of study. The mean scores for the pilot sample on the first six scales of the VPI yielded a three-letter code of ASE. Pearson product-moment correlation coefficients were then determined using each subject's congruence score and their respective achievement and satisfaction scores. The results indicated that congruence scores were significantly related to academic achievement and educational satisfaction.

The second research question was: Is there a statistically significant relationship between levels of consistency and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that consistency scores were significantly related to academic achievement, but not to educational satisfaction.

The third research question was: Is there a statistically significantly relationship between levels of differentiation and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that differentiation scores were significantly related to academic achievement, but not to educational satisfaction.

The fourth research question was: Is there a statistically significantly relationship between levels of identity and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that identity scores were significantly related to academic achievement and educational satisfaction.
For the pilot study, academic achievement was determined by having students indicate their cumulative grade point average through self-report. Following the pilot study, it was determined that a more consistent measure of cumulative grade point average was necessary, therefore, the decision was made to obtain the student's cumulative grade point average from the registrar's office at the University of North Texas.

The Main Study

Data for the main study were gathered during the spring semester of 1988 at The University of North Texas. All analyses for the main study were executed using the SPSS-X Information Analysis System Release 2.1 on the IBM compatible National Advanced Systems AS/8083 mainframe computer located at the University of North Texas. The Vocational Preference Inventory, My Vocational Situation, and the Music Major Satisfaction Questionnaire were administered by the researcher to undergraduate music students during regularly scheduled classes.

A measure of congruence for each subject was determined by comparing the subject's three-letter VPI code with the group mean code for the respective degree majors using the Iachan Index of Agreement. Consistency was determined for each subject by comparing the two highest scores on the first six scales of the Vocational Preference Inventory as described by the hexagonal model. Differentiation was determined for each subject using the absolute difference between the highest and lowest scores on the
first six scales of the VPI. Identity was determined for each subject from his or her score on the first scale of My Vocational Situation. A measure of satisfaction was determined from the eighteen items on Part II of the MMSQ. Academic achievement was determined using the student's cumulative grade point average. All data pertaining to research questions one through four were analyzed using the Pearson product-moment correlation coefficient. Significance levels were set at the .05 level.

Data relevant to questions five and six were analyzed using multiple regression. The multiple regression procedure provides an analysis of the relationship between a dependent variable and a number of independent variables. In each multiple regression procedure, congruence, consistency, differentiation and identity scores were treated as independent or predictor variables, while educational satisfaction scores were treated as the dependent or criterion variable in question five, and academic achievement scores were treated similarly in question six. Variables were entered using a forward (stepwise) inclusion method, i.e. the variable which explained the greatest amount of variance in the dependent variable was entered first; the variable that explained the greatest amount of variance in combination with the first was entered second; and so forth.

Data relevant to questions seven, eight, and nine were analyzed using analysis of variance. In each analysis of variance procedure, congruence, consistency, differentiation, identity, academic achievement, and educational satisfaction scores were treated as
the independent variables, while degree program and gender were treated as the dependent variables, respectively.
CHAPTER IV

ANALYSIS OF THE DATA

This chapter includes a brief description of the analytical procedures used in the main study and reports the findings of those procedures. The chapter is organized according to the nine research questions.

The first research question was, "Is there a statistically significant relationship between levels of congruence and (a) academic achievement (b) educational satisfaction of undergraduate music majors? Congruence was determined by comparing each subject's three-letter vocational personality classification code, obtained from the VPI, to the three-letter environmental code representing the subject's degree program using the Iachan Index of Agreement. Environmental codes were determined by averaging subject's raw scores on each scale of the VPI for the respective degree programs. The means and standard deviations of the VPI scales for each degree program are presented in TABLE 6. TABLE 7 lists the observed three-letter codes for each degree program.

When congruence scores for all subjects had been determined, possible relationships between academic achievement and congruence scores were investigated using the Pearson product-moment correlation coefficient. The result of this analysis, collected in TABLE 8, suggested a small but significant relationship
between academic achievement and congruence ($r = .23$). When satisfaction scores for all subjects had been determined, possible relationships between satisfaction and congruence scores were investigated. The result of this analysis indicated a small but significant relationship between educational satisfaction and congruence ($r = .30$).

**TABLE 6**

**Means and Standard Deviations of VPI Scales by Degree**

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<tr>
<th></th>
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<tbody>
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<td>Realistic</td>
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<td>3.84</td>
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<tr>
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<td>S. D.</td>
<td>1.17</td>
<td>2.82</td>
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<td>3.19</td>
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TABLE 7

Observed Three-Letter Codes

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<tr>
<th>Music Degree</th>
<th>Observed Code</th>
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<tr>
<td>Instrumental Performance</td>
<td>AIS</td>
</tr>
<tr>
<td>Jazz Studies</td>
<td>AIS</td>
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<tr>
<td>Instrumental Music Education</td>
<td>ASE</td>
</tr>
<tr>
<td>Vocal Music Education</td>
<td>ASE</td>
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</table>

The second research question was, "Is there a statistically significant relationship between levels of consistency and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? Consistency was determined by comparing the subject's primary and secondary personality types according to the hexagonal model. When consistency scores for all subjects had been determined, possible relationships between academic achievement and consistency scores were investigated using the Pearson product-moment correlation coefficient. Consistency scores were found to be significantly related to academic achievement (p = .04). Consistency scores were then correlated with educational satisfaction scores. This analysis (TABLE 8) did not reveal a significant relationship.

The third research question was, "Is there a statistically significant relationship between levels of differentiation and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that
Differentiation scores were significantly related to academic achievement ($p < .01$). Differentiation scores were then correlated with educational satisfaction scores. This analysis (TABLE 8) failed to find a significant relationship.

**TABLE 8**

Pearson Correlation Coefficients

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</thead>
<tbody>
<tr>
<td>Satis.</td>
<td>.16</td>
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<tr>
<td></td>
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<td>$p = .06$</td>
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<tr>
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<td>.34</td>
<td></td>
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<td></td>
</tr>
<tr>
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<td></td>
<td>*$p = .00$</td>
<td>*$p = .00$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cons.</td>
<td>.18</td>
<td>.10</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>*$p = .04$</td>
<td>$p = .17$</td>
<td>$p = .24$</td>
<td></td>
</tr>
<tr>
<td>Cong.</td>
<td>.23</td>
<td>.30</td>
<td>.00</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>*$p = .01$</td>
<td>*$p = .00$</td>
<td>$p = .47$</td>
<td>*$p = .00$</td>
</tr>
<tr>
<td>Diff.</td>
<td>.27</td>
<td>.01</td>
<td>.04</td>
<td>.26</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*$p = .00$</td>
<td>$p = .47$</td>
<td>$p = .36$</td>
<td>*$p = .00$</td>
</tr>
</tbody>
</table>

*$p < .05$
The fourth research question was, "Is there a statistically significant relationship between levels of identity and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? When identity scores for all subjects had been determined, the relationship between identity and academic achievement was investigated using the Pearson product-moment correlation coefficient. The result of this analysis (TABLE 8) suggested a significant relationship between identity and academic achievement ($p < .01$). Identity scores were then correlated with educational satisfaction scores. This analysis also revealed a significant relationship ($p < .01$).

The fifth research question was, "What is the relationship between educational satisfaction and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors? To test the relative importance of Holland's constructs, a stepwise multiple regression procedure was used. In the multiple regression procedure, congruence, consistency, differentiation and identity scores were treated as predictor variables, while educational satisfaction scores were treated as the criterion variable. Variables were entered using a forward (stepwise) inclusion method.

Identity was entered on step one of the analysis (TABLE 9) indicating that identity scores explain the largest amount of variance in educational satisfaction scores of undergraduate music majors. The strength of this relationship is indicated by the $R^2$ square value of .11876, i.e. identity scores explained approximately
twelve per cent of the variance in educational satisfaction scores, and were found to be statistically significant. The predictor variable entered on step two of the analysis (TABLE 10) was congruence. The $r$ square value of .20914 indicates that twenty-one percent of the variance in educational satisfaction scores can be explained by identity and congruence together, and that this relationship is statistically significant. Consistency and differentiation were entered on steps three and four (TABLE 11) of the regression equation, however these variables did not significantly improve the predictive ability of the equation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>.344609</td>
<td>3.634</td>
<td>.0004</td>
</tr>
</tbody>
</table>
### TABLE 10

Multiple Regression Analysis of Satisfaction - Step 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>0.342278</td>
<td>3.791</td>
<td>0.0003</td>
</tr>
<tr>
<td>Congruence</td>
<td>0.300649</td>
<td>3.330</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

### TABLE 11

Multiple Regression Analysis of Satisfaction - Steps 3 and 4

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>0.3448</td>
<td>3.793</td>
<td>0.0003</td>
</tr>
<tr>
<td>Congruence</td>
<td>0.3305</td>
<td>3.400</td>
<td>0.0010</td>
</tr>
<tr>
<td>Consistency</td>
<td>0.0152</td>
<td>0.169</td>
<td>0.8659</td>
</tr>
<tr>
<td>Difference</td>
<td>-0.1090</td>
<td>-1.120</td>
<td>0.2654</td>
</tr>
</tbody>
</table>
The sixth research question was, "What is the relationship between academic achievement and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors? To test the relative importance of Holland's constructs in relation to academic achievement, a stepwise multiple regression procedure was used. In the multiple regression procedure, congruence, consistency, differentiation and identity scores were treated as predictor variables, while academic achievement was treated as the criterion variable. Variables were entered using a forward (stepwise) inclusion method.

Identity was entered on step one (TABLE 12) of the analysis indicating that identity scores explained the largest amount of variance in academic achievement scores of undergraduate music majors. The strength of this relationship was indicated by the \( r^2 \) square value of .10552, i.e. identity scores explained approximately eleven per cent of the variance in academic achievement scores and was found to be statistically significant. The predictor variable entered on step two (TABLE 13) of the analysis was differentiation. The \( r^2 \) square value of .17065 indicated that seventeen percent of the variance in academic achievement scores can be explained by identity and differentiation together, and that this relationship is statistically significant. Consistency and congruence were entered on steps three and four (TABLE 14) of the regression equation, however these variables did not significantly improve the predictive ability of the equation.
### TABLE 12

**Multiple Regression Analysis of Achievement - Step 1**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>.32483</td>
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</tr>
<tr>
<td>R Square</td>
<td>.10552</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>11.56033</td>
<td></td>
</tr>
<tr>
<td>Sig. of F</td>
<td>.00100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>.32483</td>
<td>3.400</td>
<td>.0010</td>
</tr>
</tbody>
</table>

### TABLE 13

**Multiple Regression Analysis of Achievement - Step 2**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>.41309</td>
<td></td>
</tr>
<tr>
<td>R Square</td>
<td>.17065</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>9.97930</td>
<td></td>
</tr>
<tr>
<td>Sig. of F</td>
<td>.00010</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>.315644</td>
<td>3.411</td>
<td>.0009</td>
</tr>
<tr>
<td>Differentiation</td>
<td>.255373</td>
<td>2.760</td>
<td>.0069</td>
</tr>
</tbody>
</table>
TABLE 14

Multiple Regression Analysis of Achievement - Steps 3 and 4

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
<th>T</th>
<th>Sig. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>0.3121</td>
<td>3.388</td>
<td>0.0010</td>
</tr>
<tr>
<td>Differentiation</td>
<td>0.1917</td>
<td>1.943</td>
<td>0.0549</td>
</tr>
<tr>
<td>Consistency</td>
<td>0.0653</td>
<td>0.673</td>
<td>0.5029</td>
</tr>
<tr>
<td>Congruence</td>
<td>0.1499</td>
<td>1.522</td>
<td>0.1314</td>
</tr>
</tbody>
</table>

Research question seven was, "Are there significant differences in mean scores of the congruence, consistency, differentiation, and identity variables among undergraduate music majors grouped by (a) degree program? (b) gender? Data were analyzed using a one-way analysis of variance for both parts of question seven. In each analysis of variance procedure, congruence, consistency, differentiation and identity scores were treated as the dependent variables, while degree program and gender were treated as the independent variable, respectively. TABLE 15 presents the means and standard deviations of Holland's constructs by gender and by degree major.
TABLES 16 through 19 show the results of the analysis of variance procedures with degree program as the independent variable. TABLES 20 through 23 show the results of the analysis of variance procedure with gender as the independent variable. The results indicate that there were no significant differences in mean scores of Holland's constructs among undergraduate music majors group by degree program or gender.

TABLE 15
Means and Standard Deviations of Holland's Constructs by Gender and Degree Major

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Males (N = 58)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.19</td>
<td>2.60</td>
<td>8.57</td>
<td>13.36</td>
</tr>
<tr>
<td>S. D.</td>
<td>7.42</td>
<td>.56</td>
<td>.41</td>
<td>3.17</td>
</tr>
<tr>
<td>Females (N = 42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>23.60</td>
<td>2.71</td>
<td>8.74</td>
<td>13.57</td>
</tr>
<tr>
<td>S. D.</td>
<td>5.17</td>
<td>.60</td>
<td>3.00</td>
<td>3.13</td>
</tr>
<tr>
<td>Degree Major</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. Per. (N = 25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.32</td>
<td>2.72</td>
<td>8.96</td>
<td>13.68</td>
</tr>
<tr>
<td>S. D.</td>
<td>4.30</td>
<td>.54</td>
<td>3.41</td>
<td>3.41</td>
</tr>
<tr>
<td>Inst. M. Ed. (N = 25)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.88</td>
<td>2.76</td>
<td>8.12</td>
<td>13.96</td>
</tr>
<tr>
<td>S. D.</td>
<td>8.42</td>
<td>.52</td>
<td>2.98</td>
<td>3.02</td>
</tr>
<tr>
<td>Vocal M. Ed. (N = 25)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.32</td>
<td>2.65</td>
<td>8.16</td>
<td>12.88</td>
</tr>
<tr>
<td>S. D.</td>
<td>7.70</td>
<td>.65</td>
<td>2.85</td>
<td>2.77</td>
</tr>
<tr>
<td>Jazz Studies (N = 25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>23.28</td>
<td>2.56</td>
<td>9.32</td>
<td>13.28</td>
</tr>
<tr>
<td>S. D.</td>
<td>4.70</td>
<td>.58</td>
<td>2.98</td>
<td>3.39</td>
</tr>
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</table>
### TABLE 16

**ANOVA - Congruence by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>273.440</td>
<td>3</td>
<td>91.147</td>
<td>2.136</td>
<td>0.101</td>
</tr>
<tr>
<td>Residual</td>
<td>4096.560</td>
<td>96</td>
<td>42.672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4370.000</td>
<td>99</td>
<td>44.141</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 17

**ANOVA - Consistency by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>0.830</td>
<td>3</td>
<td>0.277</td>
<td>0.832</td>
<td>0.479</td>
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<tr>
<td>Residual</td>
<td>31.920</td>
<td>96</td>
<td>0.322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32.750</td>
<td>99</td>
<td>0.331</td>
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</tbody>
</table>

N = 100

### TABLE 18

**ANOVA - Differentiation by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>26.640</td>
<td>3</td>
<td>8.880</td>
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<td>0.421</td>
</tr>
<tr>
<td>Residual</td>
<td>900.400</td>
<td>96</td>
<td>9.379</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>927.040</td>
<td>99</td>
<td>9.364</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
TABLE 19
ANOVA - Identity by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>16.670</td>
<td>3</td>
<td>5.557</td>
<td>0.557</td>
<td>0.645</td>
</tr>
<tr>
<td>Residual</td>
<td>958.080</td>
<td>96</td>
<td>9.980</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>974.750</td>
<td>99</td>
<td>9.846</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

TABLE 20
ANOVA - Congruence by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>1</td>
<td>140.967</td>
<td>3.267</td>
<td>0.074</td>
</tr>
<tr>
<td>Residual</td>
<td>4229.033</td>
<td>98</td>
<td>43.153</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4370.000</td>
<td>99</td>
<td>44.141</td>
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<td></td>
</tr>
</tbody>
</table>

N = 100

TABLE 21
ANOVA - Consistency by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>0.299</td>
<td>0.904</td>
<td>0.344</td>
</tr>
<tr>
<td>Residual</td>
<td>32.451</td>
<td>98</td>
<td>0.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32.750</td>
<td>99</td>
<td>0.331</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
TABLE 22
ANOVA - Differentiation by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.697</td>
<td>1</td>
<td>0.697</td>
<td>0.074</td>
<td>0.787</td>
</tr>
<tr>
<td>Residual</td>
<td>926.343</td>
<td>98</td>
<td>9.452</td>
<td>0.074</td>
<td>0.787</td>
</tr>
<tr>
<td>Total</td>
<td>927.040</td>
<td>99</td>
<td>9.364</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

TABLE 23
ANOVA - Identity by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.068</td>
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<td>1.068</td>
<td>0.107</td>
<td>0.744</td>
</tr>
<tr>
<td>Residual</td>
<td>973.682</td>
<td>98</td>
<td>9.936</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>974.750</td>
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<td>9.846</td>
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<td></td>
</tr>
</tbody>
</table>

N = 100

Research question eight was, "Are there significant differences in mean scores of the academic achievement and educational satisfaction variables among undergraduate music majors grouped by (a) degree program? (b) gender? TABLE 24 presents the means and standard deviations of the academic achievement scores (cumulative grade point averages) and educational satisfaction scores for all undergraduate music majors.
TABLE 25 presents a comparison of the means and standard deviations of the academic achievement and educational satisfaction scores of undergraduate music majors grouped by gender.

**TABLE 24**

Means and Standard Deviations of Achievement and Satisfaction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement (CGPA)</td>
<td>3.27</td>
<td>0.45</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>73.42</td>
<td>10.79</td>
</tr>
</tbody>
</table>

N = 100

**TABLE 25**

Means and Standard Deviations of Achievement and Satisfaction Scores by Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N = 58)</th>
<th>Females (N = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>GPA</td>
<td>3.23</td>
<td>0.45</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>72.40</td>
<td>10.93</td>
</tr>
</tbody>
</table>
TABLE 26 presents the means and standard deviations of the academic achievement and educational satisfaction variables of undergraduate music majors grouped by degree major. Jazz studies majors had the highest mean academic achievement scores while the vocal music education majors had the lowest. Instrumental performance majors had the highest satisfaction scores while the vocal music education majors had the lowest.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement (CGPA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.30</td>
<td>3.24</td>
<td>3.10</td>
<td>3.42</td>
</tr>
<tr>
<td>S. D.</td>
<td>0.45</td>
<td>0.44</td>
<td>0.50</td>
<td>0.34</td>
</tr>
<tr>
<td>Satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>76.92</td>
<td>73.76</td>
<td>71.00</td>
<td>72.00</td>
</tr>
<tr>
<td>S. D.</td>
<td>8.68</td>
<td>10.83</td>
<td>13.34</td>
<td>9.40</td>
</tr>
</tbody>
</table>

Data were analyzed using a one-way analysis of variance for both parts of question eight. In each analysis of variance procedure, academic achievement and educational satisfaction scores were treated as the dependent variables, while degree program and gender were treated as the independent variable, respectively. TABLES 27 through 30 show the results of the analysis of variance procedures.
The results indicate that there were no significant differences between the mean scores of academic achievement and educational satisfaction and degree program or gender.

**TABLE 27**

ANOVA - Achievement by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>13398.110</td>
<td>3</td>
<td>4466.037</td>
<td>2.343</td>
<td>0.078</td>
</tr>
<tr>
<td>Residual</td>
<td>183011.280</td>
<td>96</td>
<td>1906.367</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>196409.390</td>
<td>99</td>
<td>1983.933</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

**TABLE 28**

ANOVA - Satisfaction by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>505.960</td>
<td>3</td>
<td>168.653</td>
<td>1.469</td>
<td>0.228</td>
</tr>
<tr>
<td>Residual</td>
<td>11020.400</td>
<td>96</td>
<td>114.796</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11526.360</td>
<td>99</td>
<td>116.428</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
Research question nine was, "Are there significant differences in mean scores on the interest scales of the Vocational Preference Inventory among undergraduate music majors grouped by (a) degree program? (b) gender? Data were analyzed using a one-way analysis of variance for both parts of question nine. In each analysis of variance procedure, the interest scales of the Vocational Preference Inventory were treated as the dependent variables, while degree
program and gender were treated as the independent variables, respectively. TABLE 31 presents the means and standard deviations for the first six scales of the Vocational Preference Inventory for all undergraduate music majors.

TABLE 31
Means and Standard Deviations of VPI Scales

<table>
<thead>
<tr>
<th>VPI Scale</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realistic</td>
<td>2.25</td>
<td>2.62</td>
</tr>
<tr>
<td>Investigative</td>
<td>3.55</td>
<td>3.67</td>
</tr>
<tr>
<td>Artistic</td>
<td>8.44</td>
<td>3.51</td>
</tr>
<tr>
<td>Social</td>
<td>4.55</td>
<td>3.62</td>
</tr>
<tr>
<td>Enterprising</td>
<td>3.21</td>
<td>3.13</td>
</tr>
<tr>
<td>Conventional</td>
<td>1.33</td>
<td>2.54</td>
</tr>
</tbody>
</table>

N = 100

TABLE 32 presents the means and standard deviations of the Vocational Preference Inventory scales of undergraduate music majors grouped by gender. TABLE 6, presented earlier, includes a comparison of the means and standard deviations on the first six scales of the Vocational Interest Inventory by degree major. TABLES 33 through 38 show the results of the analysis of variance procedures with degree major as the independent variable. The results indicated that there was a significant difference in mean scores on the social scale (TABLE 36) of the Vocational Preference Inventory.
Inventory when the sample was divided according to degree major. Further analysis using a post hoc Scheffé procedure (TABLE 39) shows that instrumental music education majors had significantly higher mean scores on the social scale of the Vocational Preference Inventory than jazz studies majors.

TABLE 32

Means and Standard Deviations of VPI Scales by Gender

<table>
<thead>
<tr>
<th>VPI Scale</th>
<th>Males (N = 58)</th>
<th>Females (N = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Realistic</td>
<td>2.97</td>
<td>2.73</td>
</tr>
<tr>
<td>Investigative</td>
<td>3.98</td>
<td>3.99</td>
</tr>
<tr>
<td>Artistic</td>
<td>8.41</td>
<td>3.51</td>
</tr>
<tr>
<td>Social</td>
<td>3.79</td>
<td>3.64</td>
</tr>
<tr>
<td>Enterprising</td>
<td>3.24</td>
<td>3.26</td>
</tr>
<tr>
<td>Conventional</td>
<td>1.33</td>
<td>2.87</td>
</tr>
</tbody>
</table>

TABLE 33

ANOVA - Realistic by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>27.470</td>
<td>3</td>
<td>9.157</td>
<td>1.354</td>
<td>0.262</td>
</tr>
<tr>
<td>Residual</td>
<td>649.280</td>
<td>96</td>
<td>6.763</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>676.750</td>
<td>99</td>
<td>6.836</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
### TABLE 34

**ANOVA - Investigative by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>42.030</td>
<td>3</td>
<td>14.010</td>
<td>1.032</td>
<td>0.382</td>
</tr>
<tr>
<td>Residual</td>
<td>1302.720</td>
<td>96</td>
<td>13.570</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1344.750</td>
<td>99</td>
<td>13.583</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 35

**ANOVA - Artistic by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>80.560</td>
<td>3</td>
<td>26.853</td>
<td>2.265</td>
<td>0.086</td>
</tr>
<tr>
<td>Residual</td>
<td>1138.080</td>
<td>96</td>
<td>11.855</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1218.640</td>
<td>99</td>
<td>12.309</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 36

**ANOVA - Social by Degree**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>147.710</td>
<td>3</td>
<td>49.237</td>
<td>4.114</td>
<td>* 0.009</td>
</tr>
<tr>
<td>Residual</td>
<td>1149.040</td>
<td>96</td>
<td>11.969</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1296.750</td>
<td>99</td>
<td>13.098</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

* p < .05
### TABLE 37

ANOVA - Enterprising by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>60.030</td>
<td>3</td>
<td>20.010</td>
<td>2.105</td>
<td>0.105</td>
</tr>
<tr>
<td>Residual</td>
<td>912.560</td>
<td>96</td>
<td>9.506</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>972.590</td>
<td>99</td>
<td>9.824</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 38

ANOVA - Conventional by Degree

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>18.830</td>
<td>3</td>
<td>6.277</td>
<td>0.973</td>
<td>0.409</td>
</tr>
<tr>
<td>Residual</td>
<td>619.280</td>
<td>96</td>
<td>6.451</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>638.110</td>
<td>99</td>
<td>6.446</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
TABLE 39
Scheffé Procedure - Social by Degree

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.28</td>
<td>Jazz Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.44</td>
<td>Instru. Perform.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.40</td>
<td>Vocal M. Ed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.08</td>
<td>Instru. M. Ed.</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05

TABLES 40 through 45 show the analysis of variance procedures with gender as the independent variable. The results indicated that there were significant differences in mean scores on the realistic and social scales of the Vocational Preference Inventory when the sample was divided according to gender. Male undergraduate music majors scored significantly higher (TABLE 40) on the realistic scale of the Vocational Preference Inventory than female undergraduate music majors. Female undergraduate music majors scored significantly higher (TABLE 43) on the social scale of the Vocational Preference Inventory than male undergraduate music majors.
### TABLE 40
ANOVA - Realistic by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>70.700</td>
<td>1</td>
<td>70.700</td>
<td>11.432</td>
<td>* 0.001</td>
</tr>
<tr>
<td>Residual</td>
<td>606.050</td>
<td>98</td>
<td>6.184</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>676.750</td>
<td>99</td>
<td>6.836</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
* * p < .05

### TABLE 41
ANOVA - Investigative by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>25.862</td>
<td>1</td>
<td>25.862</td>
<td>1.922</td>
<td>0.169</td>
</tr>
<tr>
<td>Residual</td>
<td>1318.888</td>
<td>98</td>
<td>13.458</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1344.750</td>
<td>99</td>
<td>13.583</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 42
ANOVA - Artistic by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>.095</td>
<td>1</td>
<td>0.095</td>
<td>0.008</td>
<td>0.931</td>
</tr>
<tr>
<td>Residual</td>
<td>1218.545</td>
<td>98</td>
<td>12.434</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1218.640</td>
<td>99</td>
<td>12.309</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
### TABLE 43
ANOVA - Social by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>79.114</td>
<td>1</td>
<td>79.114</td>
<td>6.367</td>
<td>* 0.013</td>
</tr>
<tr>
<td>Residual</td>
<td>1217.636</td>
<td>98</td>
<td>12.425</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1296.750</td>
<td>99</td>
<td>13.098</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
p < .05.

### TABLE 44
ANOVA - Enterprising by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>0.136</td>
<td>1</td>
<td>1.36</td>
<td>0.014</td>
<td>0.907</td>
</tr>
<tr>
<td>Residual</td>
<td>972.454</td>
<td>98</td>
<td>9.923</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>972.590</td>
<td>99</td>
<td>9.824</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100

### TABLE 45
ANOVA - Conventional by Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>0.001</td>
<td>1</td>
<td>0.001</td>
<td>0.000</td>
<td>0.991</td>
</tr>
<tr>
<td>Residual</td>
<td>638.109</td>
<td>98</td>
<td>6.511</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>638.110</td>
<td>99</td>
<td>6.446</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 100
CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

One of the most influential vocational theories over the past three decades has been Holland's theory of vocational personalities and work environments. The theory asserts that people can be classified according to their resemblance to six personality types: realistic, investigative, artistic, social, enterprising and conventional. Work environments also may be classified into six categories corresponding to the personality types. According to Holland, the interaction of personality and environment results in predictable behavior. The theory has also been extended to college students by equating chosen fields of study with respective work environments. Holland's theory has received confirmatory support in studies of both adult and college populations; however, in music-related settings, the theory has not been adequately investigated. The present study sought to investigate Holland's


2 Ibid., 3.

3 Ibid., 4.
theory of vocational personalities and work environments as applied to undergraduate music majors.

A sample of junior and senior music majors (N=100) enrolled at the University of North Texas during the spring of 1988 participated in the study. Subjects were enrolled in one of four degree majors: instrumental performance, instrumental music education, vocal music education or jazz studies.

The first research question was: Is there a statistically significant relationship between levels of congruence and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that congruence was significantly related to academic achievement and educational satisfaction of undergraduate music majors. The findings are in agreement with those obtained by Werner, Wiggins et al., and Nafziger, and Holland and Gottfredson. The findings of Mount and Muchinsky supported Holland’s construct of congruence for all types except workers in the social environment. Morrow found that congruence was an effective predictor of student’s satisfaction with


their degree majors for mathematics majors, but not for sociology majors.\textsuperscript{6}

The second research question was: Is there a statistically significant relationship between levels of consistency and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that consistency was significantly related to academic achievement, but not to educational satisfaction of undergraduate music majors. The present finding that consistency was related to achievement is in agreement with studies by Wiley and Magoon, and Barak and Rabbi.\textsuperscript{7} Contrary to the results of the present study, O'Neil found that consistency was not significantly related to achievement.\textsuperscript{8} The present findings are also in agreement with those of Nafziger, Holland and Gottfredson.\textsuperscript{9} Nafziger, Holland and Gottfredson reported no significant relationship between satisfaction and


\textsuperscript{9}Nafziger, Holland and Gottfredson.
consistency.

The third research question was: Is there a statistically significant relationship between levels of differentiation and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicate that differentiation was significantly related to academic achievement, but not to educational satisfaction of undergraduate music majors. The results of the present study support earlier findings of Nafziger, Holland and Gottfredson.\(^{10}\) Nafziger, Holland and Gottfredson found that differentiation was not significantly related to satisfaction. In contrast, Wiggins et al. reported that differentiation was significantly related to satisfaction.\(^{11}\) The present findings are also in disagreement with those of O'Neil who failed to find a significant relationship between differentiation and achievement.\(^{12}\)

The fourth research question was: Is there a statistically significant relationship between levels of identity and (a) academic achievement and (b) educational satisfaction of undergraduate music majors? The results indicated that identity was significantly related to academic achievement and educational satisfaction of undergraduate music majors. A comparison of the present findings

---

\(^{10}\) Ibid.

\(^{11}\) Wiggins et al., "Job Satisfaction," 112-121.

\(^{12}\) O'Neil, "Holland's Theoretical Signs of Consistency and Differentiation," 166-73.
with previous research was not possible because identity, as a formal construct, was introduced in the 1985 revision of Holland's theory.

The fifth research question was: What is the relationship between educational satisfaction and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors? The results indicated that when the variables of congruence, consistency, differentiation and identity were combined, identity was the best predictor of satisfaction scores, followed in order of importance by congruence, consistency, and differentiation.

The sixth research question was: What is the relationship between academic achievement and a linear composite of the congruence, consistency, differentiation, and identity variables among undergraduate music majors? The results indicated that when the variables of congruence, consistency, differentiation and identity were combined, identity was the best predictor of achievement scores, followed in order of importance by differentiation, congruence, and consistency.

The seventh research question was: Are there significant differences in mean scores of the congruence, consistency, differentiation, and identity variables among undergraduate music majors grouped by (a) degree program, and (b) gender? The results indicated that there were no significant differences between the mean scores of undergraduate music majors when grouped according to degree program and gender on the variables of congruence,
consistency, differentiation and identity. The findings suggested that undergraduate music majors represent a homogeneous population in terms of Holland's constructs.

The eighth research question was: Are there significant differences in mean scores of the academic achievement and educational satisfaction variables among undergraduate music majors grouped by (a) degree program, and (b) gender? The results indicated that there were no significant differences between the mean scores on the achievement and satisfaction variables of undergraduate music majors when grouped according to degree program and gender. The findings suggested that undergraduate music majors represent a homogeneous population in terms of academic achievement and educational satisfaction.

The ninth research question was: Are there significant differences in mean scores on the interest scales of the Vocational Preference Inventory among undergraduate music majors grouped by (a) degree program, and (b) gender? The results indicated that there were significant differences in the mean scores on the social scale of the Vocational Preference Inventory when undergraduate music majors were grouped according to degree program. A post hoc Scheffé procedure indicated that instrumental music education majors had significantly higher mean scores on the social scale of the Vocational Preference Inventory than jazz studies majors. In addition, there were significant differences in the mean scores on the realistic and social scales of the Vocational Preference Inventory of undergraduate music majors when divided according to
Gender. Female undergraduate music majors had significantly higher mean scores on the social scale of the Vocational Preference Inventory. Male undergraduate music majors had significantly higher mean scores on the realistic scale of the VPI.

Discussion

Academic Achievement

Holland defines congruence as the degree of compatibility between a student’s vocational personality and his or her major field of study.\textsuperscript{13} Theoretically, high levels of congruence are associated with high levels of academic achievement.\textsuperscript{14} The present study found that congruence scores were significantly related to achievement scores among undergraduate music majors. The $r$ value between congruence scores and achievement scores was .23 which indicated that congruence scores accounted for approximately five per cent of the variance in achievement scores, i.e. the relationship was statistically significant, but as an isolated finding, not very important.

Holland defines identity as the possession of a clear and stable picture of one’s goals interests and talents.\textsuperscript{15} According to Holland, high levels of identity are associated with high levels of academic achievement.\textsuperscript{16} The present study found that identity

\textsuperscript{13}Ibid., 5.

\textsuperscript{14}Ibid., 51-57.

\textsuperscript{15}Ibid., 5.
scores were significantly related to achievement scores among undergraduate music majors. The correlation between identity scores and achievement scores was $r = .32$, which indicated that identity scores accounted for approximately ten per cent of the variance in achievement scores. The results also indicated that consistency and differentiation were significantly related to academic achievement. The $r$ value for consistency was .18 (approximately three per cent of the variance) while the $r$ value for differentiation was .27 (approximately seven per cent of the variance). Although both constructs yielded statistical significance, only the differentiation construct appears to offer useful information, albeit limited.

Several studies in music education have attempted to identify variables related to achievement among college music students. Wink reported that a positive self-concept of one's teaching abilities was significantly related to achievement in music student teaching.\(^{17}\) Ernest reported that general scholastic aptitude (16 per cent of the variance) and general reading ability (12 per cent of the variance) were significantly related to academic achievement of college music students.\(^{18}\) As these and other studies suggest,

\(^{16}\)Ibid., 51-57.


achievement is a complex and multi-dimensional construct. In addition to variables such as self-concept, reading ability, and general scholastic aptitude, the findings of the present study suggested that identity and congruence may be important constructs of achievement. Thus, it would appear that the degree of compatibility of college music students' vocational personalities with those of their peers (congruence) and the degree of confidence an undergraduate music major expresses about his or her career choice (identity) explained a small, but important dimension of variability in academic achievement.

In summary, it is unlikely that any single theory, personality test, or interest inventory accounts for all the variables which contribute to variability in achievement among college music students. To arrive at a comprehensive model of academic achievement among undergraduate music majors, it will be necessary to utilize constructs of several theories. The present findings suggested that Holland's constructs of identity, congruence, and possibly differentiation should be included in such a model.

**Educational Satisfaction**

As previously stated, Holland defines congruence as the degree of compatibility between a student's personality and his or her major field of study. High levels of congruence are theoretically associated with high levels of educational satisfaction. The


20 Ibid., 51-57.
present study found that congruence scores were significantly related to satisfaction scores ($r = .30$) among undergraduate music majors, i.e. congruence scores accounted for nine per cent of the variance in satisfaction scores. Additionally, Holland claims that high levels of identity are associated with high levels of educational satisfaction.\(^{21}\) The present study found a statistically significant relationship between identity scores and satisfaction scores ($r = .34$) which indicated that identity scores explained approximately twelve per cent of the variance in satisfaction scores.

Studies by Calder, Rhinehart, and White have investigated satisfaction among music teachers and reported that salary, conflict with administrators, and teaching schedules were but three of a number of variables relating to occupational satisfaction.\(^{22}\) These studies, however, investigated populations of adults and the findings may not apply to college students. The findings of the present study suggested that college music students were more likely to be satisfied with their degree major if their vocational personality was compatible (congruence) with the vocational personalities of

\(^{21}\)Ibid.

their peers. In addition, the findings suggested that the degree of confidence an undergraduate music major expresses about his or her career choice (identity) explains a small, but significant amount of variability in educational satisfaction. As was the case for achievement, Holland's constructs of congruence and identity appear to be important components in developing a comprehensive model of educational satisfaction among college music students.

The results also indicated that consistency and differentiation were not significantly related to educational satisfaction. Although Holland claims that all four constructs are related to both achievement and satisfaction, the present findings do not support this position. One plausible conclusion is that models of achievement and satisfaction share common constructs such as congruence and identity, but differ in other areas.

In a study of the relationship of personality traits and job satisfaction of music teachers, Coleman reported no significant differences in overall occupational satisfaction between males and females. The present study extended Coleman's findings to a population of undergraduate music majors. Males and females appeared to represent a homogeneous population in terms of satisfaction with their degree program at the undergraduate level. When viewed in combination, the findings suggested that gender does

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24M. Coleman, “The Relationship of Personality Traits and Satisfaction of Music Teachers” (Ph.D. diss., North Texas State University, 1987).
not play a role in satisfaction among adult or college music students.

Combinations of Holland's Constructs

The present study investigated the interrelationship of Holland's constructs. According to Holland, the constructs are interrelated, and the hierarchy is as follows: congruence is the most influential in predicting academic achievement and educational satisfaction, differentiation is next, and consistency is the least influential.\(^\text{25}\) Holland did not speculate on the relative importance of identity in the 1985 revision of the theory.

Identity was found to have the strongest relationship to educational satisfaction, followed in order of importance by congruence, consistency and differentiation. Identity was also found to have the strongest relationship to academic achievement, followed in order of importance by differentiation, consistency and congruence. Holland's purpose in adding the identity construct to the theory was as an alternative to the consistency and differentiation constructs in describing how well a person defines himself or herself.\(^\text{26}\) Holland also indicated that identity may be a more useful construct than either consistency or differentiation.\(^\text{27}\) The results of this study provided support for this notion.

\(^\text{25}\)Ibid., 51.

\(^\text{26}\)Ibid., 28-29.

\(^\text{27}\)Ibid.
Holland's Classification System

The artistic category of Holland's hexagonal model best described the vocational personalities of college music students regardless of degree sought. The second and third categories indicated that college music majors may be grouped into two categories representing similar yet different orientations within the field of music. The instrumental performance majors and the jazz studies majors had identical codes of AIS, while the instrumental and vocal music education students had codes of ASE. This finding suggested that Holland's classification system may distinguish among two traditionally held divisions of college music students, namely performers and teachers.

Possibly, music teachers and music performers differ on the social dimension of their vocational personalities. Holland has described a person with a social vocational personality as one who enjoys helping others and possesses teaching abilities.\(^{28}\) Earlier studies have reported similar findings. Bullock reported that superior junior high instrumental music teachers enjoyed doing things for other people.\(^{29}\) Lutz found that successful teachers were more people oriented than unsuccessful teachers.\(^{30}\) Picerno


\(^{29}\)J. C. Bullock, "An Investigation of the Personality Traits, Job Satisfaction Attitudes, Training and Experience Histories of Superior Teachers of Junior High School Instrumental Music in New York State" (Ph.D. diss., University of Miami, 1974).

\(^{30}\)W. W. Lutz, "The Personality Characteristics and
concluded that most factors which distinguish the superior teacher are related to human relations. Holland's theory may provide a useful framework for future investigations of the similarities and differences among music teachers and music performers.

**Recommendations**

Identity and congruence appear to be important constructs of academic achievement and educational satisfaction among undergraduate music majors. Future investigations should incorporate Holland's constructs of congruence and identity along with other variables suggested by research in the development of comprehensive models of achievement and satisfaction among college music students.

The present study, due to sample considerations, did not include undergraduate music degrees such as music history, composition, vocal performance and music therapy degrees. Future studies should include music majors enrolled in degree plans other than those included in the present study. In addition, Holland's theory may provide a useful framework for the investigation of a number of occupational behaviors of adult musicians.

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The artistic category of Holland's hexagonal model best described the vocational personalities of college music students, regardless of degree sought. The second and third categories appeared to divide college music students into two large groups, performance majors and education majors. Holland's hexagonal model may provide a theoretical frame of reference for further investigation of the similarities and differences among performance and education majors in music.
INSTRUCTIONS

Enclosed you will find three questionnaires designed to find out how you, as a music major, feel about your degree. The information which you provide will be of help in studying certain occupational behaviors of musicians.

First, you will find the Vocational Preference Inventory and answer sheet. This is an inventory of your feelings and attitudes about many kinds of work.

Second, you will find a questionnaire entitled My Vocational Situation. This is an inventory of your vocational goals and interests.

Third, you will find the Music Major Satisfaction Questionnaire. The Music Major Satisfaction Questionnaire is designed to find out how you feel about your college major.

Please make sure to put your name on each item. These three questionnaires should take about 20-30 minutes to complete.

Thank you for your cooperation.
Music Major Satisfaction Questionnaire

Part 1. General Information

1. Name ________________________________

2. Age ______

3. Male _____ Female _____

4. Current Degree Major
   Performance (Instrumental) _____
   Music Education (Vocal) _____
   Music Education (Instrumental) _____
   Jazz Studies _____

5. Year in school
   Junior _____
   Senior _____

6. Cumulative Grade Point Average (Currently)
   0.00 - 1.49 _____
   1.50 - 1.99 _____
   2.00 - 2.49 _____
   2.50 - 2.99 _____
   3.00 - 3.49 _____
   3.50 - 4.00 _____

Part 2.

Instructions. Place a check mark on the blank space which best represents your level of satisfaction with your degree major. Although many items appear to be similar, the items are carefully worded to express subtle differences. Please answer each question carefully. Think of your degree major in terms of how it fits your goals and aspirations rather than about specific instructors, courses, or employment possibilities.

1. I am positive this is the right degree for me.
   Strongly Agree: ___________ Strongly Disagree: ___________
2. It seems like everybody likes their major more than I do.

3. Most of the time I am satisfied with my degree major.

4. If anything, I must admit a dislike for my college major.

5. My degree is preparing me for the job I always wanted.

6. This degree seems to be relevant to my future plans.

7. My college major is dry and uninteresting.

8. Recently, I have been thinking about changing my degree major.

9. My degree will definitely help me in the future.

10. Most days I feel good about my college major.

11. My major involves a lot of tedious busy work.
12. I am definitely not satisfied with my degree major.
   Strongly Agree __ : __ : __ : __ : __ Disagree

13. I am very excited about my degree.
   Strongly Agree __ : __ : __ : __ : __ Disagree

14. I like my major more than the average student does.
   Strongly Agree __ : __ : __ : __ : __ Disagree

15. My degree major does not relate to my professional interests.
   Strongly Agree __ : __ : __ : __ : __ Disagree

16. Sometimes I think I made a mistake in selecting my college major.
   Strongly Agree __ : __ : __ : __ : __ Disagree

17. I would definitely like to have a collection of books dealing with the subject matter of my college major.
   Strongly Agree __ : __ : __ : __ : __ Disagree

18. On the whole, I am pleased with my major.
   Strongly Agree __ : __ : __ : __ : __ Disagree

19. I definitely do not enjoy my degree major.
   Strongly Agree __ : __ : __ : __ : __ Disagree

20. I sometimes feel unsure of myself in regards to my degree.
   Strongly Agree __ : __ : __ : __ : __ Disagree
APPENDIX B

MUSIC MAJOR SATISFACTION QUESTIONNAIRE

MAIN STUDY VERSION
INSTRUCTIONS

Enclosed you will find three questionnaires designed to find out how you, as a music major, feel about your degree. The information which you provide will be of help in studying certain occupational behaviors of musicians.

First, you will find the Vocational Preference Inventory and answer sheet. This is an inventory of your feelings and attitudes about many kinds of work.

Second, you will find a questionnaire entitled My Vocational Situation. This is an inventory of your vocational goals and interests.

Third, you will find the Music Major Satisfaction Questionnaire. The Music Major Satisfaction Questionnaire is designed to find out how you feel about your college major.

Please make sure to put your name on each item. These three questionnaires should take about 20-30 minutes to complete.

Thank you for your cooperation.
Music Major Satisfaction Questionnaire

Part 1. General Information

1. Name ____________________________________________

2. Age ____________

3. Male _____ Female _____

4. Current Degree Major
   Performance (Instrumental) _____
   Music Education (Vocal) _____
   Music Education (Instrumental) _____
   Jazz Studies _____

5. Year in school
   Junior _____
   Senior _____

6. I do _____ do not _____ give my permission for the researcher to obtain my grade point average from the registrar's office.

Part 2.

Instructions. Place a check mark on the blank space which best represents your level of satisfaction with your degree major. Although many items appear to be similar, the items are carefully worded to express subtle differences. Please answer each question carefully. Think of your degree major in terms of how it fits your goals and aspirations rather than about specific instructors, courses, or employment possibilities.

1. I am positive this is the right degree for me.
   Strongly Agree _____:_____:_____:_____:_____:____: Disagree

2. It seems like everybody likes their major more than I do.
   Strongly Agree _____:_____:_____:_____:_____:____: Disagree
3. Most of the time I am satisfied with my degree major.

4. If anything, I must admit a dislike for my college major.

5. My degree is preparing me for the job I always wanted.

6. This degree seems to be relevant to my future plans.

7. My college major is dry and uninteresting.

8. Recently, I have been thinking about changing my degree major.

9. My degree will definitely help me in the future.

10. Most days I feel good about my college major.

11. I am definitely not satisfied with my degree major.

12. I am very excited about my degree.
13. I like my major more than the average student does.

14. My degree major does not relate to my professional interests.

15. Sometimes I think I made a mistake in selecting my college major.

16. I would definitely like to have a collection of books dealing with the subject matter of my college major.

17. On the whole, I am pleased with my major.

18. I definitely do not enjoy my degree major.
APPENDIX C

CONSENT FORM
Consent Form

I, ____________________________, agree to participate in a study of achievement and satisfaction of undergraduate music majors at North Texas State University. The purpose of this study is to determine how well Holland's theory of vocational personalities and work environments describes various levels of achievement and satisfaction among undergraduate music majors.

I understand that I will be asked to fill out three questionnaires relating to my attitudes toward various occupations, career goals, and my degree major. I have been informed that my identity will be kept confidential. Under this condition, I agree that any information obtained from this research may be used in any way thought best for publication or education.

I understand that there is no personal risk or discomfort directly involved with this research and that I am free to withdraw at any time. I understand that my participation is completely voluntary.

(Date) (Signature of participant)

(Date) (Signature of investigator)

THIS PROJECT HAS BEEN REVIEWED BY THE NORTH TEXAS STATE UNIVERSITY COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (Phone: 565-3946).
WORKS CITED

Books


Articles


**Unpublished Materials**


