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WITH THE TEACHER IN COLLEGE MATHEMATICS IN
TERMS OF PREVIOUS STUDENTS' SATISFACTION WITH
THE SAME TEACHER.

The Ohio State University, Ph.D., 1972
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WITH THE TEACHER IN COLLEGE MATHEMATICS
IN TERMS OF PREVIOUS STUDENTS' SATISFACTION
WITH THIS SAME TEACHER

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of the Ohio State University

by

Henry George Wetzler, Jr., A.B., M.A., M.S.

* * * * * * *

The Ohio State University
1972

Approved by

Advisor
College of Education
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Carol. Life force. Direction when the goal was obscured.
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through 12.
VITA

April 7, 1935 • • • • • Born, Detroit, Michigan

1957 ........................................... A.B., Mathematics, Cornell University, Ithaca, New York

1959 - 1960 .................................. Mathematics Teacher, Trumansburg Central School, Trumansburg, New York


1964 ........................................... M.A., Mathematics, Rutgers - The State University, New Brunswick, New Jersey

1964 - 1965 .................................. Mathematics Teacher, Colegio Roosevelt, Lima, Peru

1965 - 1967 .................................. Mathematics Teacher, Escola Americana, Campinas, Brazil

1967 - 1969 .................................. Teaching Assistant, Department of Mathematics, The Ohio State University, Columbus, Ohio

1969 ........................................... M.S., Mathematics, The Ohio State University, Columbus, Ohio

1969 - 1972 .................................. Teaching Associate, Department of Mathematics, The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Studies in Mathematics Education .................................. Professor Harold Trimble
 ................................................................ Professor Richard Shumway

Studies in Mathematics .................................. Professor Ranko Bojanic
 ................................................................ Professor Franklin Demana
 ................................................................ Professor Norman Levine
 ................................................................ Professor Thomas Ralley
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CHAPTER I

INTRODUCTION

Background

Nearly everyone has experienced a class during his education in which opinions of the students differed greatly on the merits of the teacher and class. On the one hand, some students may have remarked that the teacher had made the subject, which perhaps was usually boring for them, one of their most exciting academic experiences. On the other hand, there may have been those students who felt anesthetized by the teacher’s approach to the subject. This not unusual phenomenon can occur even when the teacher is reputed to be outstanding.

A student who has experienced success in the subject in the past enrolls in a course taught by a teacher who is generally accepted as quite competent. Nevertheless, the unexpected happens; the student experiences displeasure with the teacher and suffers a disappointing academic setback. This event is not normal, of course, but it occurs often enough that it no doubt has caused concern among counselors or disillusionment in the student involved.

There are students who will always derogate the learning situation. These are not the ones being discussed. The students being considered are those like students A and B, the first of
whom likes teacher X and dislikes teacher Y, and the second of whom dislikes X but likes Y. These students could well express agreeing opinions about yet another teacher or class.

As Sawyer [25] mentions almost parenthetically in his small book *What Is Calculus About?* "One student may enjoy a type of teaching that is utterly distasteful to another." But two immediate questions arise:

1. Is it possible to determine whether a student will be satisfied with a particular teacher?
2. Does it really make any difference as far as academic payoff is concerned whether the student is satisfied?

These two questions contain the essence of this study.

What happens in the extreme case when the student feels highly incompatible with teacher or class and is unable to control these feelings which interfere with his learning? Certainly a possibility is that he learns less. It could hardly be otherwise in cases where the student is in the position to forego attending class, unless his maturity leads him to an alternate means of acquiring whatever he is missing in class. Even if physical removal is impossible, the student may remove himself mentally and psychologically from the class through daydreaming or more overt forms of behavior which are unacceptable to many.

Rather similar to this incompatibility between student and teacher is the disparate intellectual capabilities of the students in a normal class. It has been suspected that the intellectually gifted child would be bored in a class taught for the average learner
while the intellectually deprived child would soon be hopelessly in arrears of the rest. A now common solution to this problem is grouping students by ability.

Ability grouping advocates maintain that classes constructed so that the range of abilities of the students in each class is kept rather small are more easily taught than heterogeneous classes and, as a result, are better taught. Thus the students receive a better education. This kind of grouping has taken place at all levels from the earliest grades to graduate school.

