

RELATIONSHIP BETWEEN STUDENTS' AND INSTRUCTORS' PERSONALITY
TYPES AND STUDENTS' RATINGS OF THEIR INSTRUCTORS

by

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Chapter 1

The Problem

Evaluation of the quality of instruction has existed through informal means since the first group of students met with the first teachers. This informal process is still used among students; however, administrators cannot rely on these informal processes of evaluation if they use the results of student evaluations to make important personnel decisions about instructors, especially decisions affecting tenure, promotion, merit pay, or continuance of employment.

During the last 25 years, more formal student rating methods have been developed, utilizing a series of items to elicit students' opinions about the quality of their instruction; and many colleges and universities have adopted some type of student rating scale as a part of their faculty evaluation system. With the widespread usage of student ratings of instruction has also emerged a plethora of research about the instructional process and the effectiveness of these scales in measuring the quality of instruction. Unfortunately, however, there has been little consensus among researchers about the reliability and validity of students' ratings. For example, there are studies which present contradictory results about the influence of biasing factors in the rating process. The following have been examined in many research studies: student variables such as age, sex, level in college, major, academic ability, expected grade, and personality characteristics; and

course variables such as course requirement, size of class, course content, and instructional styles (Centra, 1979).

The impetus toward evaluation has not abated, however, in spite of the fact that there are no guarantees that the results of student ratings are accurate measures of the quality of instruction.

Statement of the Problem and Need for the Study

Although personality characteristics are included in the list of biasing factors, the biasing factors that have most often been studied concern the impact of course and student demographic factors on student ratings. Relatively little attention has been devoted in the research to the interaction of student and teacher personality factors which may bias the students' ratings.

A few researchers, however, have examined some student variables in the instructional process such as the effect of students' needs on their ratings (Rezler, 1965; Tetenbaum, 1975); the influence of students' values on their ratings (Null and Walter, 1972; Yamamoto and Dizney, 1968); the interaction between students' background and personality characteristics and teacher behavior (Rees, 1969); and the influence of students' preferences on their ratings (Costin and Grush, 1973). Also, in a review of studies examining personality factors of students which may influence their ratings, Follman (1975) concluded that there is reason to believe that students' ratings of instructors' effectiveness may be influenced by personality characteristics of the raters, as much as by traits of the person being rated.

Follman and the other researchers mentioned above have revealed some evidence that students' ratings may be influenced by factors that are independent of the control of the instructor being evaluated; however, the studies reviewed in Chapter 2 of this study reveal that there are certainly some deficiencies in the research as well as some contradictions in the findings.

One deficiency is evident in the small number of studies that one can find that discussed only personal variables that may affect ratings. Another limitation of studies to date is that the majority concentrated only on student personality variables that affect ratings. Also, when the interaction of student and teacher personality characteristics was examined, most of the researchers used vignettes of teachers to determine the interaction of student personality factors with preferred teacher behaviors instead of studying the interactions in actual classroom settings. Finally, there were no studies reviewed which used the same instrument to determine student and instructor personality types.

The need for this research study was based on the deficiencies that exist in the current studies. If student ratings are influenced by the interaction of student and instructor personality types, then there is a need to obtain comparable information about the interacting personality types--students and instructors--in an actual classroom setting. Afterwards, mean ratings of students with different personality types can be compared to determine the extent to which the match

or mismatch of student/instructors' personality types may affect the students' ratings.

Statement of Purpose and Theoretical
Basis of the Study

The purpose of this study was to examine the relationship between students' and instructors' personality types and the students' ratings of their instructors. Holland's Vocational Preference Inventory (VPI) was used to determine students' and instructors' personality types; the Virginia Polytechnic Institute's Student Perception of Instruction (SPI) scale was used for the student ratings. But before translating this purpose statement into research questions, it is necessary to introduce the theoretical base for this study and explanations of the personality types to be considered in the research.

Assumptions of Holland's theory. Holland (1973) presented a theory of personality types and relationships of people within and between personality types. Although his theory specifically relates to vocational choices, he saw a possibility of its application to educational problems.

Three of Holland's basic assumptions indicate the nature of the personality types and how they interact to create certain vocational, educational, and social behaviors. First, Holland proposed that "in our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, or conventional" (1973, p. 2). These are merely theoretical or ideal types, but a real person can be measured against the model type by the

choices on the Vocational Preference Inventory (VPI) developed by Holland. To arrive at a personality type, Holland believed that a person's score on selected scales from the VPI could be used because, to him, a vocational choice is an expression of personality.

Another of Holland's assumptions and one which has direct relevance to the purpose of this study was stated as follows:

A person's behavior is determined by an interaction between his personality and the characteristics of his environment. If we know a person's personality pattern and the pattern of his environment, we can, in principle, use our knowledge of personality types and environment models to forecast some of the outcomes of such a pairing. Such outcomes include . . . educational and social behavior. (p. 4)

Holland paraphrased this assumption directly to the classroom setting:

The choices of, stability in, satisfaction with, and achievement in a field of training follow identical rules . . . for vocational behavior. In the same way, persons respond positively to instructors whose personality patterns resemble their own. (p. 43)

Extremely important to the questions of this study is Holland's assumption that different personalities are more satisfied in environments compatible with their interests and skills. Artistic personalities, for example, will flourish in an artistic environment because there they find the opportunities and rewards they need. When artistic persons have to function in a "foreign" environment--one incompatible with their preferences and abilities--incongruence occurs.

Descriptions of the six personality types. Holland outlined some of the experiences which may lead to each personality orientation and then described the dispositions and behaviors indicative of each type.

Only those behaviors which may relate to a classroom setting will be included.

First, realistic-type persons prefer activities that "entail the explicit, ordered or systematic manipulation of objects, tools, machines, animals," and have "an aversion to educational and therapeutic activities" (1973, p. 14). Furthermore, they perceive themselves as having mechanical ability and lacking human relations skills.

Next, investigative personalities prefer "observational, symbolic, systematic, and creative investigative activities involving physical, biological, and cultural phenomena in order to understand and control such phenomena" (1973, p. 14). These persons are apt to dislike persuasive, social, and repetitive activities. Also, they perceive themselves as "scholarly, intellectually self-confident, having mathematical and scientific ability, and lacking in leadership ability" (p. 15). In addition, they value science.

Third, Holland described artistic types as being "expressive, original, intuitive, feminine, nonconforming, introspective, independent, disorderly, having artistic and musical ability (acting, writing, speaking)" (p. 15). In addition, they like activities that involve manipulation of physical, verbal, or human materials to create art forms or products; and they value esthetic qualities. Because they prefer ambiguous and unsystematic types of activities, they feel deficient in clerical or business system competencies.

Fourth, the preferences of social types are to inform, train, develop, cure, or enlighten people. They have an aversion to realistic-

type activities which are likely to involve materials, tools, or machines. They value "social and ethical activities and problems" (p. 16). Furthermore, they perceive themselves "as liking to help others, understanding of others, having teaching ability, and lacking mechanical and scientific ability" (p. 16).

Somewhat similar to the social types are the enterprising types who prefer activities involving manipulation of others toward attaining organizational or economic goals. The aversions of this type are toward observational, symbolic and systematic activities. They are adept at leadership, interpersonal relations, and persuasion. They perceive themselves as "aggressive, popular, self-confident, sociable, possessing leadership and speaking abilities, and lacking scientific ability" (p. 17).

The final personality type is called conventional. These persons desire explicit, ordered, systematic manipulation of data. Their preferred activities would be "record keeping, filing materials, reproducing materials, organizing written and numerical data according to a prescribed plan, operating business machines and data processing machines to attain organizational goals" (p. 17). Additionally, they perceive themselves as conforming, being orderly, and as having clerical and numerical ability. Business and economic achievement are also important.

Relationships among personality types. Holland's theory of personality types revolves around a hexagonal model which, to him, was an abstract way to link the main ideas of his theory. Table 1 presents

Table 1

A Description of Levels of Congruence Among Personality Types and Their Environments*

Personality Types	Environmental Types--Congruence Levels from Highest to Lowest			
	Exact Congruence	Moderate Congruence	Low Congruence	No Congruence
Realistic	Realistic	Investigative Conventional	Enterprising Artistic	Social
Investigative	Investigative	Realistic Artistic	Conventional Social	Enterprising
Artistic	Artistic	Investigative Social	Enterprising Realistic	Conventional
Social	Social	Artistic Enterprising	Conventional Investigative	Realistic
Enterprising	Enterprising	Conventional Social	Realistic Artistic	Investigative
Conventional	Conventional	Enterprising Realistic	Social Investigative	Artistic

*Adapted from Holland (1973)--Hexagonal Model

a verbal description of the relationships among personality types and the environments. For example, realistic persons in a social environment would be at the lowest level of congruence with their environment. In an instructional setting, based on this theory, realistic students in a social environment, such as a human relations course taught by a social instructor, should be somewhat dissatisfied. This conclusion was prompted by the following hypothesis of Holland:

1. A person finds his environment reinforcing and satisfying when the environment pattern resembles his personality pattern. This situation makes for stability of behavior because the person receives a great deal of selective re-enforcement of his behavior. The greater the discrepancy between a person's personality pattern and his environmental pattern, the more dissatisfying, uncomfortable, and destructive this interaction becomes.
2. Friendships and therapeutic and teaching relationships depend upon the same formulations given in hypothesis one above. (Holland, 1973, p. 42)

Finally, in examining the relationship between students/instructors' personality types and students' ratings of their instructors, a part of Holland's theory of environment interactions will also be tested in a classroom setting; namely, his statement that "persons respond more positively to instructors whose personality types resemble their own" (1973, p. 43).

Research Questions

The above purpose statement was translated into several research questions. The first question related to clusters of students within each of the classes selected for the study. First, when students are clustered according to the similarity of their ratings across the first

six items on the SPI, how many clusters will emerge within a given class? Next, will each of these cluster groups represent a predominance of student raters with matching personality types? Finally, when individual rating items are examined in each class, will students with matched personality types have similar ratings on any of the six items on the SPI?

The next questions involved examination of how personality types of students and/or instructors relate to students' ratings. Instructors were matched by personality types, and student raters under each instructor type were also matched by the same criteria to answer the following questions. First, does the interaction of personality types of students and instructors relate to the ratings on any of the seven items of the SPI? If there is no interaction effect on the ratings, are there any main effects due to student or instructor personality type?

Finally, students and instructors were matched according to the level of congruence of their personality types. Four levels were used: Exact Congruence, Moderate Congruence, Low Congruence, and No Congruence. Means on the variable "Overall Rating of the Instructor" were compared in each category to answer the following questions: To what extent are the responses on "Overall Rating of the Instructor" related to the level of congruence of student/instructor's personality types?

Delimitations of the Study

Students in only two community colleges were used in this study. A further restriction was imposed in that students did not rate instructors with whom they had more than three lab or shop hours of instruction weekly in addition to the lecture sections. The students in these classes work closely with the instructors from five to ten additional hours weekly and have an opportunity to get to know the instructors better than most students know their instructors. Therefore, ratings in classes with these lab or shop hours could possibly bias the results.

A third restriction involved selection of the instructors and class size. First, only volunteer teachers were used. Those who participated in the second phase of the study were selected on the basis of their having a clearly defined personality pattern representing one of the six Holland personality types. In other words, instructors were chosen only when their high-point score was at least three points higher on the Vocational Preference Inventory than the next highest scale score. Class sections for student evaluations were restricted to those having enrollment of 30 or more students so that cluster groups of raters would be large enough to examine statistically.

A final constraint placed on the study involved the determination of student participation. The single high-point score on the VPI was used in determining student personality type; furthermore, students having tied scores on two or more scales of the VPI were not included in the study. Students with incomplete evaluation forms were also eliminated from the data base.

Limitations of the Study

One limiting factor of this research was that the sample did not reflect all the possible interactions of student personality types with faculty personality types. For example, the distribution of instructors did not include any faculty members with a Realistic personality type because most of these teachers fell in the category of those having lab or shop hours exceeding three each week. There was also no opportunity to assure that all student personality types would be represented in each class since ratings and personality inventories were completed at the same time by the students.

Another limiting factor was that of finding community college classes with more than 30 students still enrolled at the time for student ratings to be taken. A number of classes had to be removed from consideration in phase two of the research because the number of student raters had dropped well below 30 students.

Organization of the Study

This research report consists of five chapters. In Chapter 2 a review of the literature about Holland's theory and personality characteristics influencing the student rating process will be presented. Chapter 3 consists of the design of the study, the population sample, the instruments used, the data collection procedures, and the method of analysis of the data. The results and analysis of the data will be described in Chapter 4. Finally, Chapter 5 will include the summary, conclusions, and recommendations.

Chapter 2

Review of Related Literature

Researchers who have turned their attention to the study of student evaluation of instruction have been examining many different variables which may account for some of the variability in student ratings. For many years, biasing factors which were most frequently mentioned in reviews of student evaluation of instruction studies were year in school, grade point average, expected grade, age, sex, class size, ability level of student, and required versus elective courses (Menges, 1973). More recently, there has been a focus of attention on personal variables which may influence the ratings by students. The variables identified for this review were only these personal variables--students' needs, values, and preferences.

The first section of this chapter is a review of empirical evidence of the influence of student raters' personality characteristics on their ratings of instructors. The second section is devoted to Holland's theory of personality and selected studies of that theory that relate to an educational setting.

Influence of Needs and Values on Student's Ratings

Three studies reviewed concerned the influence of needs and values on students' ratings. Two of these studies found positive relationships between needs and ratings, but the results from the third study did not yield evidence of the influence of values on the ratings.

Rezler (1966) explored the influence of the college student's manifest psychological needs upon the perception of an instructor. Using the Edwards Personal Preference Schedule to measure needs and the Purdue Rating Scale for Instruction to measure perception, Rezler obtained the following results:

1. There were important differences between male and female students in the influence of needs: nurturance, succorance, exhibition, and heterosexuality upon instructor perception.
 - a. Need: nurturance influenced perception positively in males.
 - b. Need: succorance influenced perception negatively in females. (p. 282)
2. The psychological needs of students who perceived the instructor as liking them were different from students who perceived the instructor as not knowing them.
3. Extreme needs were not associated with extreme perceptions. (pp. 283-285)

Rezler concluded on the basis of these findings that all needs do not influence perception of the teacher; however, there is some interaction between needs and perceptual objects. This study presents somewhat guarded support for the influence of needs on ratings.

In another study of needs, Tetenbaum (1976) tested the hypothesis that "a specified student need cluster would be related to ratings of teachers whose orientation was presumably consistent with that need cluster" (p. 419). She used Jackson's Personality Research Form and 12 vignettes each describing a college classroom in which the teacher was portrayed as engaging in a particular set of behaviors. The vignettes represented four need factors corresponding with the Jackson

Personality Research Form. There were three replications for each of the four different teacher orientations. The four orientations represented in the vignettes were (1) need for control, (2) need for intellectual striving, (3) need for gregariousness and dependency, and (4) need for ascendancy. Students rated the particular teacher portrayed in the vignette on a six-point scale ranging from very poor to excellent. The researcher found a direct relationship between two ascendancy needs and three ascendancy vignettes as well as between three intellectual striving needs and two intellectual striving vignettes. She found an inverse relationship between three intellectual striving needs and three ascendancy vignettes and between two ascendancy needs and two intellectual striving vignettes. The second correlation--control--"most clearly points up the relationship between students' needs and their corresponding ratings of teachers" (p. 425). Tetenbaum summarized her findings as follows: "While the clusters that emerged were not as clear as was anticipated, the findings clearly demonstrated that specific needs were related to the ratings of specific teacher orientations" (p. 426). This study seems to indicate that when needs are clearly defined, there is a greater likelihood of discovering some influence on ratings.

Null and Walter (1972) examined the relationships between values and selected other variables of students and their ratings of one male university professor. They found that "most dimensions of values do not appreciably affect the perceptions by students of the behavior of an instructor" (p. 50). The interactions and main effects that were

found were about the number attributed to chance. According to the results of this study, student ratings seem to be independent of values of students; however, the small sample may have biased these results.

Influence of Students' Preferences on Their Ratings

There were eight studies which examined students' preferences in instructor behaviors or learning environments. Five of these yielded significant relationships between preferences and ratings; however, three others found weak to no influence of preferences.

In the first three studies reviewed here, students were presented with descriptions of different kinds of college instructors or behaviors and were asked to indicate their preferences for these. Carpenter (1975) asked students to rate their preferences for three types of instructors--pragmatic, authoritarian, and friendly counselor. He analyzed the data on the basis of type of instructor preferred among students in different disciplines. He found that the friendly counselor was not preferred by students in any discipline area, but he did find distinct preferences for the pragmatic and authoritarian instructors among students in different discipline areas.

Similar results were not found by Yamamoto and Dizney (1968), however. They used a form called Eight College Professors and the Allport, Vernon, and Lindzey Study of Values to determine if there were any personality correlates of students' preference for teacher types. Analysis of the data did not yield any significant relationships. Although the researchers did observe a general order of preference

among the four instructor types studies--Teacher, Researcher, Socialite, and Administrator--they attributed these preferences to "a function more of prevalent stereotypes held among college students than of any personal values and orientations" (p. 263). This study seems to support Null and Walter's (1972) conclusions that values of students do not influence their ratings.

Another study of students' conceptions of teachers in general was conducted by Rees (1969). He used 65 students and a wide variety of instruments to test students' conceptualizations of their instructors. He asked students to complete eight measures of points of view including personality inventory, family data, measures of authoritarianism, ambiguity, social desirability and general attitudes toward college teachers. In addition, students rated their attitudes toward descriptions of 11 types of teachers representing seven academic areas of the typical college curriculum. The data were factor analyzed and eight factors were selected as significant and were correlated with outside variables. These factors were labeled "Socioeconomic," "Racial," "Social Studies Aptitude," "Class in School," "Masculine Sophistication," "Social Disposition," and "Emotional Instability." The author concluded that students' conceptions of teachers result from "an interaction of the students' background and personality characteristics and teacher behavior" (Rees, 1969, p. 481).

The findings of these three studies should be interpreted cautiously because of the small sample sizes and the fact that the ratings were of teachers in general rather than of specific teachers.

Five other studies examined student attitudes toward specific instructors to determine the influence of student preferences on their ratings. Three studies yielded significant relationships, but two did not.

In a study of preferred teacher traits and observed teacher traits, Costin and Grush (1973) found that students' preferences in teachers' classroom behaviors affect students' ratings. They reported that the "greater the discrepancy between students' preferences for and observations of teacher traits, the less favorably they rated teacher skill and the more negative affect they perceived in the classroom" (p. 75). In other words, these findings seem to indicate that students have an ideal against which they rate their instructors.

A similar study was conducted by Crittenden and Norr (1973). Considering teacher evaluation as a problem in person perception, they chose a model based on the proposition that "a student's overall evaluation of an instructor is an additive combination of evaluation of individual aspects of teaching behavior weighted by the student's estimation of the relative importance of these aspects to good teaching" (p. 145). Students evaluated each item on the questionnaire describing a broad spectrum of teaching skills and behaviors in terms of how important each item was for good teaching. Then, each student evaluated the instructor on each item. Their results were supportive of the proposition stated above. The results of this study support the findings of Grush.

Another attempt to relate personality correlates and course evaluations was made by Kovacs and Kapel (1976). They surveyed 286 students in 16 instructors' classes in a college of education using students from different disciplines--English, foreign language, mathematics, science, and social studies. Students completed the Mehrabian Achievement Scale, the Rotter Locus of Control Scale, Instructor Evaluation Form, and a semantic differential scale measuring attitudes toward course content and structure. Significant correlations from .05 to .001 level were found between instructor "personality" (as measured by one item on the Instructor Evaluation Form) and the following student attitudes toward course and instructor--"global rating," "interest in subject," "recommend instructor," and "comparison to other instructors." Student personality variables as measured by the Rotter and the Mehrabian did not significantly correlate with any of the faculty characteristics on the Instructor Evaluation Form; however, student personality variables did correlate significantly with "recommend instructor," "global rating," "compared to other instructors" and to all aspects of "course content" and "course structure." This study seems to reinforce the idea that personality determinants help in forming a students' opinions of ideal instruction.

Two other studies did not report statistically significant results about students preferences; however, the variables studied were course preferences and learning styles preferences, not preferred instructor behaviors. Ory's (1980) study was designed to determine the relationship between pre-course expectations of the students and students'

ratings of instruction. Some sample statements the students were to respond to were as follows:

If anything, I must admit a dislike for this class.
Of courses I will take, this class is of high
priority.

I expect to find the subject matter of this course
exciting and stimulating. (p. 15)

Ory's research was designed to determine if students' ratings were "more influenced by the expectations of the student than by the background [demographic] of the student or the circumstances of the course" (p. 10). His conclusion was that in-class variables influenced students' ratings of instructors more than out-of-class variables. He believed that teacher and instructional effect were more in control of evaluations than pre-course expectations or demographic factors.

Hunter (1980) conducted a study in three community colleges using 300 students in 15 courses. He was seeking to determine relationships between preferred learning styles, the ratings of instruction, and the grade received by the student. Students completed the Learning Styles Inventory and, at the end of the quarter, a course rating scale. The instructors completed an Instructional Styles Inventory and submitted the end-of-course grades to the researcher. He concluded that rating of the instructor was not related to any of the above variables. Neither were computed differences between preferred teaching style and preferred learning style a significant source of variance in grade distributions.

Finally, in a review of theoretical and empirical literature on the influence of student-rater personality characteristics on students' ratings of instructors, Follman (1975) concluded the following:

The evidence shows that different raters have different personality characteristics, that rater personality characteristics influence substantially their ratings of instructors' teaching effectiveness, and that raters' personality characteristics influence teacher ratings differently. The best guess regarding a maximum correlation between a univariate personality variable and a teacher rating is about 0.25. The best estimate regarding a characteristic correlation between a multivariate set of personality variables and a teacher rating is a multiple correlation of about 0.45. (p. 163)

Studies Related to Holland's Theory

Holland's personality theory has prompted extensive research in the period from 1959 to the present. Holland (1973) reviewed the most significant studies testing his theory in many different situations; however, this report will include only those studies directly relevant to testing Holland's theory in educational settings.

Person-environment congruency. The evidence in research studies that individuals in congruent environments are more satisfied and academically successful than students in incongruent environments is equivocal. For example, three studies reviewed demonstrated that students who were in congruent environments were more satisfied and/or achieved greater academic success than their incongruent peers. However, there was an equal number of studies which failed to provide clear support for Holland's congruency hypothesis.

The first study testing person-environment congruence and satisfaction was reported by Williams (1967). He was interested in reactions of roommates paired on the basis of their scores on the VPI. There were an "inconflict" (incongruent) group of roommates and a "congruent" group. The findings revealed that congruency of VPI codes of roommates was positively associated with lack of conflict. The Chi Square value was significant beyond the .05 level.

Brown (1969), in a similar study, explored the effects of having college residence hall floors numerically dominated by students with similar academic majors. He used a two-fold classification--scientific and non-scientific types. On two floors of a dorm, freshmen science and nonscience students were assigned at a ratio of 4:1. On two other floors were placed nonscience students and science students at a ratio of 4:1. The minority group of students in each case in a significantly greater proportion ($p < .001$) changed their majors to fields similar to those of the majority group on their hall floor. Even when the minority group of students did not change majors, they became uncertain about their vocational goals during the year ($p < .001$). Brown (1968) concluded that general satisfaction with college is positively related to living in a residence hall where the majority of students had similar college major-field choices.

Congruence and academic achievement were the points of consideration in a study by Reutherfors, Schneider, and Overton (1979). They found that students with college major choices congruent with their personality type were more successful academically than students with

incongruent personality types and majors ($p < .001$). They did not find support for the consistency and differentiation aspects of Holland's theory, however.

The three following studies did not find clear support for Holland's congruency hypothesis. First, Walsh, Spokane, and Mitchell (1976) examined consistent occupational preferences in relation to academic performance and adjustment. There were significant differences at the .05 and .01 levels in mean scores for the congruent, incongruent, and undecided groups for only two variables out of six: the first was Curricular Adjustment; the second, Maturity of Goals and Level of Aspiration. In spite of only two significant differences, the authors still reported support for Holland's idea that "congruent person-environment relations are conducive to more stable college major choices and better academic adjustment" (p. 129).

Person-environment congruency and satisfaction with college major were the subjects of study by Morrow (1971). He surveyed some college students majoring in sociology or mathematics and assigned them to a personality type based on their responses to the VPI. Their VPI scores were compared to their choices of major, and the degree of congruence between their major field and personality type was determined. A questionnaire about students' feelings regarding their college majors was used to assess satisfaction. Using analysis of variance, Morrow found that satisfaction with major was significantly related ($p < .01$) to personality type for mathematics majors but not for sociology majors.

There was only one study relating the personality types of students and faculty. Posthuma and Navra (1970) tested the hypothesis that students whose interests were congruent with the faculty's would get better grades than students with incongruent scores. (The VPI was used to determine personality types of both faculty and students.) The results were in the predicted direction but were not statistically significant; that is, profiles for faculty and "top students" correlated negatively. Although these authors reported that their results indicated "gross support for the congruency hypothesis" on the personality-type code profiles of the VPI, they did not recommend that the VPI and the other instruments used be adopted for student selection to college at the military institute where the study was conducted (p. 352).

Classroom environments. Two studies conducted in high schools and one study in college discuss teacher environment and classroom climates. One of the high school studies was inconclusive; the other two studies supported expectations conceptualized by Holland's theories.

Barclay (1967) assessed the teacher environment for 11 different high school curriculum areas. Teachers selected students whom they considered ideal students. High- and low-rated students were then compared on various intellectual, personality, motivational, and vocational variables. There were some directions of environmental press which were predictable from Holland's formulations, but there were also many contradictions.

Hearn and Moos (1978) attempted to categorize high school classrooms to determine the extent to which those classes fit expectations conceptualized by Holland. They used students in 19 urban and suburban high schools. These 19 schools also represented two types--general and vocational/technical. One-way univariate analysis of variance revealed that seven of the nine Classroom Environment Scale (CES) subscales significantly differentiated among classes from the .05 to .001 levels. (These scales correlate with Holland's theory of personality types.) For example, students perceived that Innovation was emphasized in Artistic classes and that Competition, Rule Clarity, and Teacher Control were deemphasized in these classes. Multivariate analysis of variance with Holland types as independent variables and the climate subscales as the dependent variables revealed significance at the .001 level for the overall relationship between the Holland types and the nine climate subscales.

Finally, Astin (1965) wanted to test the following questions:

1. If the behavior of the instructor, the behavior of the student, and the types of instructor-student interaction that occur in classes in various fields differ systematically from one another.
 2. If it would be feasible to classify various fields of study on the basis of similarities and differences in the classroom environments of the fields.
- (p. 275)

Astin obtained usable results from 31,000 students from 246 colleges. Each student was asked to describe a course taken during the previous years which was most closely related to his or her field of interest. Nineteen fields (courses) appeared. The students then

responded to a questionnaire of 35 items describing the class. Astin reported that "Each of the 35 items discriminated significantly ($p < .001$) among the 19 fields. Even so, it was clear that the fields differed more on some items than on others" (p. 277). Astin concluded that classroom environments do "reflect systematic differences among various fields of study" (p. 261).

Summary of Studies Related to Student Evaluations

Studies seeking to determine relationships between student ratings and various student personality characteristics have yielded some contradictory results although there have been a number of statistically significant results. For example, of the 17 studies reviewed in the first section of this chapter, 11 studies reported significant results. Most of the contradictions seem to be attributed to differences in methodology or objectives or instruments. The following is a summary of the conclusions drawn by researchers included in the first section of the review.

1. Students' values do not significantly affect students' ratings of instructors; however, there are a few needs affecting these ratings.
2. When students' preferences for instructors in general were related to ratings, significant findings were noted in two out of three studies; the contradictory findings of the other study resulted when students' preferences were related to their values.

3. When specific instructors were rated, students' preferences for instructor behaviors were significantly related to their ratings in three out of five studies. These statistically significant findings suggest that students make their ratings on the basis of some ideal instructor type. The two studies having nonsignificant findings examined precourse expectations and preferred learning styles of students, not their preferences for instructor behaviors.

4. There does not seem to be a list of specific personality characteristics that influence students' ratings; however, there seems to be evidence of multiple variables acting together to influence these ratings.

Summary of Studies Related to Holland's Theories

Literature testing Holland's theories in educational settings led to the following conclusions:

1. The six studies testing Holland's theory of person/environment congruency and satisfaction or academic success yielded equivocal results. Three revealed significant findings; three others did not reveal clear support for Holland's theory.

2. The single study which related personality types of students and faculty to students' grades revealed results in the predicted direction, but these were not statistically significant.

3. Two of the three studies related to classroom environments yielded support for Holland's theory; for example, there were

significant differences revealed in the classroom environments in different subject matter fields in one high school study and one college study.

In conclusion, the review of studies in this chapter--those which investigated personality factors which bias student ratings and those which related Holland's theories to an educational environment--yielded some support for a study investigating congruency of student and instructor personality types to students' ratings of their instructors.

Chapter 3

Methodology

The purpose of this study was to investigate the relationship between students' and instructors' personality types and the students' ratings of their instructor. The following questions were investigated:

1. When students are clustered according to the homogeneity of their ratings across the first six items on the Student Perception of Instruction (SPI) form, how many groups will emerge in a class?

2. Will these cluster groups represent a predominance of student raters with matching personality types?

3. When ratings in the 13 classes are examined separately, will students with matched personality types have similar ratings on the six items on the SPI?

4. When students and instructors are grouped according to their personality types, to what degree will the interaction of personality types of students and instructors influence the ratings on the seven items of the SPI?

5. To what extent are ratings on the "Overall Rating of the Instructor" item related to the level of congruence of student/instructor's personality types?

Population and Sample

Subjects in this study were selected from faculty and students from two community colleges (two-year public post-secondary

institutions). These were New River Community College in Dublin, Virginia, and Rockingham Community College in Wentworth, North Carolina. The final sample consisted of 13 faculty and 464 students in these colleges from all program areas--college parallel, vocational, and technical. Faculty members volunteered to participate; all students within the selected classes were asked to participate in the study.

Instrumentation

Two instruments were used in this study. The first one, a self-administering inventory completed by both teachers and students, was the Vocational Preference Inventory (VPI), Sixth Revision, developed by Holland. The second instrument was the Student Perception of Instruction (SPI) developed at Virginia Polytechnic Institute and State University in Blacksburg. The VPI, central to Holland's theories (1973) of personality types and vocational behaviors, was chosen to test the applicability of Holland's theories in an educational setting. The SPI was chosen because of its conciseness and its average readability level. Descriptions of these two instruments follow.

The Vocational Preference Inventory. The VPI is a vocational interest inventory consisting of 160 occupational titles; however, only 84 titles are related to one of the six personality types or scales--Realistic, Artistic, Investigative, Conventional, Enterprising, and Social--Holland used to formulate his theory of careers. (See Appendix A for a copy of the VPI used.) The omitted occupational titles

relate to scales such as Self-Control, Masculinity, Status, Infrequency, and Acquiescence. Holland, in Making Vocational Choices: A Theory of Careers, did not discuss these scales; furthermore, the interpretative data available in the VPI Manual do not relate to the hypotheses in this research. Therefore, because of the small degree of attention given to these scales in Holland's discussions and primarily because of the need to limit both the scope of this research and the time for completing the inventory, these scales were eliminated from consideration. Interpretation of the six personality types are also independent of these scales.

The personality type of an individual may be inferred by counting the number of "yes" responses on each of the six personality scales. The highest score from one of the six scales of the VPI becomes the personality designation for that individual. Fourteen is the highest attainable score on any one scale. The acceptance of the personality type being derived from the occupational choices is based on Holland's assumption that "the choice of a vocation is an expression of personality" (1973, p. 6). Descriptions of the six personality types and the activities, competencies, and interests associated with each type were included in Chapter 1 of this research report.

The constructs implied by the VPI have been widely tested with many different populations. In Making Vocational Choices: A Theory of Careers, Holland summarizes more than 100 empirical studies about the characteristics attributed to the six personality types. Of these studies Holland reported, "More than 90 of these investigations are

believed to yield positive evidence" (1973, p. 19). Holland is discussing evidence of the usefulness of the theory which he claims is "also evidence about the construct validity of the VPI" (1973, p. 19). In a review of several occupational theories which includes a discussion of Holland's VPI and theory, Walsh (1973) concluded that "The results of the numerous studies of Holland's theory generally tend to support the validity (concurrent) and interpretative meaning of the VPI scales" (p. 69). Abe and Holland's studies (1965a, 1965b) of college students revealed that the VPI discriminates among students with different choices of major field and occupation. The following studies not included in Holland's book also discuss the validity of the VPI as related to teachers and students.

Testing the constructs for differences between male and female students' scores, Alston et al. (1976) concluded that "the VPI scales measure largely the same constructs for both male and female college students" (p. 88).

A validity study using 641 high school teachers revealed that significant differences "exist among the combined, male, and female groups of subject matter teachers on their occupational preferences" on the first six VPI scales (Monterio, 1978, p. 132A).

Using 2,373 university alumni with work experience of 10-35 years to test the external validity of the VPI, Lucy (1976) discovered that the "strong concurrent relation between the VPI high-point code and current occupation is evidence for the validity of the VPI assessment for adult men and women" (p. 78).

Reliability studies of the VPI by Holland (1965) revealed coefficients ranging from .57 to .89 for 6,289 male college freshmen and from .50 to .89 for 6,143 females. "The retest reliability coefficients of the third and sixth revisions for student and adult samples . . . suggest that the VPI has moderate to high reliability" (p. 10).

The Student Perception of Instruction. The SPI was developed at Virginia Polytechnic Institute and State University and is used there for student evaluation of instruction. The instrument is comprised of six items rating instructor behaviors in the classroom and one item of overall rating. Specifically, the seven items which pertain to instructor rating are (1) apparent knowledge of subject matter, (2) success in communicating or explaining subject matter, (3) degree to which subject matter was made stimulating or relevant, (4) concern and respect for students as individuals, (5) fairness in assigning grades, (6) administration of the class and organization of materials, and (7) overall rating of this instructor. Each of the seven rating items pertaining to instructor characteristics elicited responses on a four-point Likert scale (Excellent, Good, Fair, Poor). At Virginia Polytechnic Institute and State University this instrument has been found to be both a reliable and valid measure of students' opinions of their teachers' behaviors; however, published information is not available about the instrument. Furthermore, the instrument includes rating items that are comparable to commercially produced rating scales which are extensively researched for evidence of validity and reliability.

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Design of the Study
and Data Collection

Presidents of the participating institutions were contacted for permission to conduct the study. Memoranda explaining the purpose of the study and requesting faculty participation were distributed during the Winter Quarter in 1980-81. The faculty who volunteered completed the VPI and returned these to the researcher who scored them to determine those who would administer student rating forms and the VPI to students in their classes containing over 30 students. Data were collected during the Winter and Spring Quarters of the 1980-81 academic year.

Faculty members were chosen for the second phase of the study on the basis of their having a well-defined personality pattern determined by a high-point score of six or higher on one specific scale of the VPI with at least a three-point difference between this score and the second highest score. Faculty were eliminated as participants if they were teaching classes which included a lab or shop section in which they worked with the students more than three hours weekly in addition to the lecture portion of the class.

The final limitation placed on faculty participation was based on class size. A faculty member was not included unless the beginning class membership was 30 or higher. (Some faculty were disqualified at the time for the student evaluations if the membership had dropped below 20.)

Student data (responses to the VPI and SPI) were collected by the researcher or a designated representative during a regular class

period in the ninth week of the quarter. Completion of the two instruments required about 20 minutes of class time. The two instruments were matched by students' social security number entered on each form. To identify the instructor being rated, the students entered that person's name on the rating form. These forms were collected by the researcher or a designated representative.

The next stage of the study was the preparation of the data for analysis. First, students were assigned a personality type by counting all "yes" responses on the VPI answer sheet and finding the single high-point score. Whenever tied scores were found, these students' forms were not included in the study. (Instructors' personality types had been determined earlier.) The students' personality types and the instructors' personality types were entered on the response sheet with the student's evaluation of the instructor. Forms of students who did not respond to all items on the SPI were excluded from the study.

Methods of Analysis

Cluster analysis, multivariate analysis of variance (MANOVA), and one-way analysis of variance (ANOVA) were procedures used to analyze the data.

First, to answer the question about homogeneity of students' ratings within each of the 13 classes, the responses of students across the first six items of the SPI were compared by a cluster analysis using Johnson's MAX procedure. Students were placed in a cluster when the

maximum intracluster absolute difference across all six items of the SPI did not exceed three scale points. In addition, to be considered a cluster of meaningful size, at least four students had to be members of the same cluster. To answer the second question, personality types of students within each cluster were examined manually to determine if they were matched. When a large proportion of students within a cluster had matching personality types, the binominal distribution was used to determine if the probability of this number of students with matching personality types exceeded chance.

Next, the question of student personality effect on ratings of each of the 13 instructors on six variables of the SPI was tested using a MANOVA procedure ($p < .05$). The independent variable was student personality--the six Holland types; the dependent variables were the ratings on the first six items of the SPI. Univariate tests of significance for each of the six variables were then used to determine any difference in ratings among the student personality types ($p < .05$).

A two-way crossed MANOVA procedure ($p < .05$) was also used to answer the question about the effects of student personality type, instructor personality type, or interaction of the types on the students' ratings of the instructors. For this analysis, both instructors and students were grouped according to their personality types. Criteria for the analysis were the mean ratings over each of the seven items of the SPI. Univariate tests of significance were then performed

to determine the sources of the differences among the ratings on individual items of the SPI ($p < .05$).

Finally, one-way analysis of variance (ANOVA) was used to test for any statistically significant difference among means when congruence levels of personality types of students and instructors were the independent variables and "Overall Rating of the Instructor" was the dependent variable. Each instructor's and each student's personality type was compared to determine the level of congruence of the two types. Then the ratings on the dependent variable were entered under one of the four congruency levels--Exact Congruence, Moderate Congruence, Low Congruence, and No Congruence--for the ANOVA procedure. (Table 2 presents the pairings.) The Sheffe' Analysis was used with significant F ratio ($p < .05$) on the ANOVA to compare group means to determine the source(s) of differences. This method was chosen in spite of its being more rigorous than other multiple comparison methods because of the wide variation in cell frequencies. Because this method leads to fewer significant results, Sheffe' has recommended a .10 significance level as a critical value of F for testing for significantly different means (Ferguson, 1971).

Table 2
 Descriptions of Four Levels of Student/
 Instructor Congruency*

Congruency Level	Student Personality Type	Instructor Personality Type
Exact Congruence	Realistic Investigative Artistic Social Enterprising Conventional	Realistic Investigative Artistic Social Enterprising Conventional
Moderate Congruence	Realistic Investigative Artistic Social Enterprising Conventional	Investigative/Conventional Realistic/Artistic Investigative/Social Enterprising/Artistic Conventional/Social Enterprising/Realistic
Low Congruence	Realistic Investigative Artistic Social Enterprising Conventional	Enterprising/Artistic Conventional/Social Enterprising/Realistic Investigative/Conventional Artistic/Realistic Social/Investigative
No Congruence	Realistic Investigative Artistic Social Enterprising Conventional	Social Enterprising Conventional Realistic Investigative Artistic

*Adapted from John Holland's hexagonal model (1973).

Chapter 4

Findings and Discussion

The central problem of this investigation was to examine the relationship between students' and instructors' personality types and students' ratings of their instructors. Five questions were used to examine these relationships.

Findings

First, when students were clustered according to the homogeneity of their ratings across the first six items on the SPI, how many groups emerged in a class? (The Johnson Max procedure was used to group students into clusters.) A summary of the data from these 13 classes is presented in Table 3. Examination of this table reveals that in seven of the 13 classes a large percentage (70%) of students attained cluster membership. These group sizes averaged from five to 15 students per group and the number of groups per class ranged from two to six. In one class 61 percent of the students grouped into clusters. In the remaining five classes, fewer than 50 percent of the students agreed enough across all ratings to achieve membership within a cluster. These latter classes had quite erratic ratings as shown by the numbers of students who did not attain group membership--22 out of 40; 13 out of 20; 18 out of 30; 14 out of 26; and 16 out of 24.

Tables 4 through 15 contain the mean ratings of the cluster groups on the first six items of the SPI and illustrate the divergence of

Table 3

Description of Cluster Analysis Data

Class	Number of Students With Complete Responses	Number of Students Assigned to Clusters (Percent)	Number of Groups in the Class	Number of Students Not In A Cluster	Average Group Size	Number in Largest Group
1	35	30 (.86)	2	5	15	17
2	35	26 (.74)	3	9	9	11
3	40	18 (.45)	3	22	6	10
4	32	26 (.81)	4	6	7	9
5	34	26 (.77)	3	8	9	15
6	49	37 (.76)	6	12	6	8
7	48	41 (.85)	5	7	8	13
8	20	7 (.35)	1	13	7	7
9	30	12 (.40)	3	18	4	4
10	22	16 (.73)	3	6	5	7
11	26	12 (.46)	3	14	4	4
12	31	19 (.61)	3	12	6	11
13	24	8 (.33)	2	16	4	4

Table 4

Mean Ratings of Cluster Groups in Class 1 on the
First Six Rating Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=17)	4.0	3.9	3.3	3.8	3.9	4.0
Group II (N=13)	4.0	3.1	2.9	3.1	2.9	3.2

*In Class 1 a total of 35 students completed the SPI. Thirty students attained membership in the two clusters. Rating scale values were Excellent (4), Good (3), Fair (2), and Poor (1). The instructor personality type was Investigative.

Table 5

Mean Ratings of Cluster Groups in Class 2 on the
First Six Variables of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=9)	3.9	3.9	3.4	4.0	4.0	3.6
Group II (N=6)	3.8	3.8	3.2	3.7	3.0	3.0
Group III (N=11)	3.2	3.1	2.9	3.0	3.0	3.5

*In Class 2, 35 students responded to the SPI. These groups of students formed three clusters for 74% of the class; 9 other students did not cluster into groups large enough to be counted. The instructor had a Social personality type.

Table 6

Mean Ratings of Cluster Groups in Class 3 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=10)	3.6	3.2	3.0	4.0	3.8	3.2
Group II (N=4)	3.0	3.3	2.5	3.0	3.8	3.3
Group III (N=4)	4.0	2.8	3.0	3.0	3.8	3.5

*Out of 40 students rating this Conventional instructor, only 18 students or 45% attained membership in the three clusters.

Table 7

Mean Ratings of Cluster Groups in Class 4 on the
First Six Variables of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=6)	3.2	3.2	3.0	3.8	4.0	3.0
Group II (N=6)	3.3	3.5	3.0	3.2	3.0	3.0
Group III (N=9)	3.9	4.0	3.6	4.0	4.0	3.9
Group IV (N=5)	3.4	3.0	2.0	3.0	2.6	3.0

*Class 4 had 32 student raters with a total of 26 students or 81% falling into one of the four clusters. The instructor's personality type was Artistic.

Table 8

Mean Ratings of Cluster Groups in Class 5 on the
First Six Variables of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=7)	3.7	3.6	3.0	3.0	3.0	3.0
Group II (N=4)	3.0	3.3	3.0	3.8	3.8	3.8
Group III (N=15)	4.0	4.0	3.5	3.7	4.0	3.8

*In Class 5, there were 34 raters, but only 26 or 77% were included in the three clusters. The instructor had an Enterprising personality type.

Table 9

Mean Ratings of Cluster Groups in Class 6 on
the First Six Variables of the SPI*

Cluster Groups	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=7)	3.0	3.1	2.3	3.1	3.7	3.1
Group II (N=6)	3.2	3.8	3.3	4.0	4.0	2.8
Group III (N=8)	3.1	3.1	3.0	3.1	3.0	3.0
Group IV (N=5)	4.0	3.0	3.0	3.8	3.2	2.6
Group V (N=7)	3.0	2.6	2.0	4.0	3.0	2.7
Group VI (N=4)	2.3	2.0	2.0	2.5	3.0	1.8

*There were 49 student raters in class 6. Thirty-seven or 77% of the students fell into one of the six clusters. The instructor of the class had a Social personality type.

Table 10

Mean Ratings of Cluster Groups in Class 7 on
the First Six Variables of the SPI*

Cluster Groups	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=13)	4.0	3.4	3.2	3.6	3.9	4.0
Group II (N=13)	4.0	3.4	3.0	3.0	3.1	3.5
Group III (N=7)	3.9	4.0	4.0	2.9	3.6	3.9
Group IV (N=4)	4.0	3.3	3.0	1.3	3.3	3.5
Group V (N=4)	4.0	2.8	2.0	2.5	3.3	4.0

*Class 7 had 41 out of the 48 student raters to cluster into 5 groups for a total of 86% in groups. The instructor was an Investigative type.

Table 11

Mean Ratings of Cluster Groups in Class 9 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=4)	4.0	2.0	1.8	2.5	2.5	3.0
Group II (N=4)	3.0	1.8	2.0	2.8	2.8	1.8
Group III (N=4)	3.3	2.3	3.0	2.3	2.3	3.0

*In Class 9, only 12 students out of 30 were clustered into the three small groups. These were only 40% of the total number rating this Investigative instructor.

Table 12

Mean Ratings of Cluster Groups in Class 10 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=5)	4.0	4.0	4.0	4.0	4.0	3.6
Group II (N=7)	3.1	3.0	3.0	3.1	3.1	3.0
Group III (N=4)	3.5	2.8	2.5	4.0	4.0	3.0

*Out of the 22 raters in Class 10, 16 students or 73% fell into one of the three clusters. The instructor had a Social personality.

Table 13

Mean Ratings of Cluster Groups in Class 11 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=4)	3.3	3.0	3.0	3.3	3.0	2.8
Group II (N=4)	3.0	2.5	2.0	3.0	3.0	3.3
Group III (N=4)	2.3	1.8	2.0	3.0	3.0	2.0

*Class 11 had only 12 of 26 student raters or 46% falling into the three clusters. The instructor personality type was Investigative.

Table 14

Mean Ratings of Cluster Groups in Class 12 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=11)	4.0	4.0	3.6	3.7	4.0	4.0
Group II (N=4)	4.0	3.5	2.8	3.0	3.0	3.8
Group III (N=4)	4.0	3.0	3.3	4.0	3.5	4.0

*In Class 12, only 61% or 19 students out of 31 were in the three clusters. The instructor personality type was Investigative.

Table 15

Mean Ratings of Cluster Groups in Class 13 on the
First Six Items of the SPI*

Cluster Group	SPI Variables					
	Knowledge	Communication	Relevance	Concern	Fairness	Organization
Group I (N=4)	4.0	4.0	3.0	2.8	3.8	3.8
Group II (N=4)	3.5	2.3	2.0	1.3	2.0	2.0

*Only two small groups of four students each were in each cluster for 33% of the total 24 student raters. These two groups, however, represent two visually distinct groups of raters in the class. The direction of the ratings is similar, but obviously Group II's ratings were considerably lower. The instructor had an Investigative personality type.

opinions among the groups in 12 of the classes. (Class 8 was not included in the tables because there was only one cluster of raters). Footnotes with these tables give some specific information about each class profile.

Second, did the cluster groups represent a predominance of student raters with matching personality types? The membership of each cluster was examined manually to determine the personality types of the students. When several students with matching personality types were observed in a cluster, the binomial distribution was used to determine if this number of matched types within the cluster exceeded the number expected by chance; however, there was no evidence of personality effect on the cluster groupings. In other words, cluster membership was not significantly related to student personality type.

Third, when ratings in the 13 classes were examined separately, did students with matched personality types have similar ratings on any of the six items of the SPI? A multivariate test for student personality effect yielded a significant F value of 3.01 (df 18,57), $p < .0008$. Univariate tests yielded F values for each of the seven dependent variables to determine the source of significance. The data in Table 16 show that there were only two statistically significant F ratios. In Class 9, there were significantly different ratings on the variable "Ability to Communicate Subject Matter" ($F=5.40$, $p < .0053$) and on "Fairness in Grading" ($F=6.80$, $p < .0017$) for the Investigative instructor in this class. Inspection of cell means in Table 17 reveals that Realistic ($N=18$) and Artistic ($N=2$) student types rated the

Table 16

Univariate Tests for Hypothesis of No Overall Student Personality Effect on Students' Ratings (F Values)

Instructor	Knowledge of Subject	Communication of Subject Matter	Relevance of Material	Concern for Students	Fairness in Grading	Organization of the Class	Overall Rating
1	0.78	0.09	0.23	0.51	0.42	0.94	0.71
2	0.71	1.44	1.33	1.33	1.09	0.84	1.17
3	2.49	1.55	1.90	0.97	2.31	1.09	1.32
4	1.04	0.19	1.61	0.80	1.57	1.09	1.03
5	0.88	0.87	0.18	0.91	0.45	0.82	1.31
6	1.85	0.41	1.57	0.38	1.30	1.57	0.98
7	1.22	0.94	1.80	0.28	1.10	0.40	0.50
8	0.20	0.33	0.22	0.65	0.25	0.62	0.56
9	0.30	5.40 ¹	0.80	1.62	6.80 ²	0.53	1.28
10	0.72	2.04	1.35	0.50	0.92	1.24	0.56
11	1.71	0.52	0.04	0.10	1.84	0.64	0.35
12	0.67	0.81	0.10	0.33	0.65	0.61	0.13
13	0.74	2.16	0.68	1.13	1.14	1.73	1.77

¹p < .0053²p < .0017

Table 17

Means of Different Personality Types for Instructor 9
for Variables Denoting Statistically Significant
Different Ratings

Rating Items	Student Personality Types			
	Investigative (N=16)	Enterprising (N=3)	Realistic (N=18)	Artistic (N=2)
Communication of Subject Matter	2.50	2.33	1.61*	1.50*
Fairness in Grading	1.83*	3.33	2.61	3.50

*Statistically significant different means.

instructor lower on "Ability to Communicate" than did Investigative (N=6) and Enterprising (N=3) student types. Furthermore, on the variable "Fairness in Grading," Investigative (N=6) students' ratings were significantly lower than the ratings of Artistic (N=2), Enterprising (N=3), and Realistic (N=18) students at the .05 level.

Fourth, when students and instructors were grouped according to their personality types, did the interaction of personality types of students and instructors relate to the ratings on each of the seven items of the SPI? To answer this question, data for 10 instructors' classes were pooled. (Because of the low number of instructors with Artistic, Conventional, Enterprising, and Realistic personality types, these analyses involved six Investigative and four Social instructor types. The numbers of students rating each instructor type were 194 and 126 respectively for a total of 320 student raters. The students' personality types were also matched under the two instructor groups.

The first procedure (MANOVA) yielded a significant interaction of instructor/students' personality types on the ratings ($F=2.05$, $df=30, 1194$; $p < .0008$). Univariate tests revealed that the significant interactions occurred on five of the seven rating items: "Overall Rating of the Instructor;" "Knowledge of Subject Matter;" "Ability to Communicate;" "Relevance of Subject Matter;" and "Organization of the Class." One other variable, "Concern for Students," approached significance at the .10 level. (See Table 18 for the F values and probabilities.) Examination of means in Table 19 reveals that Realistic students' ratings for Investigative instructors were significantly

Table 18

F Values and Significance Levels from Univariate Tests of Interactions or Main Effects of Personality Types on Ratings*

		Knowledge of Subject Matter	Ability to Communicate	Relevance of Subject Matter	Concern for Students	Fairness in Grading	Organization of Class	Overall Rating
Effect of Instructor Personality (N=10)	F	24.93	4.49	0.01	19.78*	0.48	6.44	0.21
	P	0.0001	0.0350	0.9380	0.0001	0.4879	0.0117	0.6450
Student Personality Effect (N=320)	F	3.19	5.67	1.83	1.97	4.64*	3.43	4.51
	P	0.0081	0.0001	0.1048	0.0820	0.0005	0.0051	0.0006
Interaction of Student/Instructor Personality	F	2.74*	7.99*	3.07*	1.84	0.73	4.84*	4.77*
	P	0.0192	0.0001	0.0104	0.1042	0.6022	0.0003	0.0004

*Significant F Values for main effects were not marked with * when interactions were also significant.

Table 19

Mean Ratings for Investigative Instructors (N=6) on the Seven Items of the SPI

	Knowledge of Subject Matter	Ability to Communicate	Relevance of Subject Matter	Concern for Students	Fairness in Grading	Organization of Class	Overall Rating
Artistic (N=33)	3.79	3.09	2.97	3.31	3.36	3.45	3.33
Conventional (N=13)	4.00	3.38	3.15	3.23	3.69	3.54	3.61
Enterprising (N=18)	3.50	2.61*	2.56*	2.56	3.33	3.00	3.05
Investigative (N=37)	3.73	3.30	3.03	3.11	3.08	3.54	3.41
Realistic (N=46)	3.26	2.11*	2.43*	2.63	2.87	2.67*	2.61*
Social (N=43)	3.79	3.42	3.14	3.23	3.37	3.56	3.60

*Statistically significant mean ratings at .05 level.

lower than the ratings of any other student/instructor combination on "Overall Rating of the Instructor." On "Knowledge of Subject Matter," Artistic, Conventional, Investigative, and Social students gave higher mean ratings to the Investigative instructors compared to the ratings by all groups for the Social instructors. There were significant interactions between Investigative instructors and Enterprising students and between Investigative instructors and Realistic students on "Ability to Communicate Subject Matter." These two student groups rated the Investigative instructors lower on this variable than did the other personality types. Again, Enterprising and Realistic students' ratings were significantly lower for the Investigative instructors on "Relevance of Subject Matter." Finally, Realistic students rated the Investigative instructors much lower than did the other groups on "Organization of the Class." In summary of the interactions, Realistic students gave lower mean ratings for the Investigative type instructors on four of the five significant interactions; the exception was on "Knowledge of Subject Matter." Enterprising students awarded lower mean ratings for the Investigative instructors on two of the five significant interactions.

On the two variables where there were no significant interactions found, there were significant main effects noted. There were two independent variables--instructor personality type and student personality type. These independent variables were examined separately to determine which one of the main effects accounted for differences in the students' ratings. A main effect on the independent variable of student personality was found on "Fairness in Grading" ($p < .0005$).

Cell comparisons of the probability levels for student personality effect revealed that Realistic students' ratings were significantly lower than those of Artistic ($p < .0069$); Conventional ($p < .0001$); Enterprising ($p < .0030$) and Social ($p < .0001$) students' ratings on this variable; Realistic students' ratings were not significantly lower than those of Investigative students on this variable, however.

A significant main effect for the independent variable instructor personality type was found at the .0001 level on "Concern for Students." Examination of cell means on this variable revealed that Social instructors received a higher mean rating on this variable at the .0001 level than did Investigative instructors. These comparisons are recorded in Table 20.

For the final research question, ANOVA was used to determine if there was any significant difference in the ratings of students on the variable "Overall Rating of the Instructor" when students and instructors were grouped according to their level of congruence of personality types as defined by the Holland model. There were four congruence levels--Exact Congruence, Moderate Congruence, Low Congruence, and No Congruence. There were 94, 160, 126, and 53 student raters in each cell respectively. Table 21 presents the ANOVA data and summary. A significant difference was found among the ratings ($F=4.31$; df 3, 429; $p < .01$). To determine the source(s) of mean differences, the Sheffe' method of multiple comparisons was used. Table 22 contains the F values of these group comparisons. (A critical level of .10 was chosen for the F value because of the rigor of this test.) There were

Table 20

Comparisons of Least Squares Means for Investigative and Social Instructors¹

Evaluation Items	Investigative Instructors ² (N=6)	Social Instructors ³ (N=4)	Prob. > t
Knowledge of Subject Matter	3.68	3.33	0.0001
Communication of Subject Matter	2.99	3.18	0.0350
Relevance of Material	2.88	2.87	0.9390
Concern for Students	2.99	3.43	0.0001*
Fairness in Grading	3.29	3.34	0.4879
Organization of the Class	3.29	3.07	0.0117
Overall Rating	3.27	3.31	0.6450

¹Significance was not marked with * when interaction of student/instructor personality types was also significant on the same variable.

²Student Raters = 194

³Student Raters = 126

Table 21

ANOVA Data for Congruence Levels

	I Exact Congruence	II Moderate Congruence	III Low Congruence	IV No Congruence	Totals
n_i	94	160	126	53	$N=433$
T_j	312	499	430	169	$T=1410; \frac{T^2}{N}=4591.45$
\bar{X}	3.32	3.12	3.41	3.19	$\bar{X} = 3.26$
EX^2	1084	1653	1522	563	$EEX^2=4822$
$\frac{T^2}{N}$	1035.57	1556.26	1467.46	538.89	$E \frac{T^2}{N}=4598.18$

ANOVA Summary

Source	SS	df	MS	F	F_{ev}
Between	6.73	3	2.24	4.31	2.62 (p < .05) 3.83 (p < .01)
Within	223.82	429	0.52		
Total	230.55	432			

Table 22

F Values for Multiple Comparisons of Means
(Sheffe' Method)*

Comparisons of Congruence Levels	F Values
Exact/Moderate	4.58
Exact/Low	.84
Exact/No	1.97
Moderate/Low	11.37**
Moderate/No	.53
Low/No	6.70**

*F' = 6.30 (p < .10)

**Significant F Values

significant differences between the mean ratings in groups II and III (Moderate Congruence and Low Congruence) and between III and IV (Low Congruence and No Congruence). The direction of the relationship was not as expected, however; the students' highest mean rating was in the cell with a Low Congruence level. Students with a Moderate Congruence level had the lowest mean rating.

Discussion

The first research question concerned the number of clusters of students that would occur in the 13 classes in the study. When students were clustered according to their ratings across the first six items on the SPI form, 65 percent of the students in all the classes clustered into groups according to the homogeneity of their ratings with at least three other student raters within the class. Further analyses of the cluster group data revealed the following observations. First, class size seemed to be related to the number of students who attained cluster membership. For example, in classes with enrollments ranging from 30 to 49 students, six out of nine classes had over 70 percent of the students to cluster in a group. On the other hand, in the four classes with enrollments of 20-29 students, only one class had over 70 percent to attain cluster membership. These data suggest that the larger the class size, the more likely one is to find subgroups of students who differ in their perceptions of the instructors behavior. In the two largest classes (N=48 and N=49), there were five and six clusters respectively. The largest number of clusters in any other

class was four and the average number of clusters over the 13 classes was three.

Another observation related to cluster size: When the sizes of the clusters within each class were observed, it was evident that there was no one group which dominated the ratings. For example, in only one class were there more than 50 percent of the students in the largest cluster.

The next observation of the cluster analysis data concerned mean ratings of the clusters on each of the first six variables of the SPI. These data represent the difficulty that can occur in making generalizations about strengths and weaknesses of an instructor from observing only mean ratings of a total group. (Consult the data in Tables 4 through 15 for this discussion.) In the findings, direction of responses and diversity of responses within a class were noteworthy. Although in some classes the responses of students in the different clusters were quite erratic and no conclusions can be drawn about relative strengths and weaknesses on a specific variable, in several classes different clusters of students agreed on a single variable or generally agreed that a certain behavior was stronger or weaker than the others. For example, in Table 7 all cluster groups agreed that "Relevance of Subject Matter" was a weakness in the sense that this rating yielded lower mean scores from all groups than did the other variables. On the other hand, a strength of this instructor seemed to be in the area of "Concern for Students" since all groups had a higher mean rating for this item. A problem in interpreting scores merely on

the basis of looking at mean ratings of all students in the class on each rating item is also illustrated in Table 7. For example, Groups II and III had fairly consistent ratings across all six items; however, Groups I and IV had erratic responses. The five raters in Group IV seemed much less impressed with the instructor's teaching skills than were the raters in the other groups. If mean ratings of all the students were combined on the six items, the ratings of these five students in Group IV would lower the mean on almost all items; however, a more accurate picture of the class is that 21 of the 32 students rated the instructor between "Good" and "Excellent" on all items.

Table 12 presents another good example of the divergence that can occur among cluster group ratings. For instance, Groups I and II agreed in the relative strengths and weaknesses of the instructor although not on the numerical ratings. Group III, on the other hand, had an idiosyncratic pattern to its ratings. This latter group had a jagged pattern which represented partial agreement with both Groups I and II, yet it had somewhat lower ratings on other variables.

The second research question concerned whether or not the cluster groups would represent a predominance of student raters with matching personality types. Observations of the personality types of students within each cluster did not yield any statistically significant evidence that personality type was a factor in the ratings of an instructor across all six items of the SPI. In other words, whatever basis determined the similarity of ratings among the students within a

cluster, personality type of the students as measured by the VPI did not seem to influence the groupings.

The next research question involved examination of the 13 classes separately to determine if students with matched personality types had similar ratings on any of the six variables of the SPI. The results from the MANOVA and univariate analyses revealed that generally there was no personality effect on these ratings. However, in Class 9 there were two statistically significant F values on "Ability to Communicate" and "Fairness in Grading." But when these data are interpreted according to Holland's theory of personality/environment interactions, the results are not consistent with his theory. (See Table 1 for a description of the pairing of persons and environments.) For example, Realistic and Artistic students rated the Investigative instructor of this class lower than did the Investigative and Enterprising students on "Ability to Communicate." According to Holland's hexagonal model Realistic and Artistic personality types are at the Moderate Congruence level with the Investigative instructor. If Holland's theory of personality/environment congruence had been verified, these Artistic and Realistic students' ratings would have been higher than those of Enterprising students who are in the No Congruence category with an Investigative instructor. Neither would it be expected that Investigative and Enterprising students would have similar mean ratings for the instructor because Investigative students are in an Exact Congruence category with the Investigative instructor.

On the second significant relationship, "Fairness in Grading," Investigative students, who are in an Exact Congruence level with the instructor, rated the instructor lower than did the other three groups in the class. Therefore, these pairings of students on the basis of the similarity of their ratings and the direction of the differences of the ratings among all groups are both inconsistent with Holland's theory of personality/environment interactions. The inconsistency of the ratings of the Investigative students is not explainable, but they also seem to negate applicability of Holland's theory in an instructional setting.

There is reason to believe that the composition of Class 9 was not a representative sample of the other classes in this study. Therefore, not too much importance should be placed on the significant F values. An observation of the cluster analysis data on this class reveals that out of 30 student raters, only 12 students (three groups of four students each) attained membership in clusters. The ratings in this class seem to indicate some unusual circumstances that influenced the ratings in this class.

For the fourth question analyses, students and instructors were grouped according to their personality types to determine if the interaction of personality types of students and instructors related to the ratings on each of the seven items of the SPI. (Only the data from the six Investigative and four Social type instructors' classes were used.) Students were grouped by their personality types under the two instructor types. Among the five significant interactions yielded by the MANOVA, the differences occurred primarily between Realistic

students and Investigative instructors. Realistic students rated Investigative instructors lower on four of the seven variables than did most of the other personality types. Again, these results were not consistent with Holland's theory because Realistic and Investigative personality types are in the Moderate Congruence range with each other. Enterprising students joined the Realistic students in their lower ratings on two variables. Because Enterprising students and Investigative instructors are in the No Congruence category, these findings are consistent with Holland's theory; however, the importance of this support for Holland's theory seems to be negated by the pairing of the Realistic and Enterprising students in their lower ratings.

On the rating items where significant interactions did not occur, the data were examined to determine if either of the independent variables influenced the ratings. When the effect of student personality was examined, again, Realistic students accounted for the significant F values on the variable "Fairness in Grading." Their ratings were lower than those of all other groups except for Investigative students. The main effect for the independent variable instructor personality type was observed on "Concern for Students." The fact that students perceived Social instructors as having more concern for their students than did Investigative instructors was consistent with Holland's theory and description of the preferences and aversions of the two personality types. For example, according to Holland, Social types perceive themselves as being helpful, understanding, and having teaching ability. Investigative instructors, on the other hand, prefer

"observational, symbolic, systematic, and creative cultural phenomena in order to understand and control such phenomena" (Holland, 1973, p. 14).

The fifth research question concerned the item called "Overall Rating of the Instructor" from the SPI. Students and instructors were matched according to the level of congruence of their personality types in order to determine if this congruence affected the ratings on the item mentioned above. This question was designed specifically to test Holland's theory of personality/environment congruence which implies that students would award higher ratings to instructors whose personality type resemble their own. The scores of the students (N=433) were placed in cells according to the level of congruence between personality types of students with their instructor's. The four levels were Exact, Moderate, Low, and No Congruence. The ANOVA procedure yielded a significant F ratio; however, the results of the Sheffe' test did not reveal the relationships to support Holland's assumption that "students respond positively to instructors whose personality patterns resemble their own" (1973, p. 43). If the data had supported Holland's theory, the mean ratings would have been from highest to lowest in the following cells: Exact, Moderate, Low, and No Congruence. Instead the lowest mean ratings occurred in the cell called Moderate Congruence; the highest mean ratings occurred between students and instructors in the Low Congruence cell. From these data there doesn't seem to be any evicence that Holland's theory of personality/environment congruency holds true in a classroom setting.

Summary

First, the cluster analysis revealed that an average of 65 percent of the students in the 13 classes clustered into groups according to the homogeneity of their ratings with at least three other student raters within the class. In addition, the larger the class size, the more clusters of students emerged. It was also noted that no one cluster of student raters dominated the ratings because in only one class were there more than 50 percent of the students in the larger cluster. The cluster analysis data also revealed that direction of responses and diversity of responses among the clusters can perhaps give an instructor a more accurate picture of relative strengths and weaknesses on a particular instructional behavior than can be obtained from merely observing mean ratings of an entire class. Finally, there was no obvious explanation for the classes in which several students did not attain cluster membership.

Second, when the composition of each cluster group was examined according to personality types of the raters, there was no significant evidence that students with matched personality types rated the instructors in a similar pattern. In other words, the basis for grouping in the clusters was not personality type.

Next, research questions three through five tested various aspects of Holland's theory of personality/environment congruence. Although there were some statistically significant differences in the findings, there was little support for Holland's theory that students respond more positively to instructors whose personality types match their own.

Realistic students in Investigative instructors' classes were responsible for most of the statistically significant relationships. It is possible that the ratings in Class 9 were responsible for the significant differences because this class seemed to be the one with the most erratic response patterns among the 13 classes. All in all, however, there was no strong evidence to support the assumption that personality type of student and instructor influenced the students' ratings.

Chapter 5

Conclusions and Recommendations

The purpose of this study was to examine the relationships between students'/instructors' personality types and the students' ratings of these instructors. A total of 464 students and 13 instructors from two community colleges participated in the study. Five research questions were used to examine the personality relationships and the ratings. The results of the study indicated that students' ratings seem to be independent of influence of personality types of students and instructors. The conclusions and recommendations from this study are as follows:

Conclusions

The first conclusion relates to the results of the cluster analysis data. This statistical procedure seemed to yield more practical information about student ratings than is available from mean ratings only. Mean ratings do not differentiate between opinions of subgroups within a class. Teachers could benefit from seeing the cluster analysis of their behaviors before making adjustments to their behaviors which might alienate a percentage of their students. Furthermore, instructors and administrators could learn more about relative strengths and weaknesses of an instructor by looking at the direction of the ratings on a particular variable on the ratings scale than could be learned from examining mean ratings only. Also, it would be important to observe

the number of students who did not attain cluster membership. Perhaps a teacher could analyze what the causes of these phenomena might be. Mean ratings, on the other hand, would group all students and would not reflect these erratic responses. Cluster analysis data, then, could be an asset to an evaluation system because they yield a more accurate picture of how subgroups of students rate an instructor than is available from mean ratings only.

Next, the data of this study did not support the application of Holland's theories of personality/environment interaction in an instructional setting. In other words, in this study there was no evidence that "persons respond positively to instructors whose personality patterns resemble their own" (Holland, 1973, p. 43). Where significant interactions between personality types did occur, they were not consistent with Holland's predictions. Perhaps teacher rating is such a common practice that students are becoming skilled at it. They may be able to be reasonably dispassionate or objective and not be influenced by personality. Perhaps the students made an effort to be more objective than they would have been in a nonexperimental setting. The reason for this conclusion is based on the fact that the students were using the SPI rating scale from Virginia Polytechnic Institute and State University and knew that the teacher would not see their responses.

Finally, the primary conclusion that seems evident from this study is that interaction of student/instructor personality types is not a statistically significant biasing factor in the student rating process.

The statistically significant differences that were found were noted when data from several classes were combined. The one incidence of statistical significance in an individual class was probably due to some idiosyncrasies within that class and should not be generalized to the whole study sample.

The interactions that occurred between Realistic students and Investigative instructors are difficult to explain in terms of Holland's interaction model; however, one explanation is possible if one looks at research on community college students and instructors. Realistic personalities (as classified by Holland) generally represent students in vocational courses, such as automotive mechanics, welding, drafting, or electronics. Research on these students indicates that they have practical interests in attending college and have a limited interest in intellectual development. Community college instructors, on the other hand, are described as placing emphasis on "intellectual development, scholarship, general education, and 'white collar' careers" (Alfred, 1975, p. 49). The courses in which Realistic students were rating the Investigative instructors were mathematics and physics. One might conjecture that these students rated the instructors lower than did other groups because the instruction was not as practically oriented as the students would have preferred. The fact that "Relevance of Subject Matter" and "Ability to Communicate" received lower mean ratings from Realistic students seems to support this conclusion.

An inconsistency is evident, however, because Realistic students did not rate Social instructors lower than other groups did. This fact

is not consistent with Holland's theory because Realistic students are in the No Congruence category with Social instructors. These ratings are also not consistent with research about vocational students' reactions to liberal arts courses such as human relations. According to London (1978) these types of students usually complain about having to take courses outside their field of interest and about the instructors in these courses. Perhaps these Social instructors were successful in convincing these students that the human relations course materials were practical.

The inconsistencies in the ratings of Realistic students leads to the conclusion that instructor differences accounted for the lower ratings by these students, not personality types of instructors.

In summary, the overall results of the study indicate that students' ratings were independent of personality effects of students or instructors as measured by Holland's Vocational Preference Inventory. In addition, Holland's interaction of personality/environment theory does not seem applicable to an instructional setting.

Recommendations

Since the problem of the study related to the need for administrators to have adequate information to make decisions about promotion, merit pay, continued employment, or tenure, it is recommended that these administrators consider using cluster analysis for interpretation of student ratings rather than using mean ratings only. Cluster analysis enables one to observe differences among subgroups' ratings within the class and the presence of a subgroup whose ratings may be

an indication of extreme satisfaction or dissatisfaction. This kind of analysis also allows one to observe the number of students who do not attain cluster membership. Presence of a large number outside clusters might indicate some unusual circumstances within the instructional setting that would need to be explored further.

Also, administrators and instructors in community colleges need to be aware that Realistic students in vocational programs may have preferences for and aversions to certain instructional behaviors which could bias their ratings of instructors in some general education courses. The evidence of this study does not confirm this conclusion substantially, but the presence of some significant interactions among Realistic students and Investigative instructors indicate a need for caution in interpretation of ratings in classes where these groups are interacting.

Finally, although the results of this study do not indicate a specific need for replication, if one should choose to do so, it would be advisable to expand the sample so that as many different instructor/students' interactions as possible could be observed. Also, perhaps another personality inventory should be selected--one that has gained more acceptance as a measure of personality characteristics than Holland's VPI has.

References

- Abe, C., and Holland, J. L. A description of college freshmen: I. Students with different vocational choices (ACT Research Report No. 3). Iowa City, Iowa: The American College Testing Program, 1965(a).
- . A description of college freshmen: II. Students with different vocational choices (ACT Research Report No. 4). Iowa City, Iowa: The American College Testing Program, 1965(b).
- Alfred, Richard L. Impacts of the community and junior college on students. Los Angeles, California: The American College Testing Program and Educational Resources Information Center, 1975.
- Alston, H. Correspondence of constructs in Holland's theory for male and female college students. Journal of Vocational Behavior, 1976, 8, 85-88.
- Astin, A. Classroom environment in different fields of study. Journal of Educational Psychology, 1965, 56, 275-282.
- Barclay, J. Approach to the measurement of teacher press in the secondary curriculum. Journal of Counseling Psychology, 1967, 14, 552-567.
- Brown, R. D. Manipulation of the environmental press in a college residence hall. Personnel and Guidance Journal, 1968, 12, 479-486.
- Carpenter, F., Van Egmond, E., and Jochem, J. Student preference of instructor types as a function of subject matter. Science Education, 1965, 49, 235-238.
- Centra, J. Determining faculty effectiveness. San Francisco, California: Jossey-Bass Publisher, 1979.
- Costin, F., and Grush, J. E. Personality correlates of teacher-student behavior in the college classroom. Journal of Educational Psychology, 1973, 65, 35-44.
- Crittendon, K., and Norr, J. Student values and teacher evaluation: a problem in person perception. Sociometry, 1973, 36, 143-151.
- Ferguson, G. Statistical analysis in psychology and education. New York: McGraw-Hill Book Company, 1971.

- Follman, J. Student ratings of faculty effectiveness: rater or ratee characteristics. Research in Higher Education, 1975, 3, 155-167.
- Hearn, J., and Moos, R. Subject matter and classroom climate: a test of Holland's environmental proposition. American Education Research Journal, 1978, 15, 111-124.
- Holland, J. L. Making vocational choices: a theory of careers. Englewood Cliffs, N.J.: Prentice Hall, 1973.
- _____. Manual for the vocational preference inventory (6th rev.). Palo Alto, California: Consulting Psychologists Press, 1965.
- Hunter, W. Relationships between learning styles, grades, and student ratings of instruction. Community/Junior College Research Quarterly, 1980, 5, 73-84.
- Kovacs, R., and Kapel, J. Personality correlates of faculty/course evaluations. Research in Higher Education, 1976, 5, 335-344.
- London, H. B. The culture of a community college. New York: Praeger Publishers, 1978.
- Lucy, W. The stability of Holland's personality types over time. Journal of College Student Personnel, 1976, 17, 76-78.
- Menges, R. J. The new reporters: students rate instruction. New Directions for Higher Education. San Francisco, California: Jossey-Bass, Inc., 1973, 4, 59-75.
- Monterio, R. A validity study of selected aspects of Holland's vocational preference theory. Dissertation Abstracts International, 1978, 39, 132A.
- Morrow, J. M., Jr. A test of Holland's theory of vocational choice. Journal of Counseling Psychology, 1971, 18, 422-425.
- Null, E., and Walter, J. Values of students and their ratings of a university professor. College Student Journal, 1972, 6, 46-51.
- Ory, J. The influence of students' affective entry on instructor and course evaluations. The Review of Higher Education, 1980, 4, 13-24.
- Posthuma, A., and Navra, L. Relation of congruence in student-faculty interests to achievement in college. Journal of Counseling Psychology, 1970, 17, 352-356.
- Rees, R. Dimensions of students' points of view in rating college teachers. Journal of Educational Psychology, 1969, 60, 476-482.

- Reutherfors, D., Schneider, L., and Overton, T. Academic achievement: an examination of Holland's congruency, consistency, and differentiation predictions. Journal of Vocational Behavior, 1979, 14, 181-189.
- Rezler, A. The influence of needs upon the student's perception of his instructor. The Journal of Educational Research, 1965, 58 283-286.
- Titenbaum, T. J. The role of student needs and teacher orientation in student ratings of teachers. American Education Research Journal, 1975, 12, 417-433.
- Walsh, B. Theories of person-environment interaction: implications for the college student. Iowa City, Iowa: American College Testing Program, 1973.
- Walsh, B., Spokane, A., and Mitchell, E. Consistent occupational preferences and academic adjustment. Research in Higher Education, 1976, 4, 123-129.
- Williams, J. Conflict between freshman roommates: a study based upon John Holland's theory of congruent-incongruent interactions between personality types (Research Report No. 10). College Park: University of Maryland Counseling Center, 1967.
- Yamamoto, K., and Dezney, H. College students' preferences among types of professors. The Journal of College Student Personnel, 1968, 9, 259-264.

Appendix A

THE VOCATIONAL PREFERENCE INVENTORY

Developed by John L. Holland, Ph.D.

This is an inventory of your feelings and attitudes about many kinds of work. Fill out your answer sheet by following the directions given below:

1. Show on your answer sheet the occupations which interest or appeal to you by blackening Y for "Yes." (Don't rule out occupations just because you are not planning to work in that field.)
2. Show the occupations which you dislike or find uninteresting by blackening N for "No."
3. Make no marks when you are undecided about an occupation.

- | | |
|-----------------------------------|---|
| 1. Airplane Mechanic | 31. Surveyor |
| 2. Meteorologist | 32. Zoologist |
| 3. Foreign Missionary | 33. Physical Education Teacher |
| 4. Bookkeeper | 34. Court Stenographer |
| 5. Speculator | 35. Hotel Manager |
| 6. Poet | 36. Free-Lance Writer |
| <hr/> | |
| 7. Fish and Wildlife Specialist | 37. Construction Inspector |
| 8. Biologist | 38. Chemist |
| 9. High School Teacher | 39. Playground Director |
| 10. Quality Control Expert | 40. Bank Teller |
| 11. Buyer | 41. Business Executive |
| 12. Symphony Conductor | 42. Musical Arranger |
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| 13. Power Station Operator | 43. Radio Operator |
| 14. Astronomer | 44. Independent Research Scientist |
| 15. Juvenile Delinquency Expert | 45. Clinical Psychologist |
| 16. Budget Reviewer | 46. Tax Expert |
| 17. Stock and Bond Salesperson | 47. Restaurant Manager |
| 18. Musician | 48. Art Dealer |
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| 19. Master Plumber | 49. Filling Station Attendant |
| 20. Aeronautical Design Engineer | 50. Writer of Scientific or
Technical Articles |
| 21. Speech Therapist | 51. Social Science Teacher |
| 22. Traffic Manager | 52. Inventory Controller |
| 23. Manufacturer's Representative | 53. Master of Ceremonies |
| 24. Author | 54. Dramatic Coach |
| <hr/> | |
| 25. Power Shovel Operator | 55. Tree Surgeon |
| 26. Anthropologist | 56. Editor of a Scientific Journal |
| 27. Marriage Counselor | 57. Director of Welfare Agency |
| 28. Statistician | 58. IBM Equipment Operator |
| 29. Television Producer | 59. Traveling Salesperson |
| 30. Commercial Artist | 60. Concert Singer |

Appendix A (Continued)

61. Designer
62. Geologist
63. Asst. City School Superintendent
64. Financial Analyst
65. Real Estate Salesperson
66. Composer

67. Locomotive Engineer
68. Botanist
69. Personal Counselor
70. Cost Estimator
71. Industrial Relations Consultant
72. Stage Director

73. Photoengraver
74. Scientific Research Worker
75. Psychiatric Case Worker
76. Payroll Clerk
77. Sports Promoter
78. Playwright

79. Electrician
80. Physicist
81. Vocational Counselor
82. Bank Examiner
83. Political Campaign Manager
84. Cartoonist

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RELATIONSHIP BETWEEN STUDENTS' AND INSTRUCTORS' PERSONALITY
TYPES AND STUDENTS' RATINGS OF THEIR INSTRUCTORS

by

Betty Jo Maghan

(ABSTRACT)

The relationship between students' and instructors' personality types and the students' ratings of their instructors was investigated using data obtained from the Vocational Preference Inventory (VPI) for personality types and the Student Perception of Instruction (SPI) scale for students' ratings. Thirteen instructors and 464 students from two community colleges participated. The data were analyzed by the Johnson Max cluster analysis, multivariate analysis, and one-way analysis of variance procedures.

The following questions were investigated: (1) When students are clustered according to the homogeneity of their ratings across the first six items on the SPI, how many groups will emerge in a class? (2) Will these cluster groups represent a predominance of student raters with matching personality types? (3) When ratings in the 13 classes are examined separately, will students with matched personality types have similar ratings on the six items on the SPI? (4) When students and instructors are grouped according to their personality types, to what degree will the interaction of personality types of students and instructors influence the ratings on the seven

items of the SPI? and (5) To what extent are ratings on the "Overall Rating of the Instructor" item related to the level of congruence of student's/instructor's personality types?

The results were the following: Sixty-five percent of the students clustered into groups in the 13 classes; however, there was no evidence that personality type was the basis on which clusters were formed. In only one of the 13 classes did students with matched personality types have similar ratings on any of the rating items. It was concluded that this class was not a representative sample of the groups. When data were grouped for question four, statistically significant interactions occurred between Realistic students and Investigative instructors on five of the seven rating items; however, these interactions did not support Holland's assumptions that students would respond more positively to instructors who had personality types similar to the students'. Finally, although the fifth analyses yielded statistically significant interactions, again these were not in the direction expected and did not support Holland's assumption of personality/environment congruence and satisfaction.