# INSTRUCTOR RATINGS OF ART AND MUSIC STUDENTS AT MIDLAND COLLEGE USING GIFTEDNESS INDICES

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# CHAPTER I

# INTRODUCTION

## Statement of the Problem

The problem of this study is to determine whether a method of assessment of music and art students using giftedness indices is more effective than a traditional method of assessment using letter grades.

## Need for the Study

In 1939, William A. McCall of Teachers College, Columbia University criticized the then current marking system in his "Theses to be Considered by the Faculty":

> 1. When some of our instructors give a mark of A to 60 percent of their students and others give a mark of A to only 6 percent, and when we consider that Professor Spence has proved that the average mental ability of all classes in Teachers College is approximately the same, we cannot but conclude that our ante-diluvian marking system is in grave need of overhauling. (p. 467)

McCall's proposed marking system included making marks more comparable from instructor to instructor, preventing the steady inflation of marks, and stabilizing the meaning of a mark from class to class and year to year.

Over forty years later, the effectiveness of student assessment is still highly questionable. It is difficult

to find agreement on just what is measured by letter grades. Is it achievement of certain tasks, goals, or objectives? Is it an indication of future potential? Is it the attainment of a certain level of behavior? Is it the amount of effort expended? Is it the degree of cooperation or proper attitude? More specific learning outcomes must be defined and more effective assessment methods must be researched if grades (or marks) are to have meaning and value to the student, to the instructor, and to the society to which they belong.

## Limitations of the Study

This study is limited to students who enrolled in art and music courses for the first time at Midland College in the fall of 1981. These samples include full-time and part-time students of both sexes who were at least eighteen years of age.

## Hypotheses

### Hypothesis One

There will be a significant correlation at the .05 level of probability between certain personality variables, as measured by personality tests, and instructor ratings using giftedness indices.

### Hypothesis Two

There will be a significant correlation at the .05 level of probability between predicted school achievement,

as measured by personality tests, and grades.

Hypothesis Three

There will be no significant correlation at the .05 level of probability between intelligence or creativity, as measured by personality factor or formula, and grades.

Hypothesis Four

There will be a significant correlation at the .05 level of probability between task commitment, as measured by instructor ratings, and grades.

Hypothesis Five

There will be no significant correlation at the .05 level of probability between above-average ability and creativity, as measured by instructor ratings, and grades.

## Definition of Terms

The following terms are defined specifically for the purposes of this study.

(1) Above Average Ability (AAB): The capacity to perform an intellectual task or tasks at a level which exceeds that of the population average.

(2) Achievement: The completion of a task or tasks.

(3) Achievement, academic: The completion of tasks related to general academic areas (as opposed to art or music).

(4) Achievement, predicted school: The likely degree of task completion in school in the future.

(5) Assessment: Measurement or evaluation in terms of scores, marks, grades, or ratings.

(6) Creativity (C): The capacity to perform tasks or solve problems in an imaginative, original, radical, and/or non-conforming manner.

(7) Giftedness: A concept or construct which consists of three interrelated, interreacting characteristics, trait clusters, or indices.

(8) Giftedness indices: Above-average ability (AAB), creativity (C), and task commitment (TC).

(9) Grade: An assessment of student achievement by an instructor or teacher.

(10) Grading system: The method of assessment of student achievement most commonly used, traditionally and currently.

(11) Grading system, academic: The method of assessment of academic achievement (as opposed to art or music achievement).

(12) Grading system, letter: The method of assessment using the letters A, B, C, D, F, and others.

(13) Grades, effectiveness of: The capacity of grades to assess the proper variables.

(14) Grades, efficiency of: The capacity of grades to assess variables properly.

(15) Intelligence: The capacity to perform intellectual tasks, ordinarily assessed by some form of intelligence (IQ) test.

(16) Personality: A complex set of source traits found in every individual, which influence and predict behavior.

(17) Personality variables: One or more source traits which either alone or in combination effect certain behavior patterns.

(18) Ratings, instructor: A method of student assessment using criteria other than achievement.

(19) Task commitment (TC): The capacity to be absorbed and involved in a task with little or no external motivation or direction.

(20) Task performance: The act of performing any given task.

# CHAPTER II

# REVIEW OF THE LITERATURE

This review is divided into three sections. The first section is on grades and is concerned with the effectiveness and efficiency of the traditional system of letter grades. The second section is on giftedness and its identification and assessment. The third section is on personality and its relationship to giftedness.

## Grades

Most researchers agree that the two greatest weaknesses in the letter grading system are the lack of efficiency and the lack of effectiveness. Efficiency is the capacity of a grading system to assess certain variables well. Effectiveness is the capacity of a grading system to assess the right variables.

### Lack of Efficiency of Grades

Several studies have been done over a considerable time span which indicate a lack of efficiency in the letter grading system. Most problems are related to "teacher bias." Metzner (1971, pp. 40-43) found that the students who received the highest grades were those students whose

socioeconomic status and social values such as attitude, interest, and citizenship conformed to those of the teacher. Other influences were the student's reputation (halo effect), sex, and possibly race.

In 1936, Frances Sobel divided students into three groups--"mark" superior, test superior, and a middle group. The mark superior group included 31% of the girls and 10% of the boys, as opposed to the test superior group which had 12% of the girls and 31% of the boys. The mark superior group was characterized by greater effort, better attendance, punctuality, cooperation, dependability, and penmanship, among other things. This group was also found to be the lowest of the three groups in mental age, IQ, and mental health. The test superior group was highest in overall achievement quotient only. The middle group scored highest in mental age and IQ and were rated highest on characteristics of self-confidence, leadership, originality, attractiveness, and sociability. (pp. 69-70)

The Getzels and Jackson study (1962) indicated that there was a tendency for teachers to prefer the more intelligent student to the average student, but the teachers did not prefer the more creative student to the average student, even though the more creative student was scholastically higher.

It appears that letter grades, when accumulated over a period of time do serve well in one area, namely the

prediction of future academic success. Holland (1960) found that high school grades were the best predictor of college achievement, but that grades did not measure or predict creativity. In fact, students with high grades in high school had less creative potential than students with low grades (assuming that students with low high school grades had "other attributes" associated with creative behavior) (pp. 245-254).

## Lack of Effectiveness of Grades

Other studies have uncovered a general lack of effectiveness in letter grading systems. These studies have indicated that letter grades have had very little relationship to intelligence or future achievement, beyond and outside the academic institution.

Tyler (1931) found that the correlation between intelligence and grades at the college level averaged .45, which was significant, but of "little value" according to Hull (1928), since one would have expected higher correlations. The Simmons study (1977) of 100 college sophomores in four educational psychology classes included a comparison of intelligence and grades. The students were divided into three groups according to IQ level: 80-89, 90-99, and 100-109. Simmons concluded from the data that the majority (52%) of students who made the lowest grades also had the lowest IQ's. The data also indicated that of

those students in the highest IQ group, none made a grade of 4.0 and only half made a grade of 3.0. From a grade perspective, of those students who made the highest grades (4.0 and 3.0), 36% had the lowest IQ's and only 16% had the highest IQ's (p. 44, Table 9).

Grades have also proved to be poor predictors of future performance. Renzulli (1978, pp. 180-184) asserted that,

> Numerous research studies support Wallach's (1976) finding that there is little relationship between . . . school grades on the one hand and real world accomplishments on the other (p. 182).

Taylor (1964) declared that grades have been the worst predictors of future success. According to Taylor, biographical information, self reports, and motivation scores have all predicted success better than grades, experience, or aptitude.

## Suggestions for Alternate Grading Systems

Although the deficiencies of the letter grading system are widely recognized, few have been so bold as to advocate a new or different system. Spence (1927) suggested a system by which the instructor would have ranked the students in each class and computed T scores based upon those rankings. The student's T scores from the various classes then would have been averaged (similar to GPA's). The student would have been permitted to repeat any course and substitute the second T score for the first; however, he

would not have been permitted to obtain additional credit. Graduation requirements would have been decided by the staff, possibly using a minimum average T score. (pp. 72-76) Apparently, this system has never been instituted.

Marshall (in Fults, et al., 1972, pp. 118-124) would have preferred to drop grades altogether in favor of word descriptions, but observed that "it was too radical for present acceptance." (p. 123) Instead, he advanced a modification of the system then in use. Marshall's system provided for three grades: the first to be used as a tool for reward or punishment, the second to be used as a measure of performance, and the third to be used as a measure of "future potential." Marshall implied that teachers were using one or a combination of those grading criteria already.

Getzels and Csikszentmihalyi (1976) stated that a teacher rating system that included originality and artistic potential, in use at the Art Institute of Chicago, had some value in predicting future artistic success. Their longitudinal study indicated that high academic grades in art school were related to "failure" as an artist five to six years after graduation. However, high grades in studio courses and high ratings in originality and artistic potential were related to later success as an artist.

According to the literature, it is apparent that there are major weaknesses in the letter grading system and

that these weaknesses are in the areas of efficiency and effectiveness. In addition, the literature indicates that few alternative systems have been conceived, tested, or instituted.

## Giftedness

### The Nature of Giftedness

In current research, apparently there has been only general agreement as to the nature of giftedness. Gallagher (1965, p. 1) pointed out that "Each culture and era defines giftedness to suit its own particular needs and values." Witty (1971) defined giftedness as "consistently, or repeatedly remarkable" performance in "a worthwhile human endeavor" (p. 112). Ward (1962, pp. 25-36) cited the qualities recognized by the behavioral sciences to categorize "individuals with superior potential" and focused on two qualities--general intelligence and specific aptitudes.

In 1972, the United States Office of Education provided a definition of giftedness which included the following abilities and aptitudes: 1) general intellectual ability, 2) specific academic aptitude, 3) creative or productive thinking, 4) leadership ability, 5) visual and performing arts aptitude, and 6) psychomotor ability (Marland, 1972).

Renzulli (1978) criticized the USOE definition on three grounds. He stated that first, it did not include

"nonintellective (motivational) factors" that research had shown to be important; second, the categories were not parallel; and third, it was apt to be misinterpreted and misused by practitioners. Instead, Renzulli offered a conception of giftedness which consisted of a set of three interlocking, interreacting traits: 1) above-average ability, 2) creativity, and 3) task commitment (pp. 180-184). (See Figure 2.1.)

## The Assessment of Giftedness

Once a general concept of giftedness is grasped, another difficult question arises. How shall giftedness be assessed? The preferred procedure has involved one or more appropriate objective tests which may have measured intelligence, creativity, interests, aptitudes, and a range of personality traits. Probably because this procedure has required much time, effort, and expense, it has usually been avoided in favor of some form of teacher nomination or identification. Terman (1925) and others used a combination of these two methods, i.e., the teacher nominated those students who appeared to be gifted, then the students took a battery of prescribed tests.

There have been two schools of thought regarding teacher assessment of giftedness. These opposing viewpoints are reviewed next.

Most of the research has cautioned against the danger of teacher assessment, particularly if the teacher has not

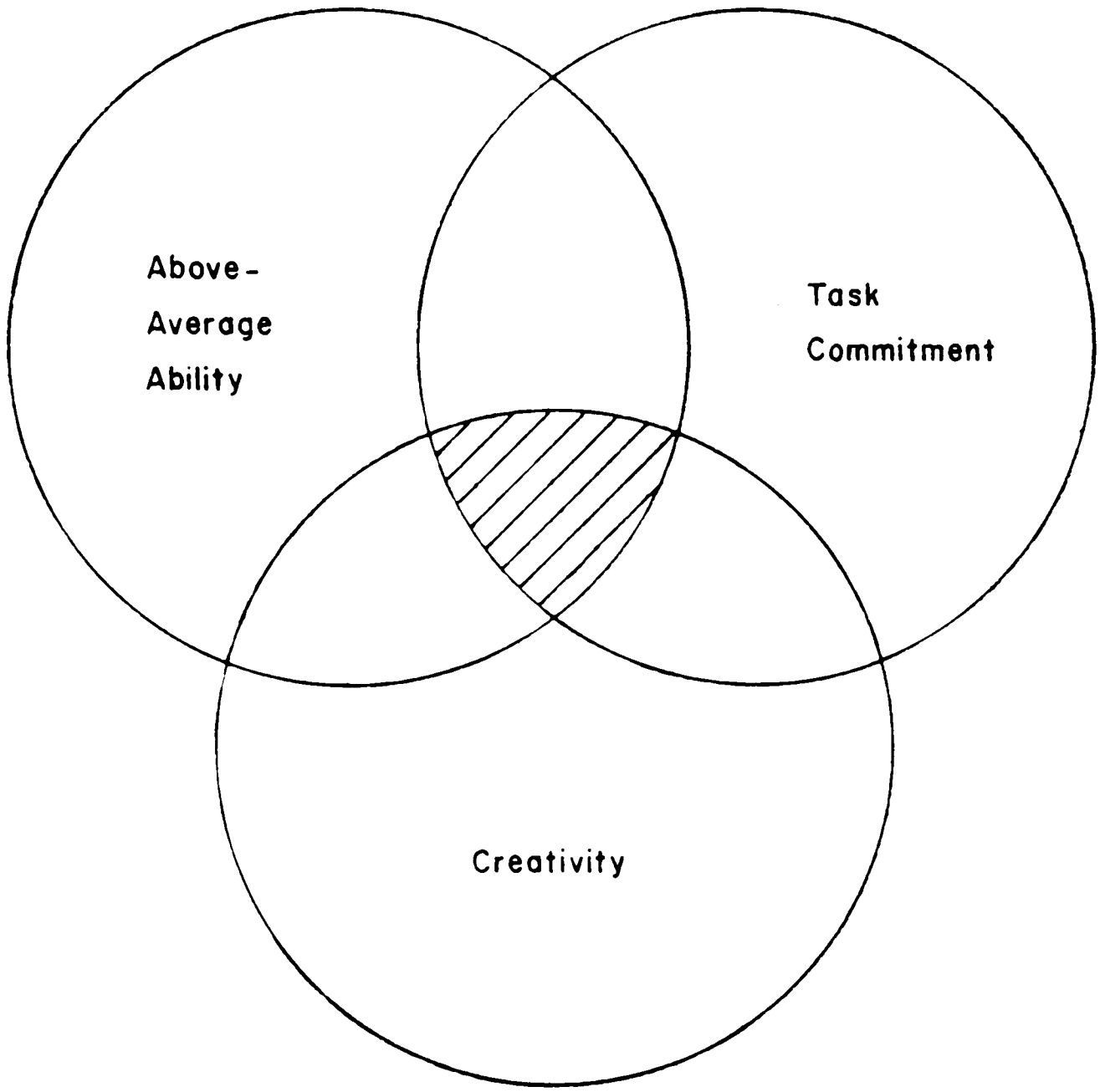


Figure 2.1 The Ingredients of Giftedness (Renzulli, 1978)

been adequately instructed beforehand. Pegnato (1959, pp. 215-223) concluded that teacher judgments could not be relied upon as an effective screening device, based upon the teachers' identification of only 45% of the high scorers on the Stanford-Binet IQ test. He found that group IQ tests were most accurate, followed by group achievement tests.

In a later study, correct teacher identification of the gifted was reported to be below 25% at the kindergarten level. In fact, at this level parents did better than teachers, even though the parents tended to overestimate their own child's ability. (Ciha, et al., 1974, pp. 191-195)

There have been additional difficulties in teacher assessment of giftedness, including possible teacher bias. Sussman and Justman (1975) concluded that the teachers in their study "tended to ascribe highly positive attributes to creative individuals, and highly negative attributes to non-creative students." (p. 215) It should be noted that in this study, the teachers themselves had rated the students on creativity, on a scale from 1 to 5, prior to assigning each student a set of adjective descriptors with either positive or negative connotations. (pp. 210-215)

Another major difficulty in teacher assessment has been the design of guidelines and the proper instruction of the teachers prior to identification of gifted students. In

the Terman study, Genetic Studies of Genius, Vol. I (1925), detailed directions for student selection in grades three to eight had been provided to the teachers. Directions included precise behaviors to look for and evaluate and cautioned against underrating "the bright child who is shy, or lacks industry, or stands low in deportment." (p. 21) The teacher had been instructed to select the most intelligent, the next most intelligent, the third most intelligent, and the youngest pupil in the class. The subjects were then tested using the National Intelligence Test.

Terman found that nomination as the youngest provided the greatest proportion of the total gifted group (19.7%), while nomination as the brightest provided only 15.7%, and concluded that "if one would identify the brightest child in a class of 30 to 50 pupils it is better to consult the birth records in the class register than to ask the teacher's opinion." (Terman, 1925, p. 33)

Holland (1959) wrote of the limitations of teacher ratings, concluding that "teacher ratings are potentially more useful as predictors of academic achievement and leadership potential than as predictors of creativity." (p. 223) It should be noted that Holland in his ratings scales used the following traits: stability, maturity, originality, drive to achieve, dependability, speaking and writing skills, citizenship, popularity, social leadership, intellectual leader, and physical vigor. (pp. 219-223) Considering

Holland's guidelines for identification, the results of this study should not be surprising.

Several studies have suggested that effective teacher assessment of giftedness traits is possible, provided that the teacher is properly informed.

Gear (1976) researched the subject of adequate instructions in teacher assessment, and concluded that if teachers can be trained in the identification skills, then "teacher referral can become an effective screening procedure in searches for the intellectually gifted." (p. 486) In a review of the literature relating to accuracy of teacher judgment in identifying the gifted, Gear found that the effectiveness of teacher judgment ranged from 10% to 48% at all levels prior to high school. (pp. 478-490) However, in an earlier study by Gear (1975) teachers who were "appropriately instructed" were twice as effective, identifying 86% of the gifted, compared to the control group's identification of less than 50% of the gifted.

Yamamoto (1965), in research on teacher ratings of creativity, also stressed the importance of clearly formulated dimensions. Otherwise, "brightness" or intelligence and certain personality traits tended to overshadow qualities associated with creativity. (pp. 281-290) As the result of a 1963 study, Yamamoto concluded that teachers could identify creative students in terms of fluency,

flexibility, and originality, provided that they were well-informed. (pp. 3-25)

In the study by Getzels, et al. (1976) there appeared to be a high level of accuracy pertaining to teacher judgment of college level students. This was true not only in intelligence and achievement, but also in "originality and overall artistic potential (OAP)." In this case, accuracy was apparently substantiated by the students' levels of success five to six years after leaving school.

Other research has pointed out additional difficulties of assessment of giftedness; the most notable problems involve the relationships and differences in the traits of giftedness. Several researchers found little relationship between intelligence and creativity (MacKinnon, 1962; Taylor, 1965; Neisworth, 1969; Getzels and Jackson, 1962; Torrance, 1959).

MacKinnon (1962, pp. 484-495) declared, "It is just not true that the more intelligent person is necessarily the more creative one." Neisworth (in Smith, 1969, pp. 30-45) stated that intelligence tests could predict school success, but could not reveal the capacity or potential of the student. Getzels and Jackson (1962) found that, despite a mean difference of 23 points on IQ tests, highly creative students equalled highly intelligent students on math and achievement tests. Torrance also cautioned

against using only intelligence tests to identify the gifted, reporting that 70% of the top 20% in creativity would be missed if selected by intelligence measures (Torrance, 1959, pp. 58-71).

Despite the difficulties inherent in the assessment of giftedness, the consensus appears to be that giftedness can be accurately assessed through the use of a combination of appropriate tests and appropriately trained instructors.

## Personality

This section of the review of the literature is concerned with the relationship of personality characteristics to three broad areas of giftedness: 1) learning ability, 2) creativity, and 3) achievement motivation. The relationship of personality characteristics to learning ability, which is generally measured by intelligence tests, is presented first.

### Personality and Learning Ability

Lightfoot (1951) found that there were significant differences in the personality traits of "bright" children (median IQ, 147) and "dull" children (median IQ, 88) at the elementary school level. The "bright" children exhibited more positive, outgoing attitudes, as opposed to the "dull" children, who exhibited more negative, withdrawing attitudes. The greatest personality differences between the

two groups were in six trait areas: achievement, affiliation, autonomy, cognizance, creativity, and dominance.

Cattell (in Whitehead, 1975, pp. 78-89) identified other characteristics associated with learning ability. He stated that "A child who is more outgoing, adaptable, and warmly related to the teacher will learn faster." (p. 79) Furthermore, according to Cattell, the child who was more emotionally balanced and less easily upset, and more conscientious would learn more easily. Cattell commented that while the more submissive child seemed to learn faster in the early grades, the more dominant child learned faster later, when creativity and critical independent thinking was more important.

Apparently, learning ability, as measured by intelligence tests, is associated with emotional stability and more positive outgoing attitudes, at least in the early years.

## Personality and Creativity

There is disagreement in the literature regarding the existence of a relationship between personality and creativity. Guilford (1957) summarized the results of his study on the relationship of creative thinking aptitudes and personality:

> . . . the most striking impression is that there is very little relationship between traits of temperament and interest and performances in tests of creative thinking. . . . we cannot account for any

> of the abilities in the area of fluency, originality, and flexibility in terms of non-aptitude (personality) qualities." (p. 39)

Eisner's findings (1962) agreed with those of Guilford. Eisner's proposed typology of creativity included boundary pushing, boundary breaking, inventing, and aesthetic organizing. Using the California Test of Personality to evaluate social and personal adjustment of his subjects, he found no relationships with different types of creativity in his typology.

Other research has definitely indicated the existence of a "creative personality." MacKinnon's more creative architects perceived themselves to be more inventive, independent, and highly individualistic, while the less creative architects perceived themselves to be more rational, virtuous, and of good character. (MacKinnon, 1962, pp. 484-495)

Torrance (1962, 1965) characterized the creative personality as one that tended toward curiosity, radicalism, risk taking, keen sense of humor, and autonomy.

Getzels and Jackson (1962) agreed with Torrance in the areas of radicalism, risk taking, and sense of humor, and offered additionally the characteristics of imagination and nonconformity.

Cattell (1980) believed that "creativity can exist at all levels . . . and conceivably the personality characteristics are similar for all." (p. 239) He asserted that

empirical results showed that "the creative personality traits remain much the same in science, literature, and the arts." According to Cattell, the common characteristics were: aloofness, intelligence, ego strength, dominance, desurgency, low group superego standards, parmia, premsia, autia, and especially self-sufficiency (see Table 3.1).

Getzels, et al., in a longitudinal study in 1976 found that the most successful artists exhibited personality traits of aloofness, low ego-strength, introspection, sensitivity, imaginativeness, self-sufficiency, and a lack of conformity to social norms.

Personality and Achievement

It is generally accepted that there is a clear relationship between personality and achievement. This is probably because achievement, particularly academic achievement, is more easily measured than learning ability and creativity, allowing for a more parallel comparison with personality tests.

The first and major part of the following section is concerned with personality and adademic or school achievement. Few studies have been completed on personality and achievement or success beyond the school environment; notable exceptions have been the Terman study and the Getzels, et al. longitudinal study of artists.

These two studies are reviewed in the second part of this section.

Holland (1960, pp. 245-254), in a study of the prediction of college grades from personality and aptitude variables, found that high school grades were the best predictors of college achievement. The most effective personality predictors were superego, persistence, and negative play (or deferred gratification). Pearson (1971) found that athletes possessed personality characteristics found in high academic achievers, while Kaplan (1961) found the same to be true for instrumental musicians. Those who chose instrumental music and were high achievers exhibited the following traits: self-confidence (ambitious, persuasive), self-controlling (methodical, well-organized) and intellectualizing (theoretical, concrete, talking/thinking). Low achievers, on the other hand, were marked by fearfulness, adherence to rules, and superego strength.

Thayer (1971) however, in another study on personality and musical achievement, concluded that "among seventh and ninth grade students, there is no systematic relationship between objectively measured personality traits and scores on either musical aptitude or achievement tests." (p. 85)

As previously noted, the Terman study was one of the few investigations of personality and its relationship to achievement beyond the academic institution. In Genetic

Studies of Genius, Vol. IV, The Gifted Child Grows Up, (1947) Terman selected the 150 most successful subjects and the 150 least successful subjects, based upon criteria such as number of distinguished honors, number of publications and patents, and listings in Who's Who. The four personality traits in which the two subgroups differed most widely were "persistence in the accomplishment of ends," "integration toward goals," "self-confidence," and "freedom from inferiority feelings." According to Terman, "the greatest contrast between the two groups was in all-round emotional and social adjustment, and in drive to achieve." (1959, p. 149)

Another study which dealt with personality characteristics and future achievement was the Getzels, et al. (1976) longitudinal study of art students at the Art Institute of Chicago. This study used Cattell's IPAT-16PF personality test and found only one of the sixteen personality factors to be significantly related to success. The students who became successful artists had lower "self-sentiment" scores than the students who were unsuccessful. According to the authors,

> . . . the meaning attributed to a high score on this factor is 'conformity to socially accepted behavior,' 'self-control,' and 'concern with social approval.' Clearly it is lack of these characteristics that is related to success in art. (p. 168)

It appears from the literature that possibly some personality traits, notably persistence and self-confidence, are related to achievement, both in the classroom and beyond. It seems, however, that academic grades are probably still better predictors of academic achievement, while other additional personality traits are better predictors of future success, depending upon the field of specialization.

## Summary

The following is presented as a summary of the literature pertaining to grades, giftedness, and personality.

According to available research, there have been considerable weaknesses in the letter grading system, both in efficiency and effectiveness. There have been suggestions and recommendations for alternate systems, but apparently none have been implemented.

Concerning the nature of giftedness, several definitions and concepts have been put forth. Most researchers have included in their definitions such traits as learning ability or intelligence, creativity, and motivational characteristics, such as task commitment. Although there appear to be many difficulties in the assessment of giftedness, it is generally agreed that accurate assessment is possible.

Finally, in the area of personality and its relationship to giftedness, research has indicated that emotional stability and an outgoing positive attitude are related to learning ability, in the early years of school. It appears that personality traits such as curiosity, radicalism, imagination, and nonconformity characterize the creative individual. Lastly, persistence and self-confidence, and possibly a wide array of other traits, are related to achievement.

# CHAPTER III

# METHODS

## Introduction

This chapter outlines the procedures followed and the instruments used in this study. In the procedures section, a description of the populations and the samples, both in art and music, is provided. The instruments section covers all instrumentation as well as other sources of data used in the study. Included are personal questionnaires, consent forms, personality tests, instructor ratings, and data from instructor grade records.

## Procedures

### The Populations

Midland College, a comprehensive community/junior college, is located in Midland, Texas, a predominantly business and professional community of approximately 80,000 in the oil-rich Permian basin. The fall of 1981 marked a time of unprecedented economic growth--an "oil boom" for Midland, and this growth was reflected in increased enrollments at Midland College. At that time about 2500 students, evenly divided between the areas of academic and vocational-technological, were enrolled.

In the fall of 1981 there were about 150 students enrolled in credit art courses and about 200 students enrolled in credit music courses. Of those totals, 49 art students and 63 music students were taking classes for the first time in music and art at Midland College. It was decided that samples would be taken from these groups for two reasons: 1) the groups would be relatively easy to isolate and identify, and 2) follow-up studies could be made, if necessary or desirable.

It was theorized that these two samples would be representative of the populations from which they were drawn. It was understood that the greatest weakness of these samples was their failure to identify or describe the students who remain at Midland College. However, it was felt that the samples could provide a profile of the kinds of students who begin in a program in art or music, and the degree of success that those students attain in their first semesters.

## The Samples

In this section, descriptions of the samples, including the methods of student selection and participation are provided. The art student sample is discussed first, and then the music student sample.

The art student sample. The first step in construction the sample was to identify the new art students.

This was done by gathering lists provided by the art instructors and cross checking them with enrollment records. Of the 49 students thus identified, twelve withdrew[a] from classes during the semester, three declined to participate, two later moved to another town, and two could not be contacted. Reasons given for withdrawing from classes included schedule changes, beginning employment, and illness. The three students who declined to participate in the study gave as reasons lack of sufficient time and their belief that they could not be helpful because they were not "typical art students." The remaining 30 art students constituted the sample and participated throughout the study.

Personal questionnaires provided the following information: sex, age, art courses in which students were currently enrolled, education level, occupation, and future goals.

There were 21 female art students and 9 male art students ranging in age from 18 to 72, with a mean age of 29.8, a median age of 25, and a mode of 19 years of age.

Courses in which the students were currently enrolled included drawing, painting, sculpture, ceramics, print-making, and weaving. Two thirds of the students (20)

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[a]According to Midland College policy, a student may withdraw from a course prior to midterm and receive a grade of W. After midterm and until two weeks prior to the end of the semester, a student may withdraw and receive a grade of withdrawn/passing (WP) or withdrawn/failing (WF).

were enrolled in one art course, nine students were enrolled in two art courses, and one student was enrolled in three art courses.

Almost one half of the art students had recently completed high school and over two thirds of the art students (23) had high school diplomas. Almost one fourth of the art students had completed degrees beyond the junior college level. Three students had bachelor's degrees and four students had master's degrees.

In the area of occupation, nearly two thirds of the students were employed outside of the home either full-time or part-time. Seven students listed their occupations as "housewife" or "homemaker" and three students were full-time students with no outside employment noted.

Future goals of art students were mostly educational in nature; six students listed the associate degree, nine students listed the bachelor's degree, and four students listed graduate degrees. Seven students reported goals related to a hobby, pasttime, or personal enrichment, and four students were undecided.

According to this data, the art student in the sample was most likely to be a woman of about 25 years of age with a high school education who was working part-time, taking one art course, and intending to pursue a bachelor's degree.

The music student sample. The music sample was constructed in much the same way as the art sample, that is, by gathering student lists provided by the music instructors and cross checking them with enrollment records.

A smaller proportion of entering music students made up the final sample, however. There were three fifths of the entering art students in the art sample (30), compared to one third of the entering music students in the music sample (21). The reason for this difference was that the art students were more accessible to the investigator on a person-to-person basis, whereas most of the music students in the sample were contacted by telephone or through a music instructor.

Of the 63 entering music students, twelve withdrew from classes during the semester (see footnote on withdrawal policy, page 28), four declined to participate, four left town, and the remaining 22 students could not be contacted.

Most students who could be contacted in person or by telephone agreed to participate in the study. The four students who declined to participate gave reasons similar to those of the art students who declined, e.g., lack of sufficient time or the belief that they could not contribute because they were not "typical music students." The remaining 21 music students constituted the sample and participated throughout the study. Notwithstanding the size of the

sample, the three music instructors agreed that the music sample appeared to be representative of the entering music students that semester.

Personal questionnaires, identical in format to those administered to the art sample, provided the following information about the music students: sex, age, music courses in which they were currently enrolled, education level, occupation, and future goals.

There were 12 female music students and 9 male music students. These students ranged in age from 18 to 42, with a mean age of 23.8, a median age of 19, and a mode of 18 years of age.

Courses in which the students were currently enrolled included music theory, band, chorale, voice, and various instrumental courses. Twelve students were enrolled in one or two music courses, and nine students were enrolled in three or four music courses.

Almost two thirds of the music students had recently completed high school and exactly two thirds of the music students (14) had high school diplomas. Two students had completed associate's degrees and the remaining students (almost one fourth of the sample) had completed degrees beyond the junior college level. Four students had bachelor's degrees and one student had a master's degree.

In the area of occupation, over one half of the music students were employed outside the home, either

full-time or part-time. Three students listed their occupations as "homemaker" or "housewife," and six were full-time students with no outside employment noted.

Future goals of music students were mostly educational in nature; one student listed the associate's degree, seven students listed the bachelor's degree, and four students listed graduate degrees. Six students reported goals related to hobby, pasttime, personal enrichment, or second field, one student intended to become a professional musician, and two students were undecided.

According to this data, the typical music student in the sample was more likely to be a woman of about nineteen years of age who had recently completed high school, who was probably working part-time and taking one music course, and intending to pursue a bachelor's degree.

In comparing the profiles of the art and music students, several similarities and differences were noted. The differences are discussed first.

The major differences in the two samples were in sex, age, and number of courses in which enrolled. Of the art students, 70% were women as compared to 57% of the music students. The median age of the art students was 25 years compared to 19 years for the music students. Finally, fully two thirds of the art students were enrolled in only one art course, whereas among the music students, although a greater number of them were enrolled in one music course

than in two, three, or four courses, the distribution was much more evenly divided.

The similarities of the two samples were in level of education, occupation, and future goals. In both samples almost one fourth of the students possessed degrees at the bachelor's level and beyond. Most of the students were employed outside the home, at least part-time. Only 10% of the art students and 29% of the music students were full-time students with no outside employment. The future goals of both groups were mostly educational in nature, with most students planning to complete at least a bachelor's degree.

## Instruments

This section consists of all the instrumentation and other sources of data used in the study. Included are the consent forms, personal questionnaires, personality tests, instructor rating forms, and instructor grade records. Also provided are rationales, descriptions, and instructions for the use of each instrument.

### Consent Forms

Consent forms have become part of standard research procedure whenever human subjects are involved. Although no physical risks were anticipated in this study, psychological or social risks were believed possible. In a policy

statement promulgated by the Office of Research Services, Texas Tech University concerning protection of human subjects, it has been pointed out that projects

> utilizing personality inventories, interviews, questionnaires . . . or stored data . . . may involve varying degrees of discomfort, harassment, invasions of privacy, or may constitute a threat to the subject's dignity through the imposition of demeaning or dehumanizing conditions (1981).

Since this study included personal questionnaires, personality tests, and personal academic records, it was believed necessary to initiate precautions to protect the subjects.

The consent form included the following:

1. The title of the project;
2. The persons responsible for the project;
3. An explanation of purpose and procedures;
4. A description of possible risks or discomforts;
5. An offer to answer any inquiries concerning the procedures; and
6. An instruction that the person is free to discontinue the study at any time he or she chooses without penalty.

The form contained spaces for signatures of the subject and the project director or authorized representative and for dates. (See Appendix A.)

Several of the subjects expressed an interest in various aspects of the study. The project director

explained the study to them verbally in as much detail as he was able, including types of subjects and instruments and possible benefits to be gained. Some of the subjects expressed an interest in the results of their personality tests; those subjects were referred to a qualified testing counselor for interpretation and analysis.

## Personal Questionnaires

The personal questionnaires, along with the consent forms, were completed early in the course of the study. The questionnaires served two purposes; they provided sufficient background information on the subject to enable the investigator to 1) describe the types of subjects in the present study more precisely, and 2) stay in contact with the subject in the event of a follow-up study. The subjects were instructed to complete the form and the project director or his authorized representative was available in the event of problems or questions. (See Appendix B.)

## Personality Tests

As soon as possible after the consent forms and personal questionnaires were completed, the IPAT-16PF (form A) personality test was administered. This section is devoted to a rationale for the use of the 16PF personality test, a description of the test itself, the instructions provided to the subjects, and the general testing conditions.

There were four primary reasons for the selection of the 16PF personality test for this study. First, although the test has certain limitations, as do all such tests, it has been one of the most widely used diagnostic tests in colleges and universities. Second, it has grown largely unchanged from its experimental formative period in 1949 while, according to its authors, its reliabilities and validities have steadily advanced. (Cattell, Eber, and Tatsuoka, 1980) Third, it provided an objective measurement related to all three areas with which this study was concerned, namely, learning ability, creativity, and achievement. Although it would have been preferable to administer a battery of several tests of intelligence, creativity, and general personality, the limited time available made this impossible; consequently this aspect of the test was especially valuable. Finally, the 16PF testing and scoring materials and professional guidance were readily available to the investigator on the site.

The 16PF personality test is based upon a trait theory of personality, and measures 16 separate "source traits" which Cattell and others have isolated by means of factor analysis. These traits are listed and described in Table 3.1. Based upon the subject's answers to 10 to 13 test questions related to each factor, the subject is scored on a scale from one to ten, with the mean between five and six. For example, for factor A (reserved versus outgoing),

TABLE 3.1

PRIMARY SOURCE TRAITS COVERED BY THE 16PF TEST

| FACTOR | LOW STEN SCORE DESCRIPTION (1-3) | HIGH STEN SCORE DESCRIPTION (8-10) |
|---|---|---|
| A | Reserved, detached, critical, cool, impersonal<br>Sizothymia | Warmhearted, outgoing, participating, interested in people, easy-going<br>Affectothymia |
| B | Less intelligent, concrete-thinking<br>Lower scholastic mental capacity | More intelligent, abstract-thinking, bright<br>Higher scholastic mental capacity |
| C | Affected by feelings, emotionally less stable, easily upset, changeable<br>Lower ego strength | Emotionally stable, mature, faces reality, calm, patient<br>Higher ego strength |
| E | Humble, mild, accommodating, easily led, conforming<br>Submissiveness | Assertive, aggressive, authoritative, competitive, stubborn<br>Dominance |
| F | Sober, prudent, serious, taciturn<br>Desurgency | Happy-go-lucky, impulsively lively, enthusiastic, heedless<br>Surgency |
| G | Expedient, disregards rules, feels few obligations<br>Weaker superego strength | Conscientious, persevering, proper, moralistic, rule-bound<br>Stronger superego strength |

TABLE 3.1--Continued

| | | |
|---|---|---|
| H | Shy, restrained, threat-sensitive, timid<br>Threctia | Venturesome, socially bold, uninhibited, spontaneous<br>Parmia |
| I | Tough-minded, self-reliant, realistic, no-nonsense<br>Harria | Tender-minded, intuitive, unrealistic, sensitive<br>Premsia |
| L | Trusting, adaptable, free of jealousy, easy to get on with<br>Alaxia | Suspicious, self-opinionated, hard to fool, skeptical, questioning<br>Protension |
| M | Practical, careful, conventional, regulated by external realities<br>Praxernia | Imaginative, careless of practical matters, unconventional, absent-minded<br>Autia |
| N | Forthright, natural, genuine, unpretentious<br>Artlessness | Shrewd, calculating, socially alert, insightful<br>Shrewdness |
| O | Unperturbed, self-assured, confident, secure, self-satisfied<br>Untroubled adequacy | Apprehensive, self-reproaching, worrying, troubled<br>Guilt proneness |
| $Q_1$ | Conservative, respecting established ideas, tolerant of traditional difficulties<br>Conservatism of temperament | Experimenting, liberal, analytical, likes innovation<br>Radicalism |
| $Q_2$ | Group oriented, a "joiner" and sound follower<br>Group adherence | Self-sufficient, prefers own decisions, resourceful<br>Self-sufficiency |

TABLE 3.1--Continued

| FACTOR | LOW STEN SCORE DESCRIPTION (1-3) | HIGH STEN SCORE DESCRIPTION (8-10) |
|---|---|---|
| $Q_3$ | Undisciplined self-conflict, careless of protocol, follows own urges<br>Low integration | Controlled, socially precise, following self-image, compulsive<br>High self-concept control |
| $Q_4$ | Relaxed, tranquil, torpid, unfrustrated<br>Low ergic tension | Tense, frustrated, driven, restless, overwrought<br>High ergic tension |

a subject scoring in the 1-3 range would be considered more reserved and a subject scoring in the 8-10 range would be considered more outgoing. The subject thus receives a standard ten (sten) score on each factor, based upon his or her response to test questions. An example of a scoring diagram with sten scores for a typical subject is given in Figure 3.1.

Of particular interest to the investigator was the factor which measured intelligence or mental capacity (factor B), and Cattell's formulas for creativity and predicted school achievement. These formulas are provided in Table 3.2.

TABLE 3.2

FORMULAS FOR CREATIVITY AND PREDICTED SCHOOL ACHIEVEMENT BASED UPON 16PF TEST SCORES

$$\text{Creativity} = .99 - .33A + .33B + .17E - .33F + .16H + .33I + .16M - .16N + .16Q_1 + .33Q_2$$

$$\text{Achievement} = .08A + .42B - .16C + .22E - .09F + .35G - .17H + .09I - .08L + .35M - .11N - .16O - .06Q_1 + .34Q_2 + .33Q_3 - .20Q_4 - .88$$

(Cattell, et. al. 1980)

It was believed that these three objective measures could be compared to other subjective data which would be gathered later in the study.

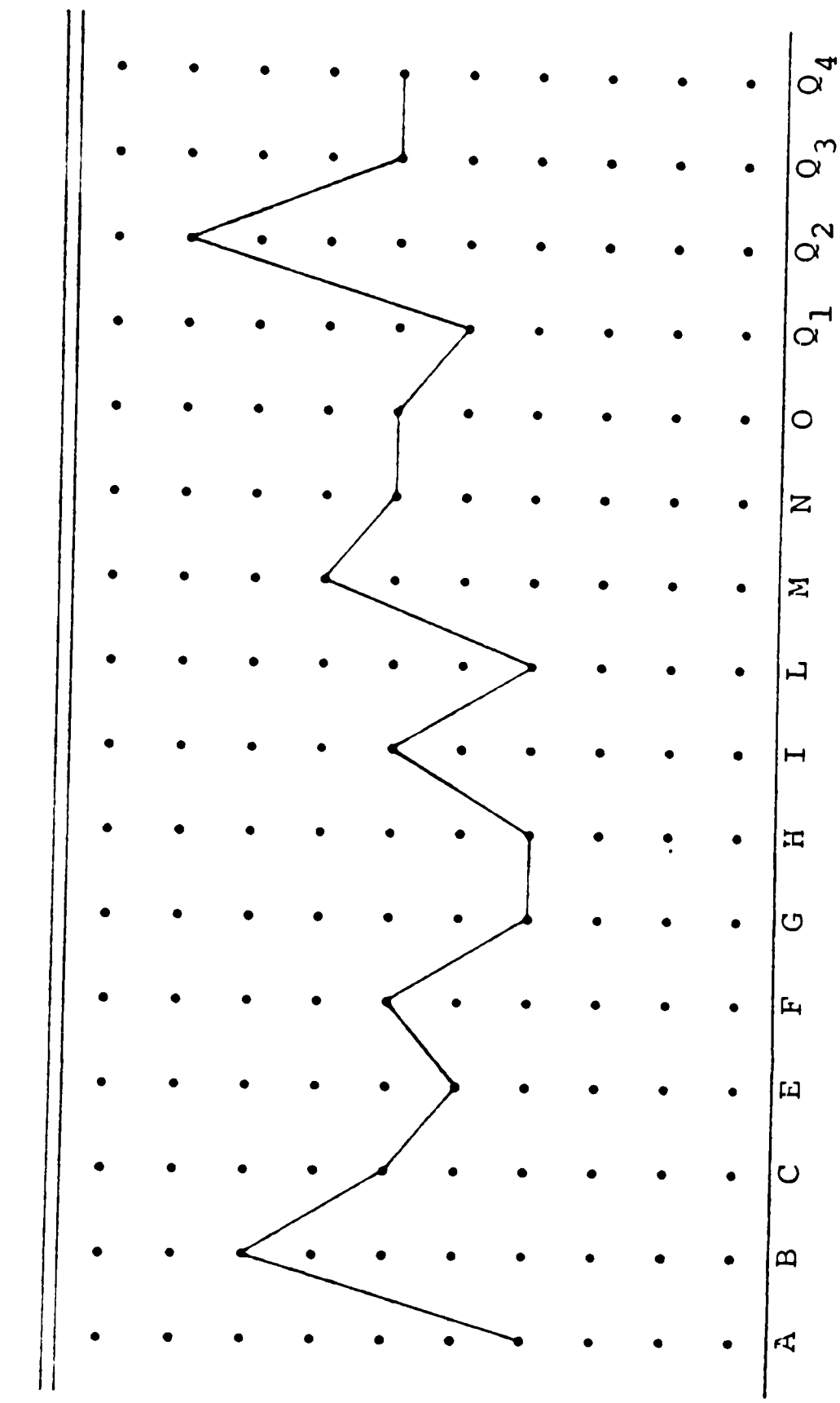



Figure 3.1 16PF Scoring Diagram with Sten Scores for Art Subject No. 17.

The specific testing instrument used was the 16PF, form A, 1967-68 edition. This form had 187 questions with three possible answers to each question.

Examples:

1. I like to watch team games.

   a. yes, b. occasionally, c. no.

2. I prefer people who:

   a. are reserved, b. (are) in between,

   c. make friends quickly.

3. Money cannot bring happiness.

   a. yes (true), b. in between, c. no (false).

4. Woman is to child as cat is to:

   a. kitten, b. dog, c. boy.

Instructions and examples (above) were clearly stated on the front page of the test form. Although the test form suggests that the subject "should finish in a little more than half an hour" the Handbook for the 16PF suggested an approximate time of 45-60 minutes. (Cattell, et al., p. 3.) There was no time limit given for the subjects in this study; the time actually taken averaged about 60 minutes. The subjects were not given any additional instructions, either written or verbal. The project director or his authorized representative was available in the event that any questions or problems arose.

The answer sheets were the fill-in-the-box type and were hand scored by either the project director or a

professional testing counselor. Five of the answer sheets had been computer scored and were already on file in the Midland College testing center. Those five students had taken the test prior to enrollment.

The personality tests were given both at scheduled times and individually at the convenience of the subject. In the earlier phases of the study, many of the subjects took the test at the Midland College testing center, or in groups during an actual music or art class. Later, after the subjects had been contacted individually, they most often took the test in the office of the project director, with the project director either present or nearby. Subjects were not allowed to remove the tests from the testing areas.

Instructor Rating Forms

At the end of the semester, the instructors in art and music were requested to complete a form rating each of the subjects according to Renzulli's criteria for giftedness. (1978, pp. 180-184) This section consists of a rationale for using giftedness criteria for rating the subjects, a description of the criteria and rating instruments, and the instructions to the raters.

The primary reason for using giftedness criteria on the instructor rating forms was that those criteria best described the ideal behavioral outcomes for art and music

students. Renzulli's criteria of above-average ability, creativity, and task commitment seemed most practicable since those criteria encompassed most of the generally accepted giftedness characteristics and were relatively easy to isolate and define. A secondary reason for using giftedness criteria was that this criteria constituted an ideal standard by which subjects could be measured. Whereas most letter grading systems have come to measure the completion or lack of completion of a certain task or tasks, this system would measure the quality of student behavior. It was believed that highly motivated, able, creative behavior was especially valuable in art and music students, and that it should be measured.

At this point, the giftedness criteria used on the instructor rating form are described and defined in detail.

Renzulli's conception of giftedness was that it consisted of the interaction of three clusters of traits--above-average but not necessarily superior ability, task commitment, and creativity. According to Renzulli, each of the three clusters was equally important, and the gifted individual possessed or was "capable of developing this composite set of traits and applying them to any potentially valuable area of human performance." (1978, p. 261)

Renzulli did not precisely define "above-average ability" but suggested that it was related to knowledge and that it was the characteristic most often measured by

intelligence tests. In defining creativity, Renzulli apparently agreed with the creativity dimensions used by MacKinnon in his study of architects (1964, p. 360). Those dimensions involved a type of behavior characterized as original, ingenious, and imaginative. Renzulli defined task commitment as "a refined or focused form of motivation . . . which is . . . energy brought to bear on a particular problem (task) or specific performance area " (1978, p. 182).

For the purposes of the instructor rating form, it was felt that more complete and precise definitions of each of the three areas of giftedness should be provided. Renzulli and Hartman (1980, pp. 157-164) designed a "Scale for Rating the Behavior Characteristics of Superior Students" based upon research on characteristics of giftedness in the areas of learning, motivation, creativity, and leadership. The definitions of above-average ability, creativity, and task commitment on the instructor rating form were suggested by the Renzulli and Hartman scale. The instructor rating form also included instructions in the use of the grading scale, a 100 millimeter horizontal continuum, and two examples. (See Appendix C.)

The actual rating instrument provided spaces for course title, instructor, name of subjects, course letter grade, and a set of three rating scales of 100 millimeters each in length for each subject. These three scales were labeled

AAB (above-average ability), C (creativity), and TC (task commitment). The scales were 100 millimeters in length to allow precise measurement of the scale and conversion to a numerical value. (See Figure 3.2.)

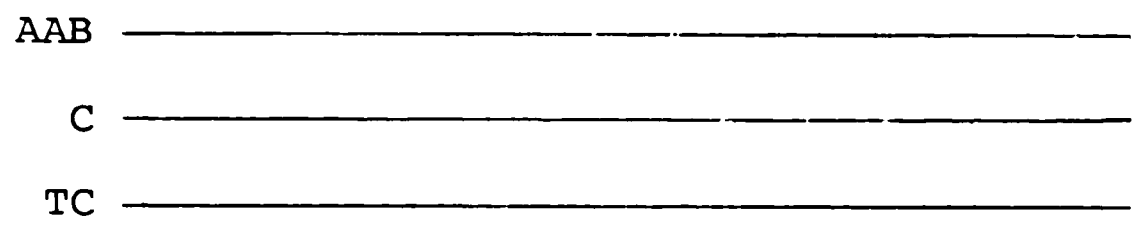



Figure 3.2 Rating Scale Using Giftedness Indices

Although most instructions given to the art and music instructors concerning the rating forms were written, there were some verbal instructions provided by the project director. The most important of the verbal instructions was that the AAB (above-average ability) scale began from <u>average</u> at the left end of the scale and proceeded to high at the right end, while the C and TC scales began from <u>low</u> at the left end of the scale and proceeded to high at the right end. Therefore, any subject judged to be below average in ability was given a minimum mark of average. Other verbal instructions stressed the necessity of reading the instructions and definitions carefully and marking the forms clearly. Instructors were also informed that the project director was available in the event that any questions or problems arose.

## Instructor Grade Records

The instructor grade records, on file in the office of the registrar at Midland College, were another important source of data. Although the instructor rating form provided a space for the letter grade for the course, it was felt that the grade should be verified by actual grade records. Those records were made accessible to the project director by written consent of the subjects and with the knowledge of the instructors and the registrar. Data from the instructor grade records was limited to the final semester grade in each course in art or music for each subject of the study.

## Summary

This chapter has described the populations, samples, and sources of data gathered in this study. In addition, research procedures and all instrumentation have been reported.

The two samples were representative of the art and music students who entered Midland College in the fall of 1981. There were 30 students in the art sample and 21 students in the music sample. Several instruments were used to gather and record data on the subjects and their instructors; these instruments were consent forms, personal questionnaires, personality tests, instructor ratings, and instructor grade records. Rationales, descriptions, and instructions in the use of each instrument were provided.

# CHAPTER IV

# ANALYSIS AND INTERPRETATIONS

## Introduction

This chapter is concerned with the analysis and interpretation of the data collected in this study. First, preliminary findings from the personality tests, instructor ratings, and instructor grade records are reported, discussed, and illustrated graphically. Then, in the section on statistical analysis, data from those three sources are compared according to the hypotheses of the study to determine possible relationships. Additional statistical data considered pertinent is also included. Finally, interpretations of the statistical data are offered as they apply to the stated hypotheses. Unexpected patterns or relationships are also covered.

## Preliminary Findings

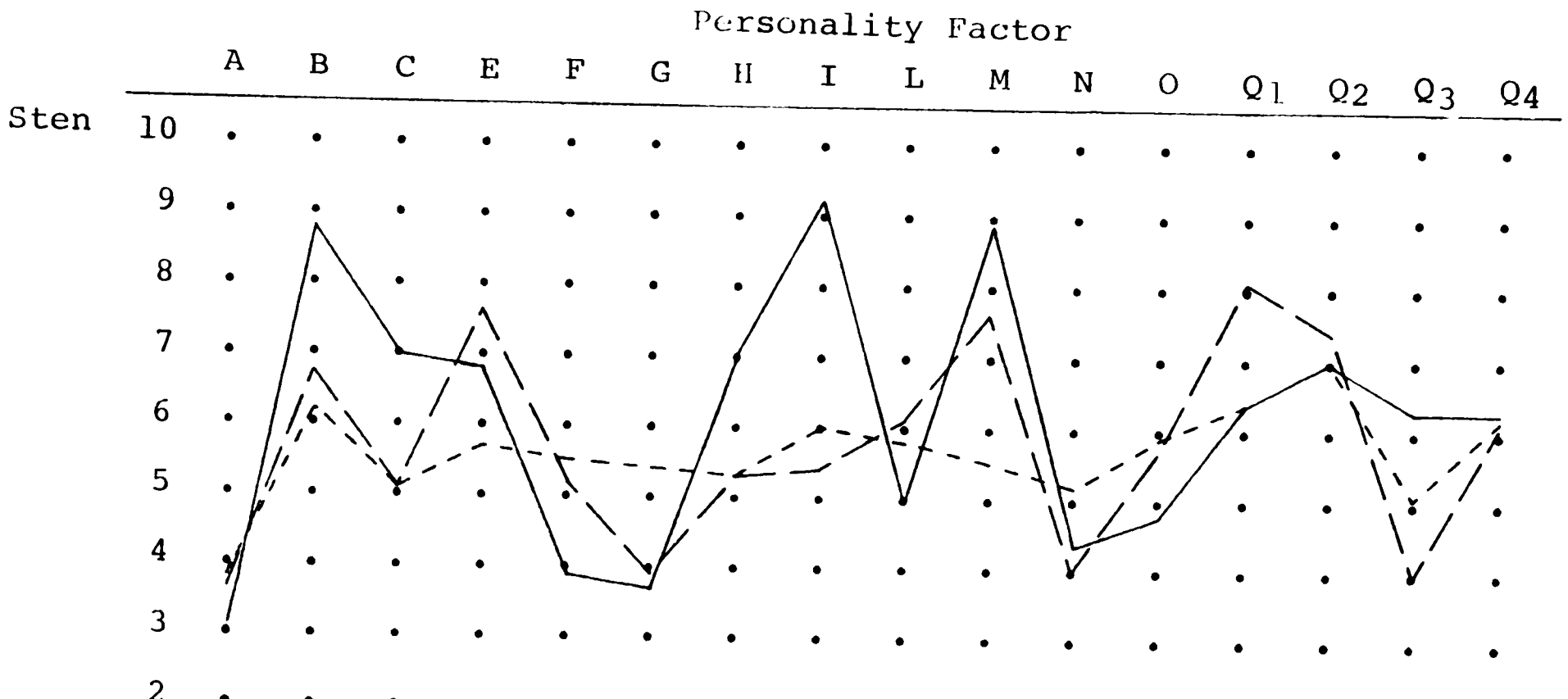
This section consists of a report of the data gathered from three sources: the 16PF personality tests, instructor ratings based upon giftedness indices, and instructor grade records for both the art students and the music students. The data concerning art students is described first.

16PF Personality Tests--Art Students

Figure 4.1 shows the mean personality profile of the Midland College art students compared to profiles of artists listed in Who's Who in American Art and college art students (Drevdahl and Cattell, 1958 and Cattell, H., Legge, Stanchfield, and Cromer, 1969, reproduced in Cattell, et al., 1980). There were 64 subjects, male and female, in the professional artist sample, and 33 female subjects in the college art student sample. As previously noted, there were 21 females and 9 males in the Midland College art student sample.

It is apparent from Figure 4.1 that in general, all three groups deviate from the mean in the same direction, with the artists deviating more extremely, followed by the college art students, and then the Midland College art students. This pattern indicates that the higher the level of education and experience, the less likely that personality characteristics attributable to the general population would be present. Or, put another way, of the three groups, the Midland College art students apparently possess personality characteristics closest to those of the general population. (See Appendix D for raw data on Midland College art students.)

Table 4.1 provides data on the three personality variables of special interest in this study: factor B of




| | A | B | C | E | F | G | H | I | L | M | N | O | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Professional Artists ——— | 3.1 | 8.8 | 7.0 | 6.8 | 3.9 | 3.7 | 7.0 | 9.2 | 5.0 | 8.9 | 4.4 | 4.8 | 6.4 | 7.0 | 6.3 | 6.3 |
| College Art Students — — — | 3.7 | 6.7 | 5.1 | 7.6 | 5.2 | 3.9 | 5.3 | 5.4 | 6.1 | 7.6 | 4.0 | 5.7 | 8.1 | 7.4 | 4.0 | 6.1 |
| Midland College Art Students ----- | 3.8 | 6.2 | 5.1 | 5.7 | 5.5 | 5.4 | 5.3 | 6.0 | 5.8 | 5.5 | 5.2 | 5.9 | 6.4 | 7.0 | 5.1 | 6.2 |

Figure 4.1 A Comparison of the Personality Profiles of Samples of Professional Artists and Art Students.

TABLE 4.1

MIDLAND COLLEGE ART STUDENTS' SCORES
ON THREE PERSONALITY MEASURES

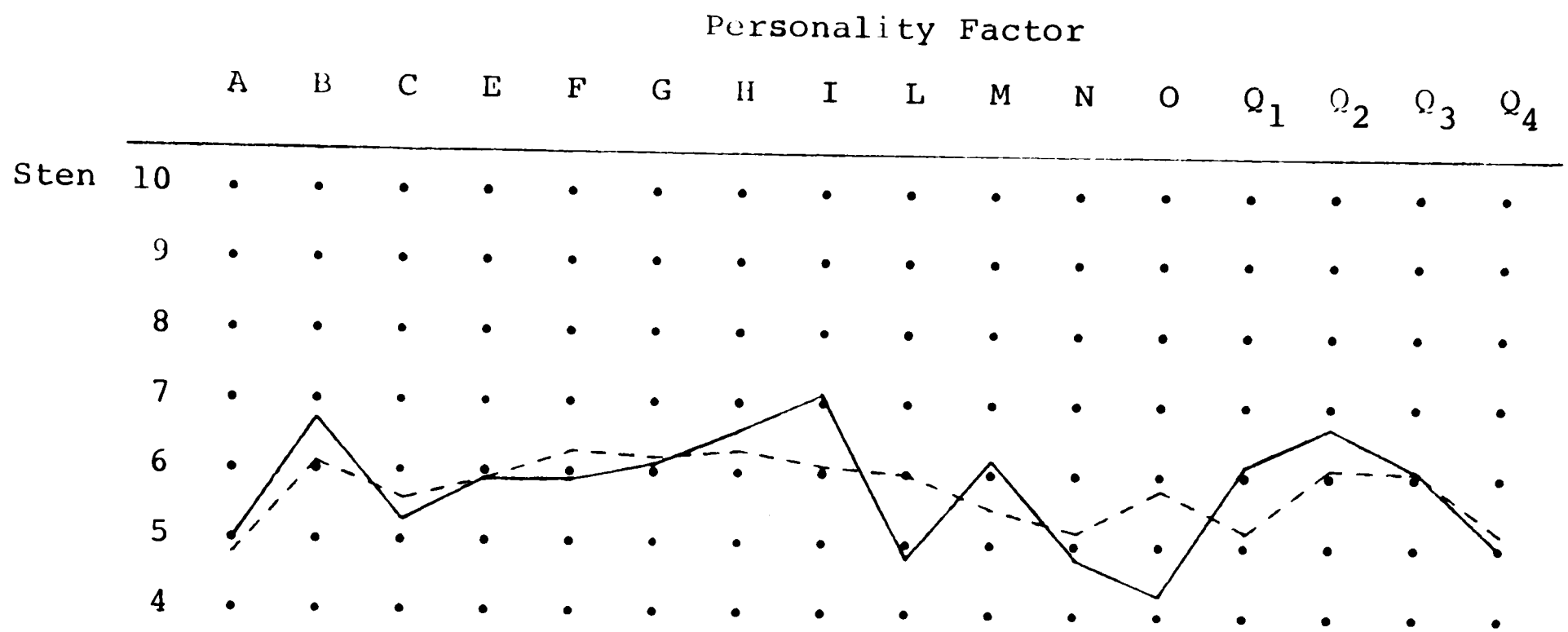
| Student | Intelligence | Creativity | Achievement |
|---|---|---|---|
| 1 | 70 | 62.7 | 58.3 |
| 2 | 70 | 70.7 | 85.6 |
| 3 | 30 | 60.8 | 61.9 |
| 4 | 90 | 92.4 | 68.5 |
| 5 | 80 | 47.8 | 67.6 |
| 6 | 70 | 59.1 | 58.7 |
| 7 | 70 | 50.8 | 62.5 |
| 8 | 50 | 58.8 | 49.8 |
| 9 | 40 | 110.1 | 92.0 |
| 10 | 30 | 72.3 | 38.1 |
| 11 | 50 | 22.8 | 9.6 |
| 12 | 90 | 107.0 | 68.5 |
| 13 | 40 | 70.6 | 35.8 |
| 14 | 50 | 60.9 | 63.2 |
| 15 | 70 | 72.0 | 73.2 |
| 16 | 60 | 46.0 | 51.2 |
| 17 | 80 | 77.3 | 77.1 |
| 18 | 50 | 95.1 | 76.6 |
| 19 | 70 | 69.2 | 58.7 |
| 20 | 90 | 77.1 | 66.0 |
| 21 | 50 | 67.3 | 65.1 |
| 22 | 40 | 54.2 | 41.4 |
| 23 | 20 | 59.3 | 35.5 |
| 24 | 70 | 55.6 | 50.8 |
| 25 | 70 | 87.0 | 52.7 |
| 26 | 90 | 100.1 | 61.4 |
| 27 | 80 | 103.7 | 70.1 |
| 28 | 70 | 75.7 | 72.9 |
| 29 | 60 | 75.5 | 58.1 |
| 30 | 70 | 75.3 | 32.3 |
| $\bar{X}$ | 62.33 | 71.24 | 58.77 |
| Range | (20-90) | (22.8-110.1) | (9.6-92) |

the 16PF test (a so-called crude measure of intelligence), and creativity and predicted school achievement, as calculated from the formulas given in Table 3.2, page 40. All numerical data has been multiplied by 10 and rounded off to the nearest hundredth to facilitate statistical procedures.

16 PF Personality Tests--Music Students

Figure 4.2 shows the mean personality profile of the Midland College music students compared to a profile of a group of professional musicians consisting of 23 performing musicians and 31 music therapists (Shatin, Kotter, and Longmore, 1968, reproduced in Cattell, et al., 1980). The professional musician sample of 54 was composed of both male and female subjects. As previously noted, there were 12 females and 9 males in the Midland College music student sample.

It appears from Figure 4.2 that neither group varies greatly from the mean and that most deviations from the mean are in the same direction. There are, however, three traits in which the two groups are on opposite sides of the mean, even if slightly so. They are source traits L, O, and $Q_1$ (trait C is believed to be too close to be of significance). The indications are that Midland College music students are slightly more suspicious and less trusting (factor L+), they are more apprehensive and less




| | | A | B | C | E | F | G | H | I | L | M | N | O | $Q_1$ | $Q_2$ | $Q_3$ | $Q_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Professional Musicians | —— | 5.0 | 6.7 | 5.3 | 5.9 | 5.9 | 6.1 | 6.6 | 7.1 | 4.8 | 6.2 | 4.8 | 4.3 | 6.1 | 6.7 | 6.1 | 5.0 |
| Midland College Music Students | ---- | 4.8 | 6.1 | 5.6 | 5.9 | 6.3 | 6.2 | 6.3 | 6.1 | 6.0 | 5.5 | 5.2 | 5.8 | 5.2 | 6.1 | 6.1 | 5.2 |

Figure 4.2 A Comparison of the Personality Profiles of Samples of Professional Musicians and Music Students

self-assured (factor O+), and they are slightly more radical and less conservative (factor $Q_1$+) than their professional counterparts. (See Appendix D for raw data on Midland College music students.)

Table 4.2 provides a comparison of the data on the three personality variables of special interest in this study similar to Table 4.1 for art students. Included are scores on factor B of the 16PF test and scores derived from the formulas for computing creativity and predicted school achievement. (See formulas in Table 3.2, page 40.) As in the case of the art students, all numerical data has been multiplied by ten and rounded off to the nearest hundredth to facilitate statistical procedures.

## Instructor Ratings Based Upon Giftedness Indices--Art Students

Tables 4.3, 4.4, and 4.5 present the ratings of each of the art students by their instructors, on each of three indices of giftedness: above-average ability, creativity, and task commitment. It should be recalled that on the index of above-average ability, all scores are in the range of 50-100, while the scores on the indices of creativity and task commitment are in the range of 0-100.

There were 22 art students rated by one instructor, 8 students rated by two instructors, and no students rated by all three instructors. Two of the art students were

TABLE 4.2

MIDLAND COLLEGE MUSIC STUDENTS' SCORES
ON THREE PERSONALITY MEASURES

| Student | Intelligence | Creativity | Achievement |
|---|---|---|---|
| 1 | 90 | 59.1 | 83.8 |
| 2 | 70 | 69.0 | 79.9 |
| 3 | 90 | 90.6 | 88.4 |
| 4 | 30 | 31.2 | 54.5 |
| 5 | 60 | 52.5 | 76.5 |
| 6 | 70 | 69.2 | 62.9 |
| 7 | 50 | 49.2 | 48.7 |
| 8 | 70 | 80.6 | 59.0 |
| 9 | 60 | 66.9 | 39.8 |
| 10 | 60 | 46.1 | 39.7 |
| 11 | 70 | 61.1 | 67.0 |
| 12 | 60 | 67.3 | 66.5 |
| 13 | 30 | 19.8 | 30.7 |
| 14 | 90 | 90.2 | 77.7 |
| 15 | 50 | 55.8 | 51.9 |
| 16 | 50 | 91.9 | 67.8 |
| 17 | 80 | 74.0 | 90.1 |
| 18 | 40 | 55.8 | 57.6 |
| 19 | 40 | 73.8 | 71.5 |
| 20 | 70 | 62.4 | 41.4 |
| 21 | 40 | 42.4 | 55.3 |
| $\bar{X}$ | 60.48 | 62.33 | 62.41 |
| Range | (30-90) | (19.8-91.9) | (30.7-90.1) |

TABLE 4.3

INSTRUCTOR RATINGS OF ART STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF ABOVE-AVERAGE ABILITY

| Student | Instructor | | | Avg. |
|---|---|---|---|---|
| | I | II | III | |
| 1 | | 60.50 | | 60.50 |
| 2 | 66.00 | | 89.75 | 77.88 |
| 3 | | | 82.50 | 82.50 |
| 4 | 68.50 | | | 68.50 |
| 5 | | 84.75 | | 84.75 |
| 6 | 66.25 | 51.25 | | 58.75 |
| 7 | | | 80.50 | 80.50 |
| 8 | 51.00 | | | 51.00 |
| 9 | 57.75 | | | 57.75 |
| 10 | | 50.50 | 52.75 | 51.63 |
| 11 | | 51.00 | 63.00 | 57.00 |
| 12 | 75.50 | | | 75.50 |
| 13 | | 60.00 | | 60.00 |
| 14 | | 51.00 | | 51.00 |
| 15 | 63.25 | | | 63.25 |
| 16 | | 90.50 | | 90.50 |
| 17 | 74.00 | | | 74.00 |
| 18 | | 97.50 | 90.50 | 94.00 |
| 19 | 64.75 | | | 64.75 |
| 20 | | | 92.75 | 92.75 |
| 21 | | 59.75 | | 59.75 |
| 22 | 66.75 | | 86.75 | 76.75 |
| 23 | | 62.75 | 88.75 | 75.32 |
| | | 61.00 | | |
| 24 | 75.75 | | | 75.75 |
| 25 | 50.00 | 51.00 | | 50.50 |
| 26 | | | 93.75 | 91.75 |
| | | | 89.75 | |
| 27 | | | 86.25 | 86.25 |
| 28 | 68.25 | | | 68.25 |
| 29 | 70.00 | | | 70.00 |
| 30 | | 74.00 | | 74.00 |

TABLE 4.4

INSTRUCTOR RATINGS OF ART STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF CREATIVITY

| Student | Instructor | | | Avg. |
|---|---|---|---|---|
| | I | II | III | |
| 1 | | 21.50 | | 21.50 |
| 2 | 27.00 | | 84.50 | 55.75 |
| 3 | | | 48.00 | 48.00 |
| 4 | 8.00 | | | 8.00 |
| 5 | | 42.50 | | 42.50 |
| 6 | 77.00 | 84.50 | | 42.50 |
| 7 | | | 44.50 | 44.50 |
| 8 | 4.00 | | | 4.00 |
| 9 | 24.50 | | | 24.50 |
| 10 | | 1.00 | 4.00 | 2.50 |
| 11 | | 2.00 | 23.50 | 12.75 |
| 12 | 58.00 | | | 58.00 |
| 13 | | 20.00 | | 20.00 |
| 14 | | 2.00 | | 2.00 |
| 15 | 21.00 | | | 21.00 |
| 16 | | 43.50 | | 43.50 |
| 17 | 56.00 | | | 56.00 |
| 18 | | 95.50 | 86.00 | 90.75 |
| 19 | 25.00 | | | 25.00 |
| 20 | | | 93.00 | 93.00 |
| 21 | | 46.50 | | 46.50 |
| 22 | 59.50 | | 65.00 | 62.25 |
| 23 | | 47.50 | 98.00 | 72.25 |
| | | 45.50 | | |
| 24 | 59.00 | | | 59.00 |
| 25 | 8.00 | 2.50 | | 5.25 |
| 26 | | | 99.00 | 98.50 |
| | | | 98.00 | |
| 27 | | | 18.00 | 18.00 |
| 28 | 45.00 | | | 45.00 |
| 29 | 49.00 | | | 49.00 |
| 30 | | 48.00 | | 48.00 |

TABLE 4.5

INSTRUCTOR RATINGS OF ART STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF TASK COMMITMENT

| Student | Instructor | | | Avg. |
|---|---|---|---|---|
| | I | II | III | |
| 1 | | 22.00 | | 22.00 |
| 2 | 55.00 | | 92.00 | 73.50 |
| 3 | | | 77.00 | 77.00 |
| 4 | 42.00 | | | 42.00 |
| 5 | | 71.00 | | 71.00 |
| 6 | 13.00 | 2.50 | | 7.75 |
| 7 | | | 66.50 | 66.50 |
| 8 | 40.00 | | | 40.00 |
| 9 | 20.00 | | | 20.00 |
| 10 | | 1.00 | 18.00 | 9.50 |
| 11 | | 2.00 | 30.00 | 16.00 |
| 12 | 44.00 | | | 44.00 |
| 13 | | 20.00 | | 20.00 |
| 14 | | 2.50 | | 2.50 |
| 15 | 37.50 | | | 37.50 |
| 16 | | 43.50 | | 43.50 |
| 17 | 63.50 | | | 63.50 |
| 18 | | 95.00 | 86.00 | 90.50 |
| 19 | 43.50 | | | 43.50 |
| 20 | | | 90.00 | 90.00 |
| 21 | | 77.00 | | 77.00 |
| 22 | 11.00 | | 66.50 | 38.75 |
| 23 | | 47.50 | 92.50 | 69.50 |
| | | 45.50 | | |
| 24 | 26.00 | | | 26.00 |
| 25 | 12.50 | 2.50 | | 7.50 |
| 26 | | | 95.50 | 95.25 |
| | | | 95.00 | |
| 27 | | | 81.00 | 81.00 |
| 28 | 15.00 | | | 15.00 |
| 29 | 63.00 | | | 63.00 |
| 30 | | 48.00 | | 48.00 |

enrolled in two courses from the same instructor. In those cases, the two scores were averaged before computing the total average score. In the eight cases where more than one instructor's ratings were involved, the scores were averaged.

In general, agreement among the instructors was close. There were three instances in which instructors disagreed that merit attention. Instructors disagreed by 20 points or more on subjects 2, 22, and 23 on the index of above-average ability; instructors disagreed by 50 points or more on subjects 2 and 23 on the index of creativity; and instructors disagreed 35 points or more on subjects 2, 22, and 23 on the index of task commitment. In each case, instructor III rated those students higher than either instructor I or instructor II. One possible explanation is that those students actually performed better in the classes of instructor III; however, it is felt that a more plausible explanation is that instructor III, as a general pattern, rated all subjects higher than either instructor I or instructor II, regardless of actual class performance.

Instructor Ratings Based Upon Giftedness Indices--Music Students

Tables 4.6, 4.7, and 4.8 present the ratings of each of the music students by their instructors, on each of

TABLE 4.6

INSTRUCTOR RATINGS OF MUSIC STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF ABOVE-AVERAGE ABILITY

| Student | Instructor I | Instructor II | Instructor III | Part-time Instructor | Avg. |
|---|---|---|---|---|---|
| 1 | | | 53.50 | | 53.50 |
| 2 | | 72.75 | | 72.50 | 72.81 |
| | | 73.50 | | | |
| 3 | | | 62.00 | | 62.00 |
| 4 | 51.50 | 53.00 | 51.00 | | 51.33 |
| | | 50.00 | | | |
| 5 | 73.75 | | 50.00 | | 62.07 |
| | 74.50 | | | | |
| 6 | | | | 77.00 | 77.00 |
| 7 | | 51.75 | | | 51.75 |
| 8 | | | | 85.00 | 85.00 |
| 9 | | | | 76.00 | 76.00 |
| 10 | | | | 88.75 | 88.75 |
| 11 | 86.25 | 53.50 | 84.00 | | 74.58 |
| 12 | | | 73.75 | | 73.75 |
| 13 | | 71.00 | | 79.00 | 77.88 |
| | | 82.50 | | | |
| 14 | 100.00 | | | | 100.00 |
| 15 | 50.00 | | | | 50.00 |
| 16 | 51.50 | | | 96.50 | 74.00 |
| 17 | 50.00 | 55.00 | 51.00 | | 51.25 |
| | | 50.50 | | | |
| 18 | 50.00 | 74.25 | 51.00 | | 57.79 |
| | | 70.50 | | | |
| 19 | | 50.00 | | | 50.00 |
| 20 | 50.00 | | | 93.75 | 71.88 |
| 21 | | 64.00 | | | 64.38 |
| | | 64.75 | | | |

TABLE 4.7

INSTRUCTOR RATINGS OF MUSIC STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF CREATIVITY

| Student | Instructor I | Instructor II | Instructor III | Part-time Instructor | Avg. |
|---|---|---|---|---|---|
| 1 | | | 46.00 | | 46.00 |
| 2 | | 42.00 | | 45.50 | 42.50 |
| | | 37.00 | | | |
| 3 | | | 70.00 | | 70.00 |
| 4 | 00.00 | 28.00 | 47.00 | | 22.67 |
| | | 14.00 | | | |
| 5 | 26.00 | | 47.50 | | 46.50 |
| | 65.00 | | | | |
| 6 | | | | 79.00 | 79.00 |
| 7 | | 5.50 | | | 5.50 |
| 8 | | | | 65.00 | 65.00 |
| 9 | | | | 61.50 | 61.50 |
| 10 | | | | 30.00 | 30.00 |
| 11 | 47.50 | 00.00 | 70.00 | | 39.17 |
| 12 | | | 51.00 | | 51.00 |
| 13 | | 36.50 | | 23.00 | 34.38 |
| | | 55.00 | | | |
| 14 | 100.00 | | | | 100.00 |
| 15 | 100.00 | | | | 100.00 |
| 16 | 100.00 | | | 92.50 | 96.25 |
| 17 | 4.00 | 10.00 | 26.50 | | 13.25 |
| | | 8.50 | | | |
| 18 | 1.50 | 46.00 | 54.00 | | 30.58 |
| | | 26.50 | | | |
| 19 | | 3.00 | | | 3.00 |
| 20 | 00.00 | | | 90.00 | 45.00 |
| 21 | | 14.50 | | | 8.25 |
| | | 2.00 | | | |

TABLE 4.8

INSTRUCTOR RATINGS OF MUSIC STUDENTS
BASED UPON THE GIFTEDNESS INDEX
OF TASK COMMITMENT

| Student | Instructor I | Instructor II | Instructor III | Part-time Instructor | Avg. |
|---|---|---|---|---|---|
| 1 | | | 87.00 | | 87.00 |
| 2 | | 44.00 | | 36.00 | 35.63 |
| | | 26.50 | | | |
| 3 | | | 98.00 | | 98.00 |
| 4 | 00.00 | 40.50 | 94.00 | | 41.75 |
| | | 22.00 | | | |
| 5 | 00.00 | | 79.50 | | 42.38 |
| | 10.50 | | | | |
| 6 | | | | 90.00 | 90.00 |
| 7 | | 32.00 | | | 32.00 |
| 8 | | | | 80.00 | 80.00 |
| 9 | | | | 10.00 | 10.00 |
| 10 | | | | 25.00 | 25.00 |
| 11 | 100.00 | 22.00 | 96.00 | | 72.67 |
| 12 | | | 98.00 | | 98.00 |
| 13 | | 48.00 | | 62.50 | 58.25 |
| | | 60.00 | | | |
| 14 | 100.00 | | | | 100.00 |
| 15 | 100.00 | | | | 100.00 |
| 16 | 00.00 | | | 82.50 | 41.25 |
| 17 | 15.50 | 00.50 | 75.00 | | 34.92 |
| | | 28.00 | | | |
| 18 | 00.00 | 32.00 | 89.50 | | 35.67 |
| | | 3.00 | | | |
| 19 | | 6.50 | | | 6.50 |
| 20 | 00.00 | | | 45.00 | 22.50 |
| 21 | | 00.00 | | | 00.00 |
| | | 00.00 | | | |

the three indices of giftedness. As in the art student sample, above-average ability ranges from 50 to 100, while creativity and task commitment range from 0 to 100.

There were 12 music students rated by one instructor, 3 students rated by two instructors, and 6 students rated by three instructors. In each case in which more than one instructor's ratings were involved, the scores were averaged. Eight students were rated by part-time instructors; four students, numbers 6, 8, 9, and 10 were rated by part-time instructors only.

Agreement among the music instructors was marginal at best. Several patterns emerge that are notable. On the indices of above-average ability and task commitment, instructor I and a part-time instructor seem to disagree strongly on subjects 16 and 20. In this case the ratings are probably tied to differences in performance in the two classes, since the first score in each case is on a private instrumental class, while the second score is on a lecture class. On the index of task commitment, there appears to be disagreement among all three instructors on subjects 4, 11, and 18. In each case, instructor III rated the subjects very highly while instructor I rated two of the three subjects at 0. One pattern is evident from the data: instructor III consistently rated subjects very highly (75-98) on the index of task commitment.

Grades--Art Students

Table 4.9 shows the grades received by the 30 art students. In both art and music, only a letter grade is recorded for each course completed; therefore, all grades are whole numbers, unless averaged with other grades in art or music. Among the art students, there were 18 A's (all 4.0), 8 B's (all 3.0), and 4 C's (three at 2.0 and one at 1.5).

Grades--Music Students

Table 4.9 also shows the grades for the 21 music students. Among the music students, there were 11 A's (nine at 4.0 and two at 3.67), 7 B's (two at 3.33, four at 3.0 and one at 2.5), 1 C (2.0), 1 D (1.0), and 1 F (0.0).

This concludes the preliminary findings based upon the three sources of data used: the 16 PF personality tests, the instructor ratings based upon giftedness indices, and the instructor grade records.

## Statistical Analysis

This section of the study consists of a statistical analysis of the data and is divided into four parts. In part one, the data on the personality variables and the instructor ratings based upon giftedness indices is compared, using the Pearson product-moment correlation coefficient. In part two, the data on personality variables

TABLE 4.9

GRADES OF ART STUDENTS IN ART COURSES AND MUSIC STUDENTS UN MUSIC COURSES

| Art Student | Grade GPA | Grade Letter | Music Student | Grade GPA | Grade Letter |
|---|---|---|---|---|---|
| 1 | 3.0 | B | 1 | 4.0 | A |
| 2 | 4.0 | A | 2 | 3.33 | B |
| 3 | 4.0 | A | 3 | 4.0 | A |
| 4 | 4.0 | A | 4 | 3.33 | B |
| 5 | 4.0 | A | 5 | 3.67 | A |
| 6 | 4.0 | A | 6 | 4.0 | A |
| 7 | 4.0 | A | 7 | 3.0 | B |
| 8 | 3.0 | B | 8 | 4.0 | A |
| 9 | 3.0 | B | 9 | 3.0 | B |
| 10 | 1.5 | C | 10 | 0.0 | F |
| 11 | 2.0 | C | 11 | 4.0 | A |
| 12 | 4.0 | A | 12 | 4.0 | A |
| 13 | 3.0 | B | 13 | 4.0 | A |
| 14 | 2.0 | C | 14 | 4.0 | A |
| 15 | 4.0 | A | 15 | 3.0 | B |
| 16 | 4.0 | A | 16 | 2.0 | C |
| 17 | 4.0 | A | 17 | 3.67 | A |
| 18 | 4.0 | A | 18 | 3.0 | B |
| 19 | 4.0 | A | 19 | 4.0 | A |
| 20 | 4.0 | A | 20 | 1.0 | D |
| 21 | 4.0 | A | 21 | 2.5 | B |
| 22 | 3.0 | B | | | |
| 23 | 4.0 | A | | | |
| 24 | 3.0 | B | | | |
| 25 | 2.0 | C | | | |
| 26 | 4.0 | A | | | |
| 27 | 3.0 | B | | | |
| 28 | 3.0 | B | | | |
| 29 | 4.0 | A | | | |
| 30 | 4.0 | A | | | |
| $\bar{X}$ | 3.45 | B | $\bar{X}$ | 3.21 | B |

TEXAS TECH UNIVERSITY

and grades is compared, using the point-biserial correlation coefficient. In part three, the data on instructor ratings based upon giftedness indices and grades is compared, using the point-biserial method. The last part of this section is devoted to additional statistics of interest, especially an examination of the interrelationships among the three personality variables and the instructor ratings based upon giftedness indices.

## Personality Variables and Instructor Ratings--Art Students

Tables 4.10, 4.11, and 4.12 provide a comparison of data on the three personality measures and the instructor ratings based upon the three indices of giftedness for the art students. Figures 4.3, 4.4, and 4.5 present the same data in graphic form. For the purposes of comparison, two adjustments in the data have been made. First, it should be noted that intelligence scores range from 50 to 90. Six scores which were below 50 were modified upward as indicated by the table notation. Of those six scores, three were 40, two were 30, and one was 20. Second, creativity scores range from 22.8 to 100. Four scores which were above 100 were modified downward as indicated by the table notation. Those four scores were 100.1, 103.7, 107.0, and 110.1.

There were two reasons for these adjustments of the data. First, it was felt that, since the instructors

TABLE 4.10

A COMPARISON OF INTELLIGENCE WITH INSTRUCTOR RATINGS
BASED UPON THE GIFTEDNESS INDEX
OF ABOVE-AVERAGE ABILITY (AAB)
AMONG ART STUDENTS

| Student | (16PF) Intelligence | AAB | Difference |
|---|---|---|---|
| 1 | 70 | 60.50 | 9.50 (-) |
| 2 | 70 | 77.88 | 7.88 |
| 3 | 50* | 82.50 | 32.50 |
| 4 | 90 | 68.50 | 21.50 (-) |
| 5 | 80 | 84.75 | 4.75 |
| 6 | 70 | 58.75 | 11.25 (-) |
| 7 | 70 | 80.5 | 10.50 |
| 8 | 50 | 51.00 | 1.00 |
| 9 | 50* | 57.75 | 7.75 |
| 10 | 50* | 51.63 | 1.63 |
| 11 | 50 | 57.00 | 7.00 |
| 12 | 90 | 75.50 | 14.50 (-) |
| 13 | 50* | 60.00 | 10.00 |
| 14 | 50 | 51.00 | 1.00 |
| 15 | 70 | 63.25 | 6.75 (-) |
| 16 | 60 | 90.50 | 30.50 |
| 17 | 80 | 74.00 | 6.00 (-) |
| 18 | 50 | 94.00 | 44.00 |
| 19 | 70 | 64.75 | 5.25 (-) |
| 20 | 90 | 92.75 | 2.75 |
| 21 | 50 | 59.75 | 9.75 |
| 22 | 50* | 76.75 | 26.75 |
| 23 | 50* | 75.32 | 25.32 |
| 24 | 70 | 75.75 | 5.75 |
| 25 | 70 | 50.50 | 19.50 (-) |
| 26 | 90 | 91.75 | 1.75 |
| 27 | 80 | 86.25 | 6.25 |
| 28 | 70 | 68.25 | 1.75 (-) |
| 29 | 60 | 70.00 | 10.00 |
| 30 | 70 | 74.00 | 4.00 |
| $\bar{X}$ | 65.67 | 70.83 | 11.56 |
| Range | (50-90) | (50.5-92.75) | (1-32.5) |

*Indicates scores modified upward to 50.

TABLE 4.11

A COMPARISON OF CREATIVITY WITH INSTRUCTOR RATINGS
BASED UPON THE GIFTEDNESS INDEX
OF CREATIVITY (C)
AMONG ART STUDENTS

| Student | (16PF) Creativity | C | Difference |
|---|---|---|---|
| 1 | 62.70 | 21.50 | 41.20 (-) |
| 2 | 70.70 | 55.75 | 14.95 (-) |
| 3 | 60.80 | 48.00 | 12.80 (-) |
| 4 | 92.40 | 8.00 | 84.40 (-) |
| 5 | 47.80 | 42.50 | 5.30 (-) |
| 6 | 59.10 | 80.75 | 21.65 |
| 7 | 50.80 | 44.50 | 6.30 (-) |
| 8 | 58.80 | 4.00 | 54.80 (-) |
| 9 | 100.00* | 24.50 | 75.50 (-) |
| 10 | 72.30 | 2.50 | 69.80 (-) |
| 11 | 22.80 | 12.75 | 10.05 (-) |
| 12 | 100.00* | 58.00 | 42.00 (-) |
| 13 | 70.60 | 20.00 | 50.60 (-) |
| 14 | 60.90 | 2.00 | 58.90 (-) |
| 15 | 72.00 | 21.00 | 51.00 (-) |
| 16 | 46.00 | 43.50 | 2.50 (-) |
| 17 | 77.30 | 56.00 | 21.30 (-) |
| 18 | 95.10 | 90.75 | 4.35 (-) |
| 19 | 69.20 | 25.00 | 44.20 (-) |
| 20 | 77.10 | 93.00 | 15.90 |
| 21 | 67.30 | 46.50 | 20.80 (-) |
| 22 | 54.20 | 62.25 | 8.05 |
| 23 | 59.30 | 72.25 | 12.95 |
| 24 | 55.60 | 59.00 | 3.40 |
| 25 | 87.00 | 5.25 | 81.75 (-) |
| 26 | 100.00* | 98.50 | 1.50 (-) |
| 27 | 100.00* | 18.00 | 82.00 (-) |
| 28 | 75.70 | 45.00 | 30.70 (-) |
| 29 | 75.50 | 49.00 | 26.50 (-) |
| 30 | 75.30 | 48.00 | 27.30 (-) |
| $\bar{X}$ | 70.54 | 41.93 | 32.75 |
| Range | (22.8-100) | (2-98.5) | (1.5-84.4) |

*Indicates scores modified downward to 100.00

TABLE 4.12

A COMPARISON OF PREDICTED SCHOOL ACHIEVEMENT WITH INSTRUCTOR RATINGS BASED UPON THE GIFTEDNESS INDEX OF TASK COMMITMENT (TC) AMONG ART STUDENTS

| Student | (16PF) Achievement | TC | Difference |
|---|---|---|---|
| 1 | 58.30 | 22.00 | 36.30 (-) |
| 2 | 85.60 | 73.50 | 12.10 (-) |
| 3 | 61.90 | 77.00 | 15.10 |
| 4 | 68.50 | 42.00 | 26.50 (-) |
| 5 | 67.60 | 71.00 | 3.40 |
| 6 | 58.70 | 7.75 | 50.95 (-) |
| 7 | 62.50 | 66.50 | 4.00 |
| 8 | 49.80 | 40.00 | 9.80 (-) |
| 9 | 92.00 | 20.00 | 72.00 (-) |
| 10 | 38.10 | 9.50 | 28.60 (-) |
| 11 | 9.60 | 16.00 | 6.40 |
| 12 | 68.50 | 44.00 | 24.50 (-) |
| 13 | 35.80 | 20.00 | 15.80 (-) |
| 14 | 63.20 | 2.50 | 60.70 (-) |
| 15 | 73.20 | 37.50 | 35.70 (-) |
| 16 | 51.20 | 43.50 | 7.70 (-) |
| 17 | 77.10 | 63.50 | 13.60 (-) |
| 18 | 76.60 | 90.50 | 13.90 |
| 19 | 58.70 | 43.50 | 15.20 (-) |
| 20 | 66.00 | 90.00 | 24.00 |
| 21 | 65.10 | 77.00 | 11.90 |
| 22 | 41.40 | 38.75 | 2.65 (-) |
| 23 | 35.50 | 69.50 | 34.00 |
| 24 | 50.80 | 26.00 | 24.80 (-) |
| 25 | 52.70 | 7.50 | 45.20 (-) |
| 26 | 61.40 | 95.25 | 33.85 |
| 27 | 70.10 | 81.00 | 10.90 |
| 28 | 72.90 | 15.00 | 57.90 (-) |
| 29 | 58.10 | 63.00 | 4.90 |
| 30 | 32.30 | 48.00 | 15.70 |
| $\bar{X}$ | 58.77 | 46.71 | 23.94 |
| Range | (9.6-92) | (2.5-95.25) | (2.65-60.7) |

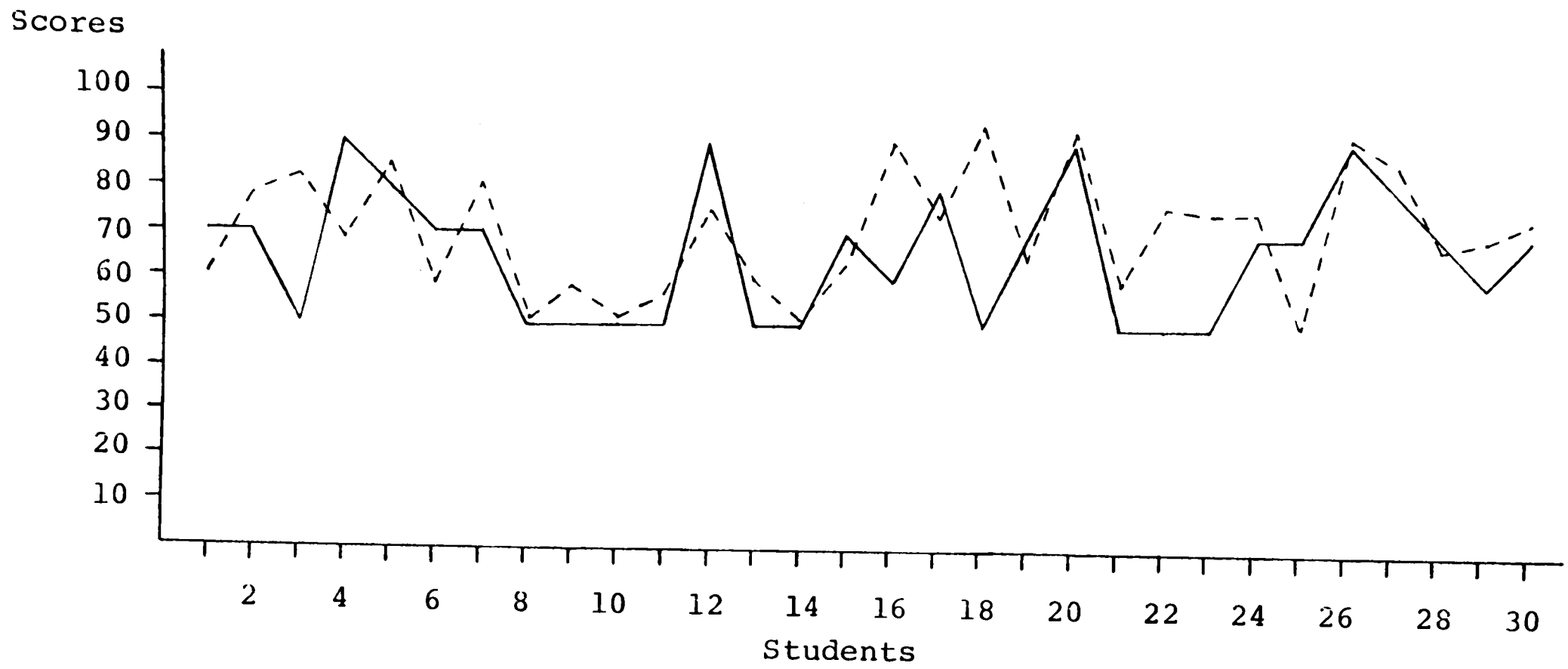



Figure 4.3 A Comparison of Intelligence with Instructor Ratings Based Upon the Giftedness Index of Above-average Ability Among Art Students.

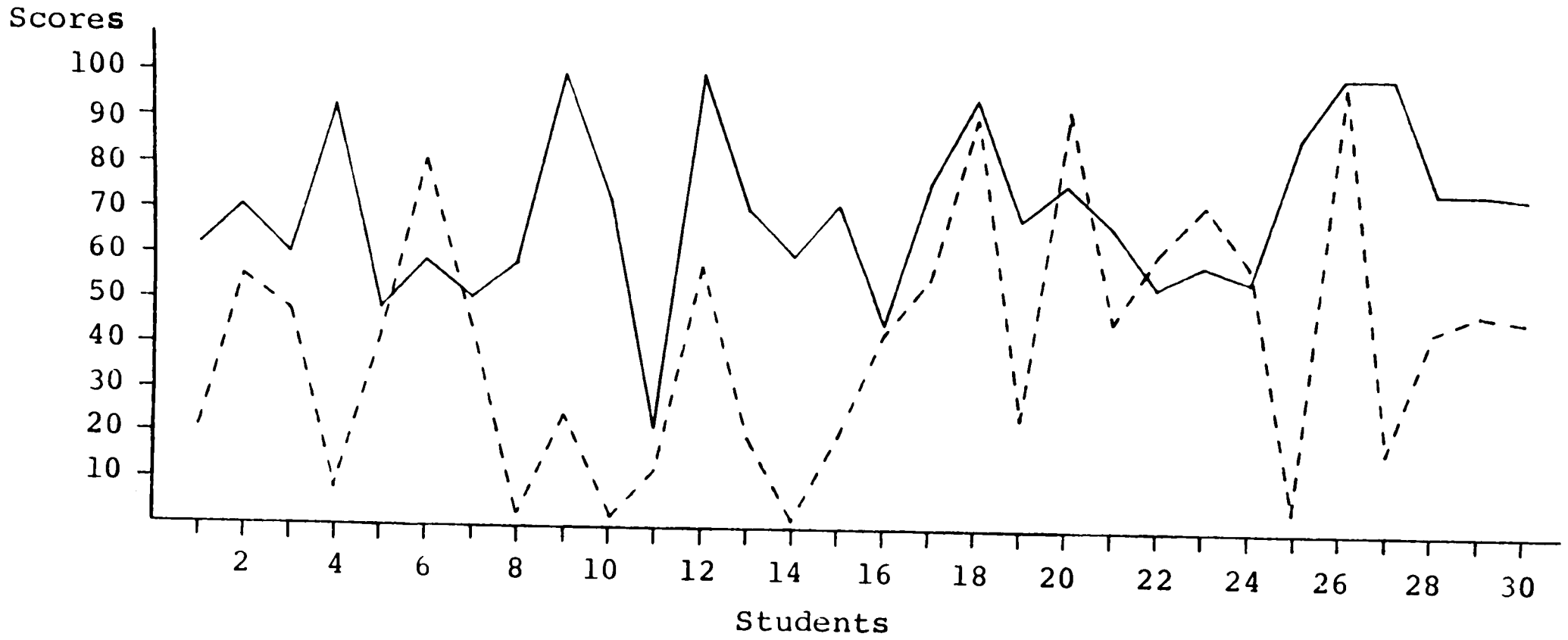



Figure 4.4 A Comparison of Creativity with Instructor Ratings Based Upon the Giftedness Index of Creativity Among Art Students.

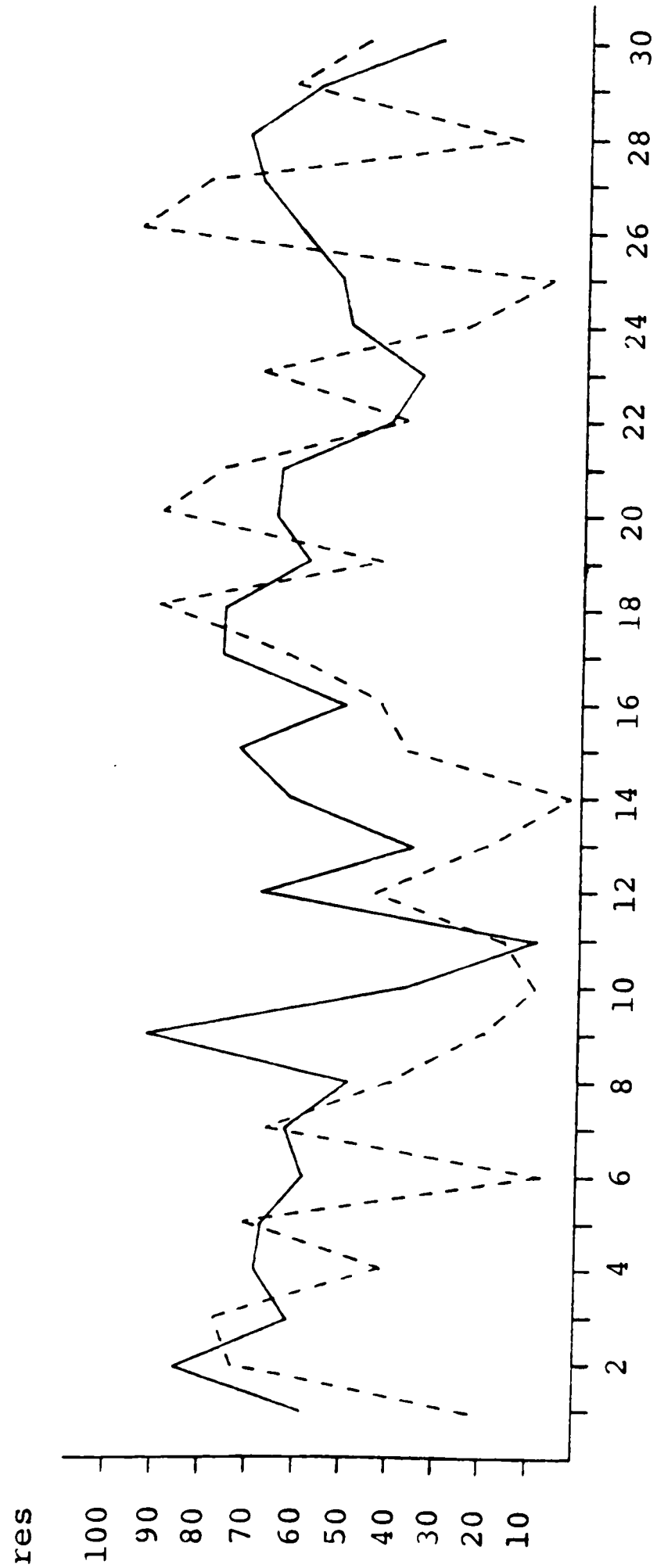



Figure 4.5 A Comparison of Predicted School Achievement with Instructor Ratings Based Upon the Giftedness Index of Task Commitment Among Art Students.

were limited to ranges of 50-100, 0-100, and 0-100 respectively, the personality scales should, for the purposes of comparisons, also conform to those limitations. Second, it was felt that the statistical operations exploring rating accuracy and relationships would be enhanced without compromising statistical methodology.

Tables 4.13, 4.14, and 4.15 provide similar comparisons of the three personality variables and the instructor ratings by each individual art instructor.

To determine possible relationships between personality variables and instructor ratings using giftedness indices, the Pearson product-moment correlation coefficient was used. The data satisfied the basic assumptions in the use of Pearson *r*; i.e., the data was taken from a representative sample and both variables were continuous and normally distributed.

Table 4.16 provides the *r* values, degrees of freedom, and levels of significance for the three individual art instructors and the art instructors as a group.

## Personality Variables and Instructor Ratings--Music Students

Tables 4.17, 4.18, and 4.19 provide a comparison of the data on the three personality measures and the instructor ratings based upon the three indices of giftedness for the music students. Figures 4.6, 4.7, and 4.8 present the

TABLE 4.13

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR ART INSTRUCTOR I

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | (16PF) Ach. | TC | D |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 70 | 66.00 | 4.00 (-) | 70.70 | 27.00 | 43.70 (-) | 85.60 | 55.00 | 30.60 (-) |
| 4 | 90 | 68.50 | 21.50 (-) | 92.40 | 8.00 | 84.40 (-) | 68.50 | 42.00 | 26.50 (-) |
| 6 | 70 | 66.25 | 3.75 (-) | 59.10 | 77.00 | 17.90 | 58.70 | 13.00 | 45.70 (-) |
| 8 | 50 | 51.00 | 1.00 | 58.80 | 4.00 | 54.80 (-) | 49.80 | 40.00 | 9.80 (-) |
| 9 | 50 | 57.75 | 7.75 | 100.00 | 24.50 | 75.50 (-) | 92.00 | 20.00 | 72.00 (-) |
| 12 | 90 | 75.50 | 14.50 (-) | 100.00 | 58.00 | 42.00 (-) | 68.50 | 44.00 | 24.50 (-) |
| 15 | 70 | 63.25 | 6.75 (-) | 72.00 | 21.00 | 51.00 (-) | 73.20 | 37.50 | 35.70 (-) |
| 17 | 80 | 74.00 | 6.00 (-) | 77.30 | 56.00 | 21.30 (-) | 77.10 | 63.50 | 13.60 (-) |
| 19 | 70 | 64.75 | 5.25 (-) | 69.20 | 25.00 | 44.20 (-) | 58.70 | 43.50 | 15.20 (-) |
| 22 | 50 | 66.75 | 16.75 | 54.20 | 59.50 | 5.30 | 41.40 | 11.00 | 30.40 (-) |
| 24 | 70 | 75.75 | 5.75 | 55.60 | 59.00 | 3.40 | 50.80 | 26.00 | 24.80 (-) |
| 25 | 70 | 50.00 | 20.00 (-) | 87.00 | 8.00 | 79.00 (-) | 52.70 | 12.50 | 40.20 (-) |
| 28 | 70 | 68.25 | 1.75 (-) | 75.70 | 45.00 | 30.70 (-) | 72.90 | 15.00 | 57.90 (-) |
| 29 | 60 | 70.00 | 10.00 | 75.50 | 49.00 | 26.50 (-) | 58.10 | 63.00 | 4.90 |
| $\bar{X}$ | 68.57 | 65.55 | 8.91 | 74.82 | 37.21 | 41.41 | 64.86 | 34.71 | 30.84 |

TABLE 4.14

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR ART INSTRUCTOR II

| Student | (16PF) Intel. | AAB | D | | (16PF) Creat. | C | D | | (16PF) Ach. | TC | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70 | 60.50 | 9.50 | (-) | 62.70 | 21.50 | 41.20 | (-) | 58.30 | 22.00 | 36.30 | (-) |
| 5 | 80 | 84.75 | 4.75 | | 47.80 | 42.50 | 5.30 | (-) | 67.60 | 71.00 | 3.40 | |
| 6 | 70 | 51.25 | 18.75 | (-) | 59.10 | 84.50 | 25.40 | | 58.70 | 2.50 | 56.20 | (-) |
| 10 | 50 | 50.50 | 0.50 | | 72.30 | 1.00 | 71.30 | (-) | 38.10 | 1.00 | 37.10 | (-) |
| 11 | 50 | 51.00 | 1.00 | | 22.80 | 2.00 | 20.80 | (-) | 9.60 | 2.00 | 7.60 | (-) |
| 13 | 50 | 60.00 | 10.00 | | 70.60 | 20.00 | 50.60 | (-) | 35.80 | 20.00 | 15.80 | (-) |
| 14 | 50 | 51.00 | 1.00 | | 60.90 | 2.00 | 58.90 | (-) | 63.20 | 2.50 | 60.70 | (-) |
| 16 | 60 | 90.50 | 30.50 | | 46.00 | 43.50 | 2.50 | (-) | 51.20 | 43.50 | 7.70 | (-) |
| 18 | 50 | 97.50 | 47.50 | | 95.10 | 95.50 | 0.40 | | 76.60 | 95.00 | 18.40 | |
| 21 | 50 | 59.75 | 9.75 | | 67.30 | 46.50 | 20.80 | (-) | 65.10 | 77.00 | 11.90 | |
| 23 | 50 | 61.88 | 11.88 | | 59.30 | 46.50 | 12.80 | (-) | 35.50 | 46.50 | 11.00 | |
| 25 | 70 | 51.00 | 19.00 | (-) | 87.00 | 2.50 | 84.50 | (-) | 52.70 | 2.50 | 50.20 | (-) |
| 30 | 70 | 74.00 | 4.00 | | 75.30 | 48.00 | 27.30 | (-) | 32.30 | 48.00 | 15.70 | |
| $\bar{X}$ | 59.23 | 64.89 | 12.93 | | 63.55 | 35.08 | 32.45 | | 49.59 | 33.35 | 25.54 | |

TABLE 4.15

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR ART INSTRUCTOR III

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | (16PF) Ach. | TC | D |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 70 | 89.75 | 19.75 | 70.70 | 84.50 | 13.80 | 85.60 | 92.00 | 6.40 |
| 3 | 50 | 82.50 | 32.50 | 60.80 | 48.00 | 12.80 (-) | 61.90 | 77.00 | 15.10 |
| 7 | 70 | 80.50 | 10.50 | 50.80 | 44.50 | 6.30 (-) | 62.50 | 66.50 | 4.00 |
| 10 | 50 | 52.75 | 2.75 | 72.30 | 4.00 | 68.30 (-) | 38.10 | 18.00 | 20.10 (-) |
| 11 | 50 | 63.00 | 13.00 | 22.80 | 23.50 | 0.70 | 9.60 | 30.00 | 20.40 |
| 18 | 50 | 90.50 | 40.50 | 95.10 | 86.00 | 9.10 (-) | 76.60 | 86.00 | 9.40 |
| 20 | 90 | 92.75 | 2.75 | 77.10 | 93.00 | 15.90 | 66.00 | 90.00 | 24.00 |
| 22 | 50 | 86.75 | 36.75 | 54.20 | 65.00 | 10.80 | 41.40 | 66.50 | 25.10 |
| 23 | 50 | 88.75 | 38.75 | 59.30 | 98.00 | 38.70 | 35.50 | 92.50 | 57.00 |
| 26 | 90 | 91.75 | 1.75 (-) | 100.00 | 98.50 | 1.50 (-) | 61.40 | 98.25 | 36.85 |
| 27 | 80 | 86.25 | 6.25 | 100.00 | 18.00 | 82.00 (-) | 70.10 | 81.00 | 10.90 |
| $\bar{X}$ | 63.64 | 82.30 | 18.66 | 69.37 | 60.27 | 23.63 | 55.34 | 72.52 | 20.84 |

TABLE 4.16

r VALUES COMPARING PERSONALITY VARIABLES AND INSTRUCTOR RATINGS USING GIFTEDNESS INDICES FOR ART INSTRUCTORS

| | Intel/AAB | Creat/C | Ach/TC | df | .05p |
|---|---|---|---|---|---|
| Instructor I | .5363* | -.3048 | .3019 | 12 | .532 |
| Instructor II | .1795 | .2697 | .4865 | 11 | .553 |
| Instructor III | .4742 | .2854 | .6788* | 9 | .602 |
| All Instructors | .4117* | .1366 | .3157 | 28 | .361 |

Note. Personality variables (16PF) are intelligence (Intel), creativity (Creat), and predicted school achievement (Ach). Giftedness indices are above-average ability (AAB), creativity (C), and task commitment (TC).

*$p < .05$.

TABLE 4.17

A COMPARISON OF INTELLIGENCE WITH INSTRUCTOR RATINGS
BASED UPON THE GIFTEDNESS INDEX
OF ABOVE-AVERAGE ABILITY (AAB)
AMONG MUSIC STUDENTS

| Student | (16PF) Intelligence | AAB | Difference |
|---|---|---|---|
| 1 | 90 | 53.50 | 36.50 (-) |
| 2 | 70 | 72.81 | 2.81 |
| 3 | 90 | 62.00 | 28.00 (-) |
| 4 | 50* | 51.33 | 1.33 |
| 5 | 60 | 62.07 | 2.07 |
| 6 | 70 | 77.00 | 7.00 |
| 7 | 50 | 51.75 | 1.75 |
| 8 | 70 | 85.00 | 15.00 |
| 9 | 60 | 76.00 | 16.00 |
| 10 | 60 | 88.75 | 28.75 |
| 11 | 70 | 74.58 | 4.58 |
| 12 | 60 | 73.75 | 13.75 |
| 13 | 50* | 77.88 | 27.88 |
| 14 | 90 | 100.00 | 10.00 |
| 15 | 50 | 50.00 | 0.00 |
| 16 | 50 | 74.00 | 24.00 |
| 17 | 80 | 51.25 | 28.75 (-) |
| 18 | 50* | 57.79 | 7.79 |
| 19 | 50* | 50.00 | 0.00 |
| 20 | 70 | 71.88 | 1.88 |
| 21 | 50* | 64.38 | 14.38 |
| $\bar{X}$ | 63.81 | 67.89 | 12.96 |
| Range | (50-90) | (50-100) | (0-36.5) |

*Indicates scores modified upward to 50.

TABLE 4.18

A COMPARISON OF CREATIVITY WITH INSTRUCTOR RATINGS BASED UPON THE GIFTEDNESS INDEX OF CREATIVITY (C) AMONG MUSIC STUDENTS

| Student | (16PF) Creativity | C | Difference |
|---|---|---|---|
| 1 | 59.1 | 46.00 | 13.10 (-) |
| 2 | 69.0 | 42.50 | 26.50 (-) |
| 3 | 90.6 | 70.00 | 20.60 (-) |
| 4 | 31.2 | 22.67 | 8.53 (-) |
| 5 | 52.5 | 46.50 | 6.00 (-) |
| 6 | 69.2 | 79.00 | 9.80 |
| 7 | 49.2 | 5.50 | 43.70 (-) |
| 8 | 80.6 | 65.00 | 15.60 (-) |
| 9 | 66.9 | 61.50 | 5.40 (-) |
| 10 | 46.1 | 30.00 | 16.10 (-) |
| 11 | 61.1 | 39.17 | 21.93 (-) |
| 12 | 67.3 | 51.00 | 16.30 (-) |
| 13 | 19.8 | 34.38 | 14.58 |
| 14 | 90.2 | 100.00 | 9.80 |
| 15 | 55.8 | 100.00 | 44.20 |
| 16 | 91.9 | 96.25 | 4.35 |
| 17 | 74.0 | 13.25 | 60.75 (-) |
| 18 | 55.8 | 30.58 | 25.22 (-) |
| 19 | 73.8 | 3.00 | 70.80 (-) |
| 20 | 62.4 | 45.00 | 17.40 (-) |
| 21 | 42.4 | 8.25 | 34.15 (-) |
| $\bar{X}$ | 62.33 | 47.12 | 23.09 |
| Range | (19.8-91.9) | (3-100) | (4.35-70.8) |

TABLE 4.19

A COMPARISON OF PREDICTED SCHOOL ACHIEVEMENT WITH INSTRUCTOR RATINGS BASED UPON THE GIFTEDNESS INDEX OF TASK COMMITMENT (TC) OF MUSIC STUDENTS

| Student | (16PF) Achievement | TC | Difference |
|---|---|---|---|
| 1 | 83.8 | 87.00 | 3.20 |
| 2 | 79.9 | 35.63 | 44.27 (-) |
| 3 | 88.4 | 98.00 | 9.60 |
| 4 | 54.5 | 41.75 | 12.75 (-) |
| 5 | 76.5 | 42.38 | 34.12 (-) |
| 6 | 62.9 | 90.00 | 27.10 |
| 7 | 48.7 | 32.00 | 16.70 (-) |
| 8 | 59.0 | 80.00 | 21.00 |
| 9 | 39.8 | 10.00 | 29.80 (-) |
| 10 | 39.7 | 25.00 | 14.70 (-) |
| 11 | 67.0 | 72.67 | 5.67 |
| 12 | 66.5 | 98.00 | 31.50 |
| 13 | 30.7 | 58.25 | 27.55 |
| 14 | 77.7 | 100.00 | 22.30 |
| 15 | 51.9 | 100.00 | 48.10 |
| 16 | 67.8 | 41.25 | 26.55 (-) |
| 17 | 90.1 | 34.92 | 55.18 (-) |
| 18 | 57.6 | 35.67 | 21.95 (-) |
| 19 | 71.5 | 6.50 | 65.00 (-) |
| 20 | 41.4 | 22.50 | 18.90 (-) |
| 21 | 55.3 | 0.00 | 55.30 (-) |
| $\overline{X}$ | 62.41 | 52.93 | 28.15 |
| Range | (30.7-90.1) | (0-100) | (3.2-65) |

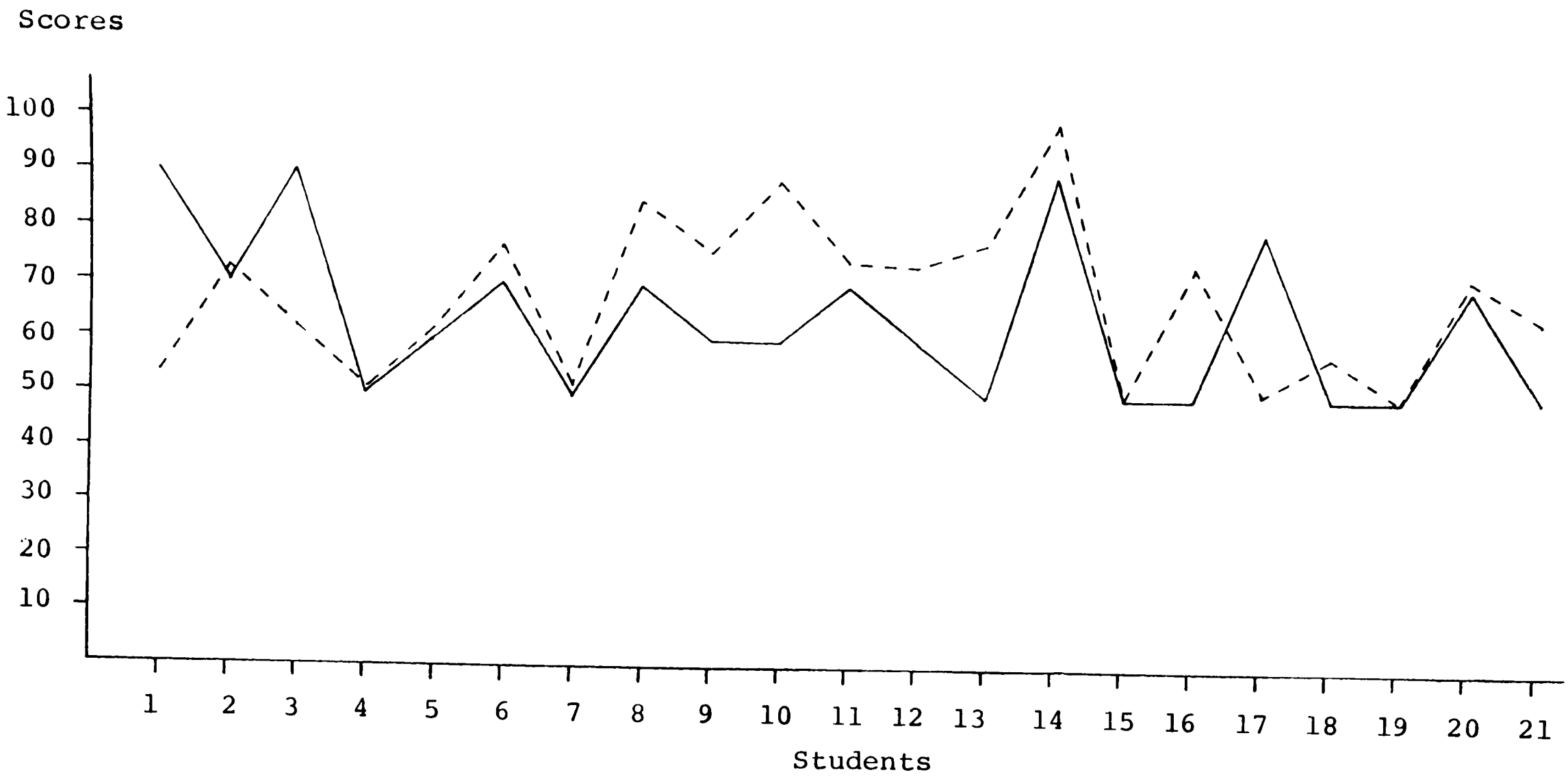



Figure 4.6 A Comparison of Intelligence with Instructor Ratings Based Upon the Giftedness Index of Above-average Ability Among Music Students.

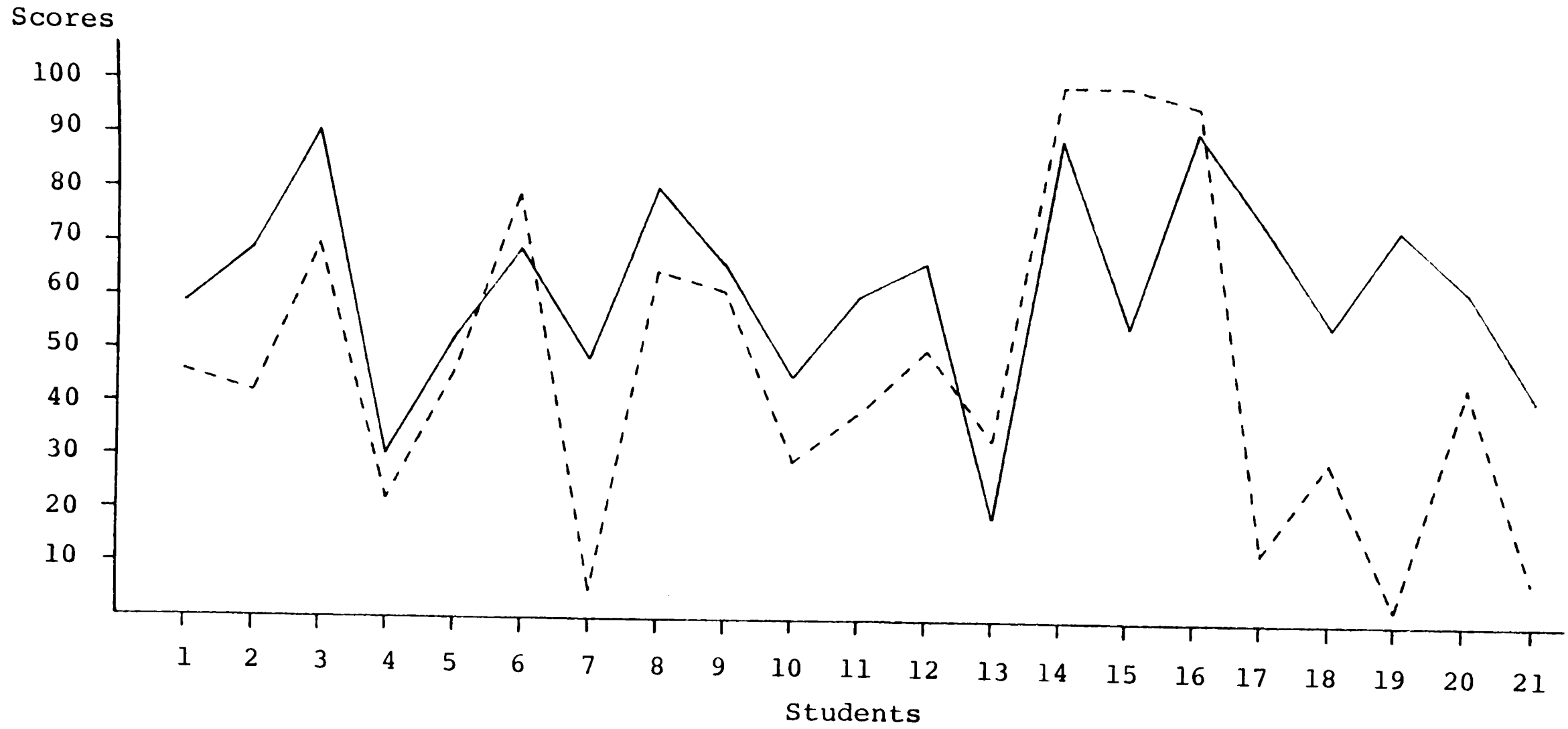



Figure 4.7 A Comparison of Creativity with Instructor Ratings Based Upon the Giftedness Index of Creativity Among Music Students.

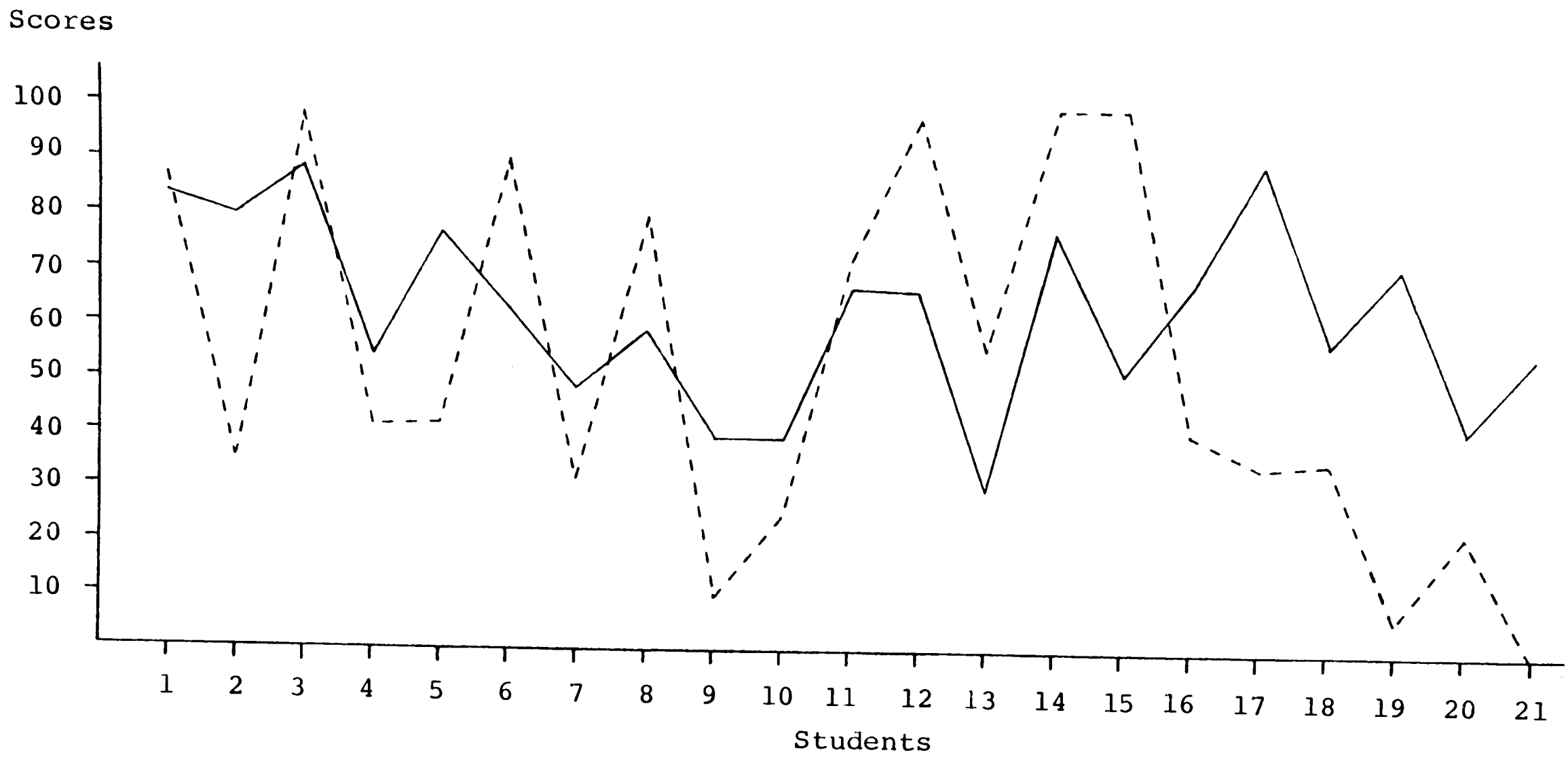



Figure 4.8 A Comparison of Predicted School Achievement with Instructor Ratings Based Upon the Giftedness Index of Task Commitment Among Music Students.

same data in graphic form. In the case of the music students the only adjustment to the data was in the intelligence scores, since none of the creativity scores exceeded 100. Five scores were below 50 in intelligence, as noted in Table 4.16, and were modified upward to 50. Of those five scores, three were 40 and two were 30. (See page 66 for the rationale for adjustment of this data.)

Tables 4.20, 4.21, 4.22, and 4.23 provide similar comparisons of the three personality variables and the instructor ratings by each individual full-time music instructor and a group of five part-time music instructors. It should be recalled that four of the 21 students in the music sample were taught and rated by part-time instructors only; therefore, separate data on part-time instructors would seem pertinent.

As in the case of the art students, the Pearson product-moment correlation coefficient was used to ascertain relationships between personality variables and instructor ratings based upon giftedness indices; all of the basic assumptions in the use of Pearson $r$ were met.

Table 4.24 provides the $r$ values, degrees of freedom, and levels of significance for the three individual full-time music instructors, the group of three full-time music instructors, and the total group of music instructors.

TABLE 4.20

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR MUSIC INSTRUCTOR I

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | (16PF) Ach. | TC | D |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 50 | 51.50 | 1.50 | 31.20 | 0.00 | 31.20 (-) | 54.50 | 0.00 | 54.50 (-) |
| 5 | 60 | 74.13 | 14.13 | 52.50 | 45.50 | 7.00 (-) | 76.50 | 5.25 | 71.25 (-) |
| 11 | 70 | 86.25 | 16.25 | 61.10 | 47.50 | 13.60 (-) | 67.00 | 100.00 | 33.00 |
| 14 | 90 | 100.00 | 10.00 | 90.20 | 100.00 | 9.80 | 77.70 | 100.00 | 22.30 |
| 15 | 50 | 50.00 | 0.00 | 55.80 | 100.00 | 44.20 | 51.90 | 100.00 | 48.10 |
| 16 | 50 | 51.50 | 1.50 | 91.90 | 100.00 | 8.10 | 67.80 | 0.00 | 67.80 (-) |
| 17 | 80 | 50.00 | 30.00 (-) | 74.00 | 4.00 | 70.00 (-) | 90.10 | 15.50 | 74.60 (-) |
| 18 | 50 | 50.00 | 0.00 | 55.80 | 1.50 | 54.30 (-) | 57.60 | 0.00 | 57.60 (-) |
| 20 | 70 | 50.00 | 20.00 (-) | 62.40 | 0.00 | 62.40 (-) | 41.40 | 0.00 | 41.40 (-) |
| $\overline{X}$ | 63.33 | 62.60 | 10.38 | 63.88 | 44.28 | 33.40 | 64.94 | 35.64 | 52.28 |

TABLE 4.21

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR MUSIC INSTRUCTOR II

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | (16PF) Ach. | TC | D |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 70 | 73.13 | 3.13 | 69.00 | 39.50 | 29.50 (-) | 79.90 | 35.25 | 44.65 (-) |
| 4 | 50 | 51.50 | 21.50 | 31.20 | 21.00 | 10.20 (-) | 54.50 | 31.25 | 23.25 (-) |
| 7 | 50 | 51.75 | 1.75 | 49.20 | 5.50 | 43.70 (-) | 48.70 | 32.00 | 16.70 (-) |
| 11 | 70 | 53.50 | 16.50 (-) | 61.10 | 0.00 | 61.10 (-) | 67.00 | 22.00 | 45.00 (-) |
| 13 | 50 | 76.75 | 26.75 | 19.80 | 45.75 | 25.95 | 30.70 | 54.00 | 23.30 |
| 17 | 80 | 52.75 | 27.25 (-) | 74.00 | 9.25 | 64.75 (-) | 90.10 | 14.25 | 75.85 (-) |
| 18 | 50 | 72.38 | 22.38 | 55.80 | 36.25 | 19.55 (-) | 57.60 | 17.50 | 40.10 (-) |
| 19 | 50 | 50.00 | 0.00 | 73.80 | 3.00 | 70.80 (-) | 71.50 | 6.50 | 65.00 (-) |
| 21 | 50 | 64.38 | 14.38 | 42.40 | 8.25 | 34.15 (-) | 55.30 | 0.00 | 55.30 (-) |
| $\bar{X}$ | 57.78 | 60.68 | 14.85 | 52.92 | 18.72 | 39.97 | 61.70 | 23.64 | 43.24 |

TABLE 4.22

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES
FOR MUSIC INSTRUCTOR III

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | (16PF) Ach. | TC | D |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 90 | 53.50 | 36.50 (-) | 59.10 | 46.0 | 13.10 (-) | 83.80 | 87.00 | 3.20 |
| 3 | 90 | 62.00 | 28.00 (-) | 90.60 | 70.0 | 20.60 (-) | 88.40 | 98.00 | 9.60 |
| 4 | 50 | 51.00 | 1.00 | 31.20 | 47.0 | 15.80 | 54.50 | 94.00 | 39.50 |
| 5 | 60 | 50.00 | 10.00 (-) | 52.50 | 47.5 | 5.00 (-) | 76.50 | 79.50 | 3.00 |
| 11 | 70 | 84.00 | 14.00 | 61.10 | 70.0 | 8.90 | 67.00 | 96.00 | 29.00 |
| 12 | 60 | 73.75 | 13.75 | 67.30 | 51.0 | 16.30 (-) | 66.50 | 98.00 | 31.50 |
| 17 | 80 | 51.00 | 29.00 (-) | 74.00 | 26.5 | 47.50 (-) | 90.10 | 75.00 | 15.10 (-) |
| 18 | 50 | 51.00 | 1.00 | 55.80 | 54.0 | 1.80 (-) | 57.60 | 89.50 | 31.90 |
| $\bar{X}$ | 68.75 | 59.53 | 16.66 | 61.45 | 51.5 | 16.13 | 73.05 | 89.63 | 20.35 |

TABLE 4.23

A COMPARISON OF PERSONALITY VARIABLES WITH INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES FOR
PART-TIME MUSIC INSTRUCTORS

| Student | (16PF) Intel. | AAB | D | (16PF) Creat. | C | D | | (16PF) Ach | TC | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 70 | 72.50 | 2.50 | 69.00 | 45.50 | 23.50 | (-) | 79.90 | 36.00 | 43.90 | (-) |
| 6 | 70 | 77.00 | 7.00 | 69.20 | 79.00 | 9.80 | | 62.90 | 90.00 | 27.10 | |
| 8 | 70 | 85.00 | 15.00 | 80.60 | 65.00 | 15.60 | (-) | 59.00 | 80.00 | 21.00 | |
| 9 | 60 | 76.00 | 16.00 | 66.90 | 61.50 | 5.40 | (-) | 39.80 | 10.00 | 29.80 | (-) |
| 10 | 60 | 88.75 | 28.75 | 46.10 | 30.00 | 16.10 | (-) | 39.70 | 25.00 | 14.70 | (-) |
| 13 | 50 | 79.00 | 29.00 | 19.80 | 23.00 | 3.20 | | 30.70 | 62.50 | 31.80 | |
| 16 | 50 | 96.50 | 46.50 | 91.90 | 92.50 | 0.60 | | 67.80 | 82.50 | 14.70 | |
| 20 | 70 | 93.75 | 23.75 | 62.40 | 90.00 | 27.60 | | 41.40 | 45.00 | 3.60 | |
| $\overline{X}$ | 62.50 | 83.56 | 21.06 | 63.24 | 60.81 | 12.73 | | 52.65 | 53.88 | 23.33 | |

TABLE 4.24

r VALUES COMPARING PERSONALITY VARIABLES AND INSTRUCTOR RATINGS USING GIFTEDNESS INDICES FOR MUSIC INSTRUCTORS

| | Intel/AAB | Creat/C | Ach/TC | df | .05p |
|---|---|---|---|---|---|
| Instructor I | .6288 | .5738 | .1069 | 7 | .666 |
| Instructor II | -.1262 | -.4056 | -.4985 | 7 | .666 |
| Instructor III | .0934 | .2285 | -.4297 | 6 | .707 |
| Full-time Instructors | .3011 | .5022* | .2515 | 15 | .482 |
| All Instructors | .2716 | .5332* | .3360 | 19 | .433 |

Note. Personality variables (16PF) are intelligence (Intel), creativity (Creat), and predicted school achievement (Ach). Giftedness indices are above-average ability (AAB), creativity (C), and task commitment (TC).

*p < .05.

This concludes the statistical analysis of the relationship of personality variables taken from the 16PF personality test and the instructor ratings based upon indices of giftedness.

Personality Variables and Grades

This part of the study consists of a comparison of the data on personality variables and grades for art students and music students. Table 4.25 presents the data for the art students and Table 4.26 presents the data for the music students.

To ascertain possible relationships between personality variables and grades, the point-biserial correlation method was used. The point-biserial ($r_{pb}$) correlation coefficient is a modification of the Pearson product-moment correlation coefficient and is most often used in test construction and validation, "where one of the variables is continuous and the other is conceived of as a dichotomy." (Downie and Heath, 1970, p. 106) Although dichotomies of this kind generally involve situations such as right/wrong or pass/fail, it was felt that, for the purposes of this study, A/non-A could be conceived of as a dichotomy. As shown in Tables 4.25 and 4.26, among art students there were 18 A's and 12 non-A's and among music students there were 11 A's and 10 non-A's. All of the basic assumptions in the use of the point-biserial correlation coefficient were met.

TABLE 4.25

A COMPARISON OF PERSONALITY VARIABLES AND GRADES AMONG ART STUDENTS

| Student | Intelligence | Creativity | Achievement | Grade |
|---|---|---|---|---|
| 1 | 70 | 62.7 | 58.3 | B |
| 2 | 70 | 70.7 | 85.6 | A |
| 3 | 50 | 60.8 | 61.9 | A |
| 4 | 90 | 92.4 | 68.5 | A |
| 5 | 80 | 47.8 | 67.6 | A |
| 6 | 70 | 59.1 | 58.7 | A |
| 7 | 70 | 50.8 | 72.5 | A |
| 8 | 50 | 58.8 | 49.8 | B |
| 9 | 50 | 100.0 | 92.0 | B |
| 10 | 50 | 72.3 | 38.1 | C |
| 11 | 50 | 22.8 | 9.6 | C |
| 12 | 90 | 100.0 | 68.5 | A |
| 13 | 50 | 70.6 | 35.8 | B |
| 14 | 50 | 60.9 | 63.2 | C |
| 15 | 70 | 72.0 | 73.2 | A |
| 16 | 60 | 46.0 | 51.2 | A |
| 17 | 80 | 77.3 | 77.1 | A |
| 18 | 50 | 95.1 | 76.6 | A |
| 19 | 70 | 69.2 | 58.7 | A |
| 20 | 90 | 77.1 | 66.0 | A |
| 21 | 50 | 67.3 | 65.1 | A |
| 22 | 50 | 54.2 | 41.4 | B |
| 23 | 50 | 59.3 | 35.5 | A |
| 24 | 70 | 55.6 | 50.8 | B |
| 25 | 70 | 87.0 | 52.7 | C |
| 26 | 90 | 100.0 | 61.4 | A |
| 27 | 80 | 100.0 | 70.1 | B |
| 28 | 70 | 75.7 | 72.9 | B |
| 29 | 60 | 75.5 | 58.1 | A |
| 30 | 70 | 75.3 | 32.3 | A |

TABLE 4.26

A COMPARISON OF PERSONALITY VARIABLES AND GRADES AMONG MUSIC STUDENTS

| Student | Intelligence | Creativity | Achievement | Grade |
|---|---|---|---|---|
| 1 | 90 | 59.1 | 83.8 | A |
| 2 | 70 | 69.0 | 79.9 | B |
| 3 | 90 | 90.6 | 88.4 | A |
| 4 | 50 | 31.2 | 54.5 | B |
| 5 | 60 | 52.5 | 76.5 | A |
| 6 | 70 | 69.2 | 62.9 | A |
| 7 | 50 | 49.2 | 48.7 | B |
| 8 | 70 | 80.6 | 59.0 | A |
| 9 | 60 | 66.9 | 39.8 | B |
| 10 | 60 | 46.1 | 39.7 | F |
| 11 | 70 | 61.1 | 67.0 | A |
| 12 | 60 | 67.3 | 66.5 | A |
| 13 | 50 | 19.8 | 30.7 | A |
| 14 | 90 | 90.2 | 77.7 | A |
| 15 | 50 | 55.8 | 51.9 | B |
| 16 | 50 | 91.9 | 67.8 | C |
| 17 | 80 | 74.0 | 90.1 | A |
| 18 | 50 | 55.8 | 57.6 | B |
| 19 | 50 | 73.8 | 71.5 | A |
| 20 | 70 | 62.4 | 41.4 | D |
| 21 | 50 | 42.4 | 55.3 | B |

Table 4.27 shows the $\underline{r}_{pb}$ values, degrees of freedom, and levels of significance for all art instructors and all music instructors.

Instructor Ratings and Grades

This part of the study consists of a comparison of the data on instructor ratings using giftedness indices and grades for art and music students. Table 4.28 presents the data for art students and Table 4.29 presents the data for music students.

To determine possible relationships between instructor ratings and grades, the point-biserial correlation coefficient was again used, since one set of data was continuous and the other set of data was seen as dichotomous. (See page 90 for the rationale and the assumptions in the use of the point-biserial method.)

Table 4.30 shows the $\underline{r}_{pb}$ values, degrees of freedom, and levels of significance for all art instructors and all music instructors.

Other Relationships

At this point, an examination of other relationships is in order, particularly those interrelationships among the three personality variables, and the instructor ratings based upon the three indices of giftedness. It should be noted that these interrelationships, although not formally

TABLE 4.27

$r_{pb}$ VALUES COMPARING PERSONALITY VARIABLES AND GRADES FOR ALL INSTRUCTORS

| Instructors | Intel/G | Creat/G | Ach/G | df | .05p |
|---|---|---|---|---|---|
| Art | .3773* | .0787 | .2470 | 28 | .361 |
| Music | .5332* | .2715 | .5511** | 19 | .433 |

Note. Personality variables (16PF) are intelligence (Intel), creativity (Creat), and predicted school achievement (Ach). G indicates grades.

*$p < .05$.
**$p < .01$.

TABLE 4.28

A COMPARISON OF INSTRUCTOR RATINGS
USING GIFTEDNESS INDICES AND
GRADES AMONG ART STUDENTS

| Student | Above-average Ability | Creativity | Task Commitment | Grade |
|---|---|---|---|---|
| 1 | 60.50 | 21.50 | 22.00 | B |
| 2 | 77.88 | 55.75 | 73.50 | A |
| 3 | 82.50 | 48.00 | 77.00 | A |
| 4 | 68.50 | 8.00 | 42.00 | A |
| 5 | 84.75 | 42.50 | 71.00 | A |
| 6 | 58.75 | 80.75 | 7.75 | A |
| 7 | 80.50 | 44.50 | 66.50 | A |
| 8 | 51.00 | 4.00 | 40.00 | B |
| 9 | 57.75 | 24.50 | 20.00 | B |
| 10 | 51.63 | 2.50 | 9.50 | C |
| 11 | 57.00 | 12.75 | 16.00 | C |
| 12 | 75.50 | 58.00 | 44.00 | A |
| 13 | 60.00 | 20.00 | 20.00 | B |
| 14 | 51.00 | 2.00 | 2.50 | C |
| 15 | 63.25 | 21.00 | 37.50 | A |
| 16 | 90.50 | 43.50 | 43.50 | A |
| 17 | 74.00 | 56.00 | 63.50 | A |
| 18 | 94.00 | 90.75 | 90.50 | A |
| 19 | 64.75 | 25.00 | 43.50 | A |
| 20 | 92.75 | 93.00 | 90.00 | A |
| 21 | 59.75 | 46.50 | 77.00 | A |
| 22 | 76.75 | 62.25 | 38.75 | B |
| 23 | 75.32 | 72.25 | 69.50 | A |
| 24 | 75.75 | 59.00 | 26.00 | B |
| 25 | 50.50 | 5.25 | 7.50 | C |
| 26 | 91.75 | 98.50 | 95.25 | A |
| 27 | 86.25 | 18.00 | 81.00 | B |
| 28 | 68.25 | 45.00 | 15.00 | B |
| 29 | 70.00 | 49.00 | 63.00 | A |
| 30 | 74.00 | 48.00 | 48.00 | A |

TABLE 4.29

A COMPARISON OF INSTRUCTOR RATINGS
USING GIFTEDNESS INDICES AND
GRADES AMONG MUSIC STUDENTS

| Student | Above-average Ability | Creativity | Task Commitment | Grade |
|---|---|---|---|---|
| 1 | 53.50 | 46.00 | 87.00 | A |
| 2 | 72.81 | 42.50 | 35.63 | B |
| 3 | 62.00 | 70.00 | 98.00 | A |
| 4 | 51.33 | 22.67 | 41.75 | B |
| 5 | 62.07 | 46.50 | 42.38 | A |
| 6 | 77.00 | 79.00 | 90.00 | A |
| 7 | 51.75 | 5.50 | 32.00 | B |
| 8 | 85.00 | 65.00 | 80.00 | A |
| 9 | 76.00 | 61.50 | 10.00 | B |
| 10 | 88.75 | 30.00 | 25.00 | F |
| 11 | 74.58 | 39.17 | 72.67 | A |
| 12 | 73.75 | 51.00 | 98.00 | A |
| 13 | 77.88 | 34.38 | 58.25 | A |
| 14 | 100.00 | 100.00 | 100.00 | A |
| 15 | 50.00 | 100.00 | 100.00 | B |
| 16 | 74.00 | 96.25 | 41.25 | C |
| 17 | 51.25 | 13.25 | 34.92 | A |
| 18 | 57.79 | 30.58 | 35.67 | B |
| 19 | 50.00 | 3.00 | 6.50 | A |
| 20 | 71.88 | 45.00 | 22.50 | D |
| 21 | 64.38 | 8.25 | 0.00 | B |

TABLE 4.30

$r_{pb}$ VALUES COMPARING GIFTEDNESS INDICES AND GRADES FOR ALL INSTRUCTORS

| Instructors | AAB/G | C/G | TC/G | df | .05p |
|---|---|---|---|---|---|
| Art | .5035** | .5429** | .6193*** | 28 | .361 |
| Music | .1465 | .0810 | .5370* | 19 | .433 |

Note. Giftedness indices are above-average ability (AAB), creativity (C), and task commitment (TC). G indicates grades.

*p < .05.
**p < .01.
***p < .001.

hypothesized, were suggested by the literature. Renzulli (1978) in particular asserted that the three areas of giftedness were interrelated and interacting.

To determine whether relationships existed among the three personality variables and/or instructor ratings based upon giftedness indices, Pearson r was again used. All basic assumptions were met in both cases. Table 4.31 shows the r values calculated for the personality variables; Table 4.32 shows the r values calculated for the instructor ratings.

## Interpretations

This section of the study is concerned with interpretations and discussion of the data and statistical analysis previously reported. Additional explanations and generalizations are offered which seem to be indicated by certain patterns and relationships within the body of data. The course of the discussion follows the hypothesized relationships presented on pages 2 and 3. The first part of the discussion is concerned with the data regarding the relationship of personality variables and instructor ratings based upon giftedness indices. The second part of the discussion covers the data regarding personality variables and instructor ratings and their relationship to grades. The final part of the discussion examines unexpected or unaccounted for patterns or relationships.

TABLE 4.31

*r* VALUES COMPARING STUDENT SCORES ON THREE PERSONALITY VARIABLES

| Students | Intel/Creat | Intel/Ach | Creat/Ach | df | .05*p* |
|---|---|---|---|---|---|
| Art | .4109* | .3648* | .5710** | 28 | .361 |
| Music | .5446* | .6263** | .6161** | 19 | .433 |

Note. Personality variables (16PF) are intelligence (Intel), creativity (Creat), and predicted school achievement (Ach).

*$p < .05$.
**$p < .01$.

TABLE 4.32

*r* VALUES COMPARING INSTRUCTOR RATINGS
BASED UPON GIFTEDNESS INDICES

| Students | AAB/C | AAB/TC | C/TC | df | .05*p* |
|---|---|---|---|---|---|
| Art | .7114*** | .7917*** | .6013*** | 28 | .361 |
| Music | .4539* | .2142 | .6586** | 19 | .433 |

Note. Giftedness indices are above-average ability (AAB), creativity (C), and task commitment (TC).

*$p$ < .05.
**$p$ < .01.
***$p$ < .001.

## Personality Variables and Instructor Ratings--Art Students

In comparing the data on personality variables and instructor ratings of art students, several patterns become apparent. Art instructors generally rated art students higher in ability than the corresponding intelligence variable, and lower in creativity and task commitment than the corresponding personality variables. (See Tables 4.10, 4.11, and 4.12, pages 67, 68, and 69 and Figures 4.3, 4.4, and 4.5, pages 70, 71, and 72.) It would seem that these discrepancies in creativity and task commitment might be accounted for by the greater ranges of the corresponding personality variables. That is probably true with respect to task commitment; however, it appears that in the creativity area, the spread between the means (70.54 and 41.93) is too great. Probably the art instructors either judged their students by a different criteria than stated, or they were not able to identify creativity as defined by the 16PF formula.

It should be noted that, in comparing the means of individual art instructors, (Tables 4.13, 4.14, and 4.15, pages 74, 75, and 76) instructor III was much closer than the other two instructors on the creativity measure, but was still inaccurate, averaging a difference of over 20 points. The ratings of art instructor III show a consistent pattern of higher scores compared to the personality variables, in contrast to the other two art instructors.

An interpretation of the statistical relationship between the personality variables and instructor ratings of art students is now offered. A significant correlation was found between intelligence and above-average ability; however, no significant correlation was found between the other two personality measures and creativity or task commitment. These relationships are illustrated graphically in Figures 4.3, 4.4, and 4.5, pages 70, 71, and 72. Among individual art instructors, two significant correlations were found. The ratings of art instructor I on above-average ability correlated significantly with the intelligence factor. The ratings of art instructor III on task commitment correlated significantly with achievement.

It should be pointed out that, although there was a statistically significant correlation between the intelligence factor and above-average ability for art students, rating accuracy is highly questionable. Of 30 instructor ratings, 5 differed over 25 points from the students' intelligence factor scores. In the areas of creativity and task commitment, there was no significant correlation with the two personality variables; furthermore, rating accuracy was much lower. Of the six students who scored over 90 by the creativity formula, only two were identified by the art instructors; in fact, of the other four, one was rated 58 and the other three were rated below

30. On the achievement/task commitment comparison, any rating accuracy would appear to be accidental.

## Personality Variables and Instructor Ratings--Music Students

In comparing the data on personality variables and instructor ratings of music students, several patterns are evident. As in the art sample, instructors generally rated students higher on above-average ability than on the corresponding intelligence variable, and lower on creativity and task commitment than on the corresponding personality variables. (See Tables 4.17, 4.18, and 4.19, pages 78, 79, and 80 and Figures 4.6, 4.7, and 4.8, pages 81, 82, and 83.) The discrepancies in the categories of creativity and task commitment can be accounted for by the higher ranges of the corresponding personality variables; however, that would not be the case with the above-average ability category. A possible explanation is that the instructors actually believed that most of their students were more intelligent (or more "able") than the personality test indicated. The exception was the ratings of music instructor III whose students had a mean score of 68.75 and were rated a mean value of 59.53 in the above-average ability category. This same instructor also rated subjects higher on task commitment (mean score of 89.63 compared to the mean achievement score of 73.05).

The ratings patterns of music instructors I and III (Tables 4.20 and 4.22, pages 85 and 87) are noteworthy. The rating pattern of music instructor I could be characterized as more extreme, with 5 out of 9 ratings at 50 or 100 in the above-average ability, 5 out of 9 ratings at 0 or 100 in the creativity category, and 7 out of 9 ratings at 0 or 100 in the task commitment category. The rating pattern of music instructor III is consistent--generally low (or toward the average) on above average ability ($\bar{X}$ = 59.53), average on creativity ($\bar{X}$ = 51.5), and high on task commitment ($\bar{X}$ = 89.63). Possible explanations for these two patterns are offered in the last part of this chapter.

An interpretation of the relationship of the personality variables and instructor ratings of music students is now in order. No significant relationship was found between either intelligence and above-average ability or predicted achievement and task commitment; however, a significant relationship was found between the two measures of creativity. These relationships are illustrated graphically in Figures 4.6, 4.7, and 4.8, pages 81, 82, and 83. No significant correlations were found among individual full-time music instructors or part-time music instructors as a group.

It should be noted that, although there was a statistically significant correlation ($r$ = .5332) between the two

creativity variables, much is left to be desired as far as rating accuracy in concerned. This is especially evident in the categories of ability and achievement; clearly, in these two areas there exist neither significant relationships nor rating accuracy.

Another point of interest is presented here. As Table 4.24, page 89 indicates, the $\underline{r}$ value for the creativity relationship (.5332) is based upon all music instructors, both full- and part-time. The $\underline{r}$ value for the three full-time instructors as a group is .5022, still significant, but barely so at the .05 level of probability. It appears from this data that part-time instructors may be better able than full-time instructors to identify creativity in music students.

Personality Variables and Grades

This part of the discussion examines the relationship between personality variables (intelligence, creativity, and achievement) and grades. (See scores in Tables 4.25 and 4.26, pages 91 and 92.)

It appears from the data in Table 4.27, page 94, that there was a significant correlation between intelligence factor B on the 16PF test and grades for both art and music students. The $\underline{r}_{pb}$ value for the art students was significant at the .05 level of probability, and the $\underline{r}_{pb}$ value for the music students was significant at the .02 level of probability.

There was also a significant correlation at the .01 level of probability between achievement and grades for the music students, but no significant correlation for the art students. There are two possible explanations for this finding; either art instructors are not able to recognize achievement behavior, or achievement behavior and task commitment as observed in an art classroom, are not the same. The study by Getzels, et al. (1976) suggested that the latter explanation might be more plausible, i.e., academic achievement and "artistic" achievement were found to be negatively related.

In the area of creativity and grades, no significant relationships were found for either art students or music students. This finding indicates that either (1) creative behavior was unimportant in the art and music classrooms, (2) creativity may have been important but it was not reflected by grades, or (3) the instructor's concept of creativity did not conform to the personality formula. A possible explanation for this finding is offered in the next part of the discussion.

## Instructor Ratings and Grades

This part of the discussion examines the relationship between instructor ratings using giftedness indices and grades. (See ratings and grades in Tables 4.28, page 95 and 4.29, page 96, and $r_{pb}$ values in Table 30, page 97.)

It appears from the data in Table 4.30, page 97, that, among art instructors, there was a significant correlation between instructor ratings on all three indices of giftedness and grades. The correlations between above-average ability and creativity and grades were found to be significant at the .01 level of probability; the correlation between task commitment and grades was found to be significant at the .001 level of probability. It seems clear that the three art instructors graded their students on the basis of the instructors' conception of those three criteria.

Among music instructors, the only significant correlation was between task commitment and grades. The $\underline{r}_{pb}$ value was significant at the .05 level of probability. It is evident that instructor judgments of intellectual ability and creativity did not influence grades for music students.

A comparison of personality variables, giftedness indices, and grades yields some notable information. First, it appears most likely that art instructors valued ability, creativity, and task commitment in their students, and that these judgments were reflected by the grades they recorded. However, the art instructors' conception of these three criteria did not conform to the creativity and achievement formulas based upon personality variables. Second, it appears that music instructors clearly valued task commitment most highly and graded their students accordingly.

Furthermore, the music instructors' conception of task commitment was related to the achievement formula based upon personality variables. Although the music instructors were able to identify creativity in their students, they apparently did not value creativity enough to grade their students accordingly. The data indicates that the more intelligent, achievement-oriented music students earned higher grades; the more creative music students did not. Similarly, the more intelligent art students earned higher grades; the more achievement-oriented or more creative (as defined by personality formula) students did not.

## Additional Interpretations

This part of the discussion consists of an examination of other relationships not hypothesized, and possible interpretations and explanations. Of particular interest are patterns and relationships found in the data from individual instructors.

Table 4.33 is a summary of the mean scores of the art and music students, divided by instructors. Several patterns of interest emerge. Among art students, the students of art instructor I scored consistently higher than those of art instructor III, and the students of art instructor III scored higher than those of art instructor II on all three personality variables. This pattern was unexpected and difficult to account for. Possibly the combined

TABLE 4.33

MEAN SCORES ON PERSONALITY VARIABLES
OF THE STUDENTS OF EACH INSTRUCTOR

| | Intel | Creat | Ach | $\bar{X}$ |
|---|---|---|---|---|
| Art Instructor I | 67.14 | 76.04 | 64.86 | 69.35 |
| Art Instructor II | 59.23 | 63.55 | 49.59 | 57.46 |
| Art Instructor III | 63.64 | 69.72 | 55.34 | 62.90 |
| Music Instructor I | 60.00 | 63.88 | 64.94 | 62.94 |
| Music Instructor II | 50.00 | 52.92 | 61.70 | 54.87 |
| Music Instructor III | 65.00 | 61.45 | 73.05 | 66.50 |
| Part Time Music Instructors | 60.00 | 63.24 | 52.65 | 58.63 |
| $\bar{X}$ | 60.72 | 64.40 | 60.30 | 61.81 |

Note. Personality variables (16PF) are intelligence (Intel), creativity (Creat), and predicted school achievement (Ach).

personality profiles of students in a given course depend upon the teaching style or personality of the instructor. Course level or type was not likely to have any bearing, since all three instructors taught similar levels and types of courses.

A similar pattern exists among the three full-time music instructors. The students of music instructor III scored highest on two out of three measures of personality, followed by the students of music instructor I, and then the students of music instructor II. The data indicates that the students of music instructor II actually scored below average on the intelligence measure. There are two possible explanations for this pattern: either the student profile depended upon the personality or teaching style of the instructor, as theorized for the art students, or the nature of the course or the course content had a bearing on the personality types of the students. The three music instructors taught recognizably different types of courses. Instructors I and III taught primarily instrumental music, and instructor II taught voice and choir.

Three general patterns found among the music instructors are of special interest to this study. In Figures 4.7, page 82 and 4.8, page 83, instructor ratings tend to drop off markedly, in comparison to personality measures, after subject 16. It appears that those six subjects, from 16 to 21, were rated proportionately lower than the first 15

subjects on those two measures. A second pattern previously cited was in the ratings of music instructor I, i.e., over half of that instructor's ratings were extreme--50 or 100 on ability, and 0 or 100 on creativity and task commitment. A third pattern, also previously cited, was in the ratings of music instructor III, i.e., that instructor consistently rated students average on the indices of above-average ability and creativity, and high on the index of task commitment.

There are two possible explanations for these patterns. First, the music instructors either may not have been adequately briefed by the project director in the rating procedures, or they did not follow the written instructions carefully. Second, the music instructors as a group may not have been sufficiently interested in the project to give the necessary time, care, and consideration to their ratings. Probably both explanations apply, to some extent.

## Summary

This chapter on analysis and interpretations consisted of three sections. In the first section, preliminary findings from personality tests, instructor ratings, and instructor grade records were reported, discussed, and illustrated graphically. The second section was concerned with a statistical analysis of the data to determine

possible relationships according to the hypotheses of the study. The third section, interpretations, consisted of a discussion and explanation of the statistical findings in particular; also included were observations regarding additional patterns and relationships of possible interest.

# CHAPTER V

# SUMMARY AND CONCLUSIONS

## Introduction

This chapter presents the summary and conclusions of this study. The summary is divided into three parts. The first part is concerned with the problem and its background and development. The second part reviews the methods, procedures, and instrumentation used in the study. The third part summarizes the analysis and interpretations of the findings. The conclusions section consists of a restatement of the hypotheses and a discussion regarding their confirmation or rejection. Several implications for educational practices and suggestions for further research are also included.

## Summary

### Problem

The problem of this study was to determine whether a method of assessment of art and music students using giftedness indices was more effective than a traditional method of assessment using grades.

It was believed that considerable weaknesses had existed in the traditional system of assessment using letter grades. These weaknesses had been primarily lack

of efficiency and lack of effectiveness. Due to these weaknesses, both the meaning and the value of letter grades had come into question. It had always seemed that certain behaviors were to be valued and cultivated among art and music students. These behaviors involved not only achievement in tasks related to the art and music disciplines, but also less tangible behaviors such as independent thinking, imagination, and persistence in accomplishment of goals. Recent studies on the nature, identification, and assessment of giftedness were of special interest to the researcher for two reasons. First, the indices of giftedness--above-average ability, creativity, and task commitment--were all believed to be positive, valuable characteristics which have existed to some degree in almost all college students. Second, the accurate identification and assessment of these indices of giftedness was believed possible.

The question that emerged was this: Could a system of assessment be designed which would both measure achievement in art and music and at the same time measure other valuable behaviors, i.e., ability, creativity, and task commitment?

If such a system proved to be no more effective than the traditional method of assessment using letter grades, then its value would certainly be questionable; however, if

such a system were equally effective, surely there would be reason to explore its possible use in combination with a letter grading system. With these considerations in mind, the problem was formulated and the study was initiated.

## Procedures

Two representative samples were drawn from the entering art and music students at Midland College in the fall of 1981. The art student sample consisted of 30 subjects and the music student sample consisted of 21 subjects.

Several instruments were used to gather data on the subjects and their instructors. First, consent forms were executed, then questionnaires providing various personal data were completed. After the consent forms were signed and the questionnaires were returned, a standard personality test was administered. At the end of the semester, both art and music instructors rated the subjects using giftedness indices. Instructor grade records were also sources of data.

## Findings

Preliminary findings indicated that, in general, the mean personality profiles of Midland College art students and music students deviated slightly from the general population in the expected direction--toward the more extreme mean personality profiles of the professional artists and musicians.

The personality test also provided other information which was used for comparison with instructor ratings based

upon giftedness indices. The three measures of particular interest were (1) factor B, a measure of intelligence, (2) a creativity score based upon a weighted formula, and (3) a predicted school achievement score, also based upon a weighted formula. The three personality variables were compared to the instructor ratings based upon indices of giftedness for each subject. The giftedness indices were above-average ability, creativity, and task commitment.

Among the art students, a significant correlation was found between intelligence and above-average ability; however, no significant correlation was found between the other two personality measures and creativity or task commitment. Among the music students, a significant correlation was found between the creativity score based upon the personality test and the instructor ratings on creativity. No significant correlation was found between the other two personality variables and above-average ability or task commitment.

Personality variables and academic grades were then compared to ascertain possible relationships. A significant correlation was found between intelligence factor B on the personality test and grades for both art and music students. A significant correlation was also found between achievement and grades for the music students but not for the art students. There was no significant correlation found between creativity and grades for either art or music students.

Next, instructor ratings and grades were compared. Among art instructors, a highly significant correlation was found between all three indices of giftedness, as rated by the instructors, and grades. Among music instructors, a significant correlation was found between task commitment, as rated by the instructors, and grades. No significant correlation was found between either above-average ability or creativity, as judged by the music instructors, and grades.

Outside of the results related to the hypotheses, three additional findings were of interest. First, significant relationships were found among all three areas of giftedness for both art and music students; significant relationships were also found among all three indices of giftedness with the exception of the above-average ability/ task commitment relationships among music students. Second, a pattern was identified which indicated that each instructor's group of students exhibited personality profiles which were recognizably different from those of the other instructors. Third, questionable rating patterns among the music instructors seemed evident and possible explanations were provided.

## Conclusions

This section consists of a restatement of the hypotheses of the study and conclusions regarding their

confirmation or rejection. Implications for general educational practice and suggestions for further research are also included.

Hypothesis One

There will be a significant correlation at the .05 level of probability between certain personality variables, as measured by personality tests, and instructor ratings using giftedness indices.

Hypothesis one was confirmed by the results of the study. Among the art students, a significant correlation at the .05 level of probability was found between intelligence scores and instructor ratings based upon the giftedness index of above-average ability. Among music students, a significant correlation at the .02 level of probability was found between creativity scores based upon the personality test and instructor ratings based upon the giftedness index of creativity. No other significant relationships between personality variables and instructor ratings using giftedness indices were found.

In view of these findings, it must be concluded that, although this hypothesis was not rejected, instructor ratings using giftedness indices were not highly effective in identifying intelligence, creativity, and predicted school achievement, as tested by the 16PF instrument. In the two out of six areas in which the instructors were successful

in their ratings, their accuracy was questionable at best. It appears that the art instructors could distinguish students who were more or less intellectually able, but could not judge the degree of their students' ability. Similarly, the music instructors could identify students who were more or less creative, but could not judge the degree of their students' creativity.

An unpredicted and fascinating finding indicates that part-time music instructors appear to be most able to identify creativity, followed by full-time music instructors, followed by the art instructors. The art instructors, although they seemed to value "creativity" highly, were not able to identify creativity as it was measured by the personality test formula. It must also be concluded that music instructors, although they were able to identify their more creative students, they were unable to identify their more intelligent students, as measured by the intelligence factor on the personality test. These findings were in agreement with the findings of Terman (1925) and Pegnato (1959) regarding the accuracy of teacher ratings of intelligence in their students.

Hypothesis Two

There will be a significant correlation at the .05 level of probability between predicted school achievement, as measured by personality tests, and grades.

Hypothesis two was confirmed for the music students but rejected for the art students. Among the music students, a significant correlation at the .01 level of probability was found between predicted school achievement and grades. No significant correlation was found among art students.

It must be concluded that music students who were achievement-oriented in general made better grades in music. This apparently was not true among art students, however. The finding regarding art students tends to substantiate the findings of the study by Getzels, et al. (1976) in which artistic achievement was found to be negatively related to academic achievement.

Hypothesis Three

There will be no significant correlation at the .05 level of probability between intelligence or creativity, as measured by personality factor or formula, and grades.

Hypothesis three was rejected for both art and music students in the area of intelligence, but confirmed for both art and music students in the area of creativity. A significant correlation at the .05 level of probability was found between intelligence as tested and grades for both art and music students. No significant correlation was found between creativity as measured by personality formula and grades for either art or music students.

It must be concluded that those students who tested higher in intelligence made higher grades in their respective courses. The more creative students did not necessarily make higher grades, however. This finding tends to corroborate the findings of Tyler (1931), Holland (1959), and Getzels and Jackson (1962).

Hypothesis Four

There will be a significant correlation at the .05 level of probability between task commitment, as measured by instructor ratings, and grades.

Hypothesis four was confirmed for both art and music students. A significant correlation at the .001 level of probability was found between task commitment, as rated by the art instructors and the grades they gave their students. A significant correlation at the .02 level of probability was found between task commitment, as rated by the music instructors, and the grades they gave their students.

It must be concluded that both art and music instructors valued task commitment highly enough to reflect it strongly in the grades they gave their students. This finding suggests to the prospective art or music student that, to make high grades, he or she must have the ability to become absorbed or involved in art or music for an extended period of time and require little external motivation or direction.

Hypothesis Five

There will be no significant correlation at the .05 level of probability between above-average ability and creativity, as measured by instructor ratings, and grades.

Hypothesis five was rejected in the area of art and confirmed in the area of music. Significant correlations at the .01 level of probability were found between both above-average ability and creativity, as rated by the art instructors, and the grades they gave their students. No significant correlation was found between either above-average ability or creativity, as rated by the music instructors, and the grades they gave their students.

It must be concluded that art instructors valued all three indices of giftedness highly, and that the grades they gave their students reflected their conceptions of ability, creativity, and task commitment. Paradoxically, however, the art instructors' conceptions of creativity and task commitment evidently did not conform to the personality measures of creativity and predicted school achievement. The reasons for this discrepancy between task commitment and achievement related to art have been previously addressed; the reasons for the discrepancy between the art instructors' conceptions of creativity and the personality measure of creativity are unclear and warrant further study. These findings indicate further that music instructors valued

neither intellectual ability nor creativity nearly as highly as task commitment in their students and that the grades they gave their students reflected those values.

## Summary

A summary of the conclusions based upon the five hypotheses of the study is now provided. Regarding hypothesis one, it was concluded that instructor ratings using giftedness indices were not highly effective in identifying the desired personality variables as tested, based upon correlations of only two out of six possible relationships. Regarding hypotheses two and three, it was concluded that the more intelligent, achievement-oriented music students and the more intelligent art students earned higher grades. Among art students, predicted school achievement was not related to grades. Finally, concerning hypotheses four and five, it was concluded that the art students who earned higher grades were also rated higher by their instructors on all three indices of giftedness; on the other hand, music students who earned higher grades were rated higher by their instructors on the index of task commitment only.

## Implications for Educational Practices

At this point it is appropriate to recall the problem of the study, what bearing the conclusions have on the problem, and the implications for general educational

practices. Recalling the problem and in view of the conclusions of the study, it seems clear that the method of assessment using giftedness indices as used in the study is probably not more effective than a traditional method of assessment using letter grades. Therefore it would appear that the value of using that method is questionable. However, as previously stated, if the system is as effective as the traditional system using grades, then there would be a valid rationale for its use.

Indications are that a combined system of assessment would be preferable to one system or the other, particularly if a more valid, reliable rating system were developed. Ideally, a more valid, reliable letter grading system could be designed, but if the research of the past 60 years is any indication, that possibility seems remote. It is believed that the most encouraging possibility for a better system of assessment still lies in the realm of either better tests, more accurate instructor ratings, or both.

## Suggestions for Further Research

It is believed that further research into the area of effective student assessment in general is definitely needed. This particular study has opened the door to a specific kind of student assessment which is related to indices of giftedness, and has indirectly advanced a broader

question: Is it possible to design a system of assessment which would measure both achievement and additional behaviors judged to be of meaning and value, such as ability, creativity, and task commitment?

Two separate research paths are suggested. The first avenue would involve a study similar to this one. In the proposed design, a different independent variable or variables than those used in this study (the 16PF personality test) could be used to objectively measure the sample subjects. Instructor ratings based upon giftedness indices could be accomplished similarly to this study, or modified according to different instructional settings or patterns.

A second possible avenue of research would involve a different approach to the question above. Achievement could be measured by grades, as usual, but different behaviors judged to be of value would be identified and assessed. Instead of using giftedness indices, the researcher might use characteristics such as dependability, initiative, citizenship, or any of a number of qualities judged desirable by the instructor. Regardless of the avenue taken, it is believed that continued research in these areas would prove to be valuable to the student, the instructor, and to society in general.

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# APPENDICES

A. CONSENT FORM

B. PERSONAL QUESTIONNAIRE

C. INSTRUCTOR RATING FORM

D. RAW DATA FROM 16PF PERSONALITY TESTS

# APPENDIX A: CONSENT FORM

I hereby give my consent for my participation in the project entitled:

Grading of Student Performance in Music and Art Courses at Midland College

I understand that the person responsible for this project is Mr. Stan Jacobs, telephone number (915) 684-7851, ext. 236. Dr. Clarence Kincaid of the Texas Tech University art department is advisor for this study.

I understand that these studies are part of a project that has the following objectives:

1. To identify the types of students who enroll in music and art courses at Midland College.

2. To evaluate student performances during their first semester of attendance at Midland College.

3. To devise a system of evaluation which could be a more accurate predictor of future performance.

I understand the procedures to be as follow:

Students will first be asked to complete a short questionnaire dealing with personal background and goals. Next, a standard personality test will be administered (the IPAT 16PF). Finally, music and art instructors will evaluate student performance by grading according to two criteria: (1), fulfillment of course objectives, and (2), instructor judgment as to expected quality of future performance, or potential for success in the music or art field. The instructor's judgmental criteria will be based upon Renzulli's model of the gifted student, which gives equal weight to the three areas of above-average ability, creativity, and task commitment.

No physical risks are anticipated. No psychological or social risks are anticipated beyond the usual risks of routine grading and student/instructor relationships, since names will not be used in any published material.

The personality test and scores will be held confidential and will not be released to the subjects due to the experimental nature of the study.

I am aware of the possible benefits to be expected and I am satisfied that there are no risks of more than negligible probability.

Mr. Jacobs has agreed to answer any inquiries I may have concerning the procedures and has informed me that I may contact the Texas Tech University Institutional Review Board for the Protection of Human Subjects by writing them in care of the Office of Research Services, Texas Tech University, Lubbock, Texas, 79409, or by calling (806) 742-3884.

I understand that my participation in this study is voluntary and that I may discontinue this study at any time I choose without penalty.

Signature of Subject_____Date:_____

Signature of Project Director or his Authorized Representative:

_____Date:_____

# APPENDIX B: PERSONAL QUESTIONNAIRE

Name_____Date of Birth_____

Address_____Telephone_____

Art or Music course(s) in which now enrolled.

_____ _____ _____

_____ _____ _____

_____ _____ _____

Highest degree obtained_____

Present Occupation_____

Educational Goal(s): (e.g. associate, bachelor, or graduate degree).

_____

Occupational Goal(s): (e.g., Professional musician, teacher, interior designer).

_____

Other Goals: (e.g., personal enrichment, second field, pasttime, hobby, etc.).

_____

# APPENDIX C: INSTRUCTOR RATING FORM

## Grading Instructions

These scales are designed to obtain instructor estimates of a student's characteristics in the areas of above average ability (AAB), creativity (C), and task commitment (TC). (These three areas are further defined below.) Please make these judgments based upon your own observations of the student's classroom performance.

The grading scale is a 100 millimeter horizontal continuum. The left end of the line is the lowest and the right end is the highest.

Example 1: If student X displays the highest level of ability that you have ever observed, or ever expect to observe, then mark a vertical line at the far right end of the horizontal line.

Student X AAB

Example 2: If student Y displays what you would consider to be an average level of task commitment according to your observations, then mark a vertical line at the center of the horizontal line.

Student Y TC

## DEFINITIONS

### Above Average Ability (AAB)

1. Advanced, extensive vocabulary.
2. Informed about a variety of topics.
3. Quick mastery of recall or factual information.
4. Keen and alert observer.
5. Well-read; reads advanced, sometimes difficult material.
6. Reasons things out; tries to understand complicated material.

### Creativity (C)

1. Displays great deal of curiosity about many things.
2. Generates numerous ideas or solutions; offers unique responses.
3. Uninhibited in expressions of opinion; sometimes radical.
4. High risk taker; adverturous and speculative.

5. Intellectually playful; fantasizes and imagines.
6. Sensitivity to aesthetic considerations.
7. Nonconforming and individualistic.

Task Commitment (TC)

1. Becomes absorbed and involved for an extended period of time; persistent.
2. Single-minded and zealous.
3. Needs little external motivation.
4. Strives toward perfection; is not easily satisfied.
5. Prefers to work independently; requires little direction.
6. Often self-assertive (sometimes even aggressive); stubborn in beliefs.
7. Likes to organize and bring structure to things, people and situations.

APPENDIX C: Continued

COURSE _____ INSTRUCTOR _____

| NAME | | PROJECT GRADE SCALE | COURSE GRADE |
|---|---|---|---|
| | AAB | | |
| _____ | C | | ___ |
| | TC | | |
| | AAB | | |
| _____ | C | | ___ |
| | TC | | |
| | AAB | | |
| _____ | C | | ___ |
| | TC | | |
| | AAB | | |
| _____ | C | | ___ |
| | TC | | |
| | AAB | | |
| _____ | C | | ___ |
| | TC | | |

# APPENDIX D: RAW DATA FROM 16PF PERSONALITY TESTS

## TABLE D.1

Art Students

| Student | Personality Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | E | F | G | H | I | L | M | N | O | $Q_1$ | $Q_2$ | $Q_3$ | $Q_4$ |
| 1 | 3 | 7 | 5 | 2 | 4 | 3 | 3 | 4 | 3 | 4 | 8 | 5 | 3 | 10 | 5 | 5 |
| 2 | 3 | 7 | 4 | 5 | 4 | 5 | 5 | 4 | 6 | 6 | 5 | 3 | 4 | 7 | 9 | 4 |
| 3 | 3 | 3 | 8 | 8 | 7 | 7 | 6 | 6 | 6 | 5 | 2 | 3 | 4 | 6 | 6 | 3 |
| 4 | 2 | 9 | 2 | 7 | 2 | 6 | 1 | 7 | 10 | 6 | 6 | 7 | 6 | 6 | 3 | 10 |
| 5 | 3 | 8 | 5 | 2 | 6 | 8 | 4 | 6 | 3 | 5 | 10 | 6 | 4 | 4 | 7 | 3 |
| 6 | 5 | 7 | 6 | 6 | 7 | 7 | 5 | 4 | 7 | 5 | 6 | 6 | 8 | 7 | 5 | 7 |
| 7 | 8 | 7 | 3 | 3 | 4 | 7 | 6 | 3 | 4 | 5 | 8 | 5 | 7 | 8 | 6 | 10 |
| 8 | 4 | 5 | 5 | 2 | 5 | 7 | 6 | 8 | 4 | 5 | 4 | 5 | 7 | 3 | 7 | 5 |
| 9 | 1 | 4 | 6 | 6 | 2 | 6 | 2 | 9 | 3 | 10 | 5 | 9 | 8 | 10 | 6 | 3 |
| 10 | 1 | 3 | 4 | 5 | 1 | 6 | 4 | 3 | 5 | 3 | 4 | 10 | 8 | 7 | 6 | 6 |
| 11 | 8 | 5 | 7 | 8 | 10 | 4 | 10 | 4 | 6 | 2 | 4 | 7 | 6 | 2 | 4 | 5 |
| 12 | 4 | 9 | 1 | 10 | 6 | 4 | 6 | 10 | 6 | 4 | 3 | 9 | 8 | 8 | 2 | 6 |
| 13 | 3 | 4 | 5 | 9 | 6 | 5 | 10 | 4 | 8 | 5 | 6 | 4 | 7 | 7 | 4 | 8 |
| 14 | 6 | 5 | 3 | 6 | 6 | 8 | 7 | 9 | 5 | 6 | 9 | 5 | 5 | 6 | 5 | 7 |
| 15 | 6 | 7 | 5 | 5 | 9 | 5 | 7 | 7 | 8 | 8 | 4 | 4 | 6 | 9 | 4 | 5 |
| 16 | 7 | 6 | 7 | 5 | 5 | 5 | 7 | 6 | 6 | 3 | 7 | 3 | 6 | 4 | 9 | 5 |
| 17 | 4 | 8 | 6 | 5 | 6 | 4 | 4 | 6 | 4 | 7 | 6 | 6 | 5 | 9 | 6 | 6 |
| 18 | 3 | 5 | 5 | 7 | 5 | 4 | 7 | 6 | 5 | 8 | 3 | 5 | 7 | 10 | 7 | 7 |
| 19 | 4 | 7 | 4 | 6 | 5 | 8 | 6 | 5 | 6 | 1 | 7 | 6 | 8 | 8 | 5 | 5 |
| 20 | 6 | 9 | 7 | 7 | 8 | 4 | 7 | 8 | 4 | 7 | 5 | 5 | 7 | 6 | 3 | 4 |
| 21 | 4 | 5 | 4 | 6 | 6 | 7 | 4 | 5 | 8 | 6 | 5 | 7 | 8 | 8 | 6 | 7 |
| 22 | 3 | 4 | 9 | 7 | 9 | 5 | 6 | 7 | 5 | 5 | 3 | 3 | 4 | 5 | 5 | 6 |
| 23 | 2 | 2 | 4 | 2 | 3 | 5 | 2 | 6 | 6 | 6 | 9 | 6 | 5 | 9 | 4 | 9 |
| 24 | 7 | 7 | 6 | 8 | 9 | 6 | 8 | 6 | 8 | 6 | 3 | 5 | 7 | 4 | 4 | 7 |
| 25 | 2 | 7 | 6 | 6 | 5 | 4 | 6 | 7 | 6 | 6 | 4 | 7 | 7 | 6 | 5 | 6 |
| 26 | 1 | 9 | 5 | 6 | 8 | 3 | 4 | 7 | 8 | 8 | 2 | 8 | 7 | 9 | 2 | 8 |
| 27 | 1 | 8 | 7 | 7 | 3 | 5 | 4 | 5 | 5 | 5 | 4 | 6 | 7 | 10 | 5 | 9 |
| 28 | 3 | 7 | 5 | 5 | 5 | 5 | 3 | 7 | 5 | 6 | 7 | 5 | 7 | 7 | 6 | 4 |
| 29 | 4 | 6 | 6 | 6 | 3 | 5 | 5 | 6 | 5 | 6 | 5 | 6 | 8 | 5 | 7 | 7 |
| 30 | 3 | 7 | 3 | 3 | 7 | 3 | 4 | 5 | 9 | 6 | 3 | 10 | 8 | 9 | 1 | 9 |

APPENDIX D: Continued

TABLE D.2

Music Students

| Student | Personality Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | E | F | G | H | I | L | M | N | O | $Q_1$ | $Q_2$ | $Q_3$ | $Q_4$ |
| 1 | 7 | 9 | 4 | 3 | 4 | 8 | 4 | 6 | 6 | 5 | 5 | 6 | 5 | 5 | 8 | 6 |
| 2 | 3 | 7 | 8 | 2 | 4 | 8 | 6 | 6 | 2 | 5 | 6 | 5 | 3 | 7 | 8 | 2 |
| 3 | 3 | 9 | 6 | 5 | 2 | 5 | 4 | 8 | 6 | 6 | 7 | 3 | 5 | 6 | 8 | 4 |
| 4 | 6 | 3 | 7 | 3 | 8 | 8 | 6 | 7 | 4 | 4 | 8 | 3 | 4 | 6 | 8 | 4 |
| 5 | 8 | 6 | 6 | 9 | 8 | 9 | 7 | 6 | 3 | 5 | 4 | 6 | 7 | 5 | 6 | 4 |
| 6 | 3 | 7 | 7 | 6 | 5 | 8 | 2 | 4 | 10 | 4 | 4 | 8 | 6 | 8 | 6 | 9 |
| 7 | 8 | 5 | 4 | 6 | 6 | 6 | 7 | 6 | 9 | 6 | 6 | 6 | 5 | 6 | 4 | 7 |
| 8 | 3 | 7 | 6 | 7 | 6 | 3 | 5 | 6 | 8 | 8 | 6 | 6 | 5 | 8 | 2 | 4 |
| 9 | 3 | 6 | 5 | 8 | 8 | 3 | 10 | 2 | 6 | 8 | 4 | 6 | 9 | 5 | 5 | 7 |
| 10 | 4 | 6 | 3 | 6 | 7 | 6 | 5 | 4 | 9 | 3 | 5 | 9 | 5 | 5 | 5 | 6 |
| 11 | 5 | 7 | 3 | 7 | 9 | 7 | 6 | 10 | 6 | 4 | 8 | 6 | 4 | 6 | 6 | 6 |
| 12 | 5 | 6 | 7 | 4 | 6 | 8 | 8 | 8 | 6 | 5 | 6 | 6 | 4 | 7 | 8 | 6 |
| 13 | 6 | 3 | 5 | 5 | 8 | 7 | 6 | 6 | 6 | 3 | 8 | 7 | 4 | 3 | 7 | 5 |
| 14 | 4 | 9 | 1 | 6 | 7 | 4 | 7 | 7 | 7 | 7 | 2 | 6 | 5 | 8 | 5 | 8 |
| 15 | 3 | 5 | 4 | 3 | 5 | 6 | 3 | 7 | 4 | 6 | 3 | 10 | 3 | 4 | 7 | 7 |
| 16 | 4 | 5 | 6 | 10 | 6 | 6 | 7 | 8 | 10 | 8 | 1 | 7 | 6 | 7 | 4 | 6 |
| 17 | 4 | 8 | 7 | 8 | 9 | 8 | 9 | 8 | 6 | 5 | 2 | 3 | 1 | 6 | 8 | 4 |
| 18 | 6 | 4 | 6 | 6 | 6 | 7 | 8 | 7 | 6 | 6 | 7 | 6 | 5 | 6 | 7 | 5 |
| 19 | 3 | 4 | 8 | 7 | 6 | 6 | 6 | 5 | 2 | 7 | 4 | 5 | 7 | 8 | 7 | 4 |
| 20 | 4 | 7 | 5 | 6 | 7 | 3 | 8 | 4 | 4 | 4 | 9 | 6 | 9 | 7 | 5 | 4 |
| 21 | 8 | 4 | 9 | 7 | 6 | 5 | 8 | 3 | 5 | 7 | 5 | 1 | 7 | 5 | 5 | 2 |