The argument for ability grouping has been attacked on several grounds. Some say that the gifted need not be bored nor the slower learner left behind. Others attempt to refute ability grouping by appealing to experimental results. As a matter of fact, the results of grouping students by ability have not been as impressive as the widespread use of this technique might indicate. As Clark [6] says, ability grouping should make it easier for the teacher to do a better job since the spectrum of abilities has been narrowed. However, research has shown that, generally speaking, this does not occur. As Goldberg and Passow [13] point out, not all teachers take advantage of the narrower range of abilities to do things which such grouping makes possible. Millman and Johnson [20] also state that "whatever the potentialities may be for increasing achievement through narrowing the ability ranges of classes, such improvement is apparently not taking place." In fact, in reviewing the research done on ability grouping up to 1958, Ekstrom [9] in 1961 found that 13
studies favored homogeneous grouping, 15 indicated no differences or that grouping was detrimental, and 5 produced mixed results. As Yates [38] says, "In arguments about grouping policies one can usually find evidence to support any point of view that one chooses to adopt — enough evidence to discomfit one's opponent, but never enough to overwhelm him."

Meanwhile Bettelheim [4] attacks grouping by ability alone on psychoanalytic grounds, claiming that feelings of boredom in a high ability student are the result of erecting a defense against deep feelings of anxiety; that such a student will take a few constructive measures to manage this anxiety; but that moving him to a homogeneous high ability class where the work is prescribed and he no longer must make an effort himself is "to nourish his neurosis and certainly does not help him as a human being."

One attempt to find a solution to the problem of more effective teaching has been mentioned — that of ability grouping. But ability grouping is not the only means by which educators have attempted to make teaching more effective. Realizing that the teacher is perhaps the most influential factor in learning outside of the student himself, they have examined the behavior patterns of teachers in efforts to determine which teaching characteristics or styles are most effective or conducive to learning.

The search for a superior teaching style was based on the belief that children would learn better if their teachers evinced a particular teaching style. In the process of this quest teaching styles
were compared in an effort to uncover an existing style which appeared to be better than the others. For example, in a 1954 study by Guetzkow [15] each of eight instructors taught three introductory psychology classes using a different style in each class. The three styles were called drill-recitation, group-discussion, and study-tutorial. An objective achievement test administered at the end of the semester failed to reveal either significant differences between instructors or between instructor and method. The results of this experiment are not the exception.

In 1961 Amidon and Flanders [1] got closer to the essence of the problem. In their study teachers were trained to perform two different roles. In one class they were to exert direct control and in the other class indirect control and influence. But the researchers added a dimension to this study which the Guetzkow one did not have — namely, a characteristic which partitioned the students into two sets. A dependence-proneness test was administered to the students as well as an achievement test. The means on the latter test were significantly higher for dependent prone students in the classes where there was indirect control. An explanation given for this surprising result is that the dependent prone student in a class with direct control is more concerned about satisfying the teacher's instructions and following his guidelines than about actual achievement. On the other hand, differences between the groups of independent prone students were not significant.
Thus, it was found that style alone is an insufficient factor to guarantee success in the classroom. Other factors that lie within the student himself were found to be influential in determining the degree of success in a particular learning situation. Moreover, it is for many a repulsive notion to suggest that a teacher should adopt a particular teaching style to be effective, even though it may not resemble his personality. The teacher is considered an object and not a subject.

Not only does teaching style include the actions of the teacher which invoke a particular atmosphere or procedure in the classroom, but the personality characteristics and personal traits or mannerisms of the teacher as well. So the question was being asked whether a particular kind of person could be found or evolved who might be able to conduct the learning situation in a particular way so that the educational success of the students would be maximized. Usually success was measured in terms of academic achievement.

However, this viewpoint fails to consider what are commonly called individual differences among the students, let alone the differences among the teachers. What was sought was a prescription for teaching. But teaching is not just an action, the following of rules, which leads to learning. Students and teachers are human beings. "Teaching," says Macmurray [18], "is one of the foremost of personal relations. [It is one] in which two human beings meet, like one another, care for one another, help one another."
Teaching is a one-to-one relationship which can exist between teacher and student even in large classes and lectures. The true teacher realizes this; the student desires it. A class is not composed of only two elements - a teacher and students. A class is a group of human beings relating to one another at various levels and with various degrees of success and failure. The relationships take place between students as well as between teacher and student. Relationships that extend beyond the physical boundaries of the room and school affect the class. An attempt to improve teaching, it would seem, must take these human relationships into account - at least to recognize their existence.

Grouping by ability was but one attempt to consider differences among the students. The differences in this case are ability differences. Of course, grouping can be accomplished by sorting the students according to any other distinguishing characteristic or set of characteristics. Traditionally the characteristic used has been the student's ability as determined by grades or measurements on some instrument. So extensively has this particular kind of grouping taken place, that one almost considers grouping to be synonymous with ability grouping.

Whereas ability grouping in general has not measurably improved teaching success, Yates [38] indicates other bases for grouping which might be more successful. He defines grouping as a device to effect a fit between a group of students and something else. This fit might
exist between group and teacher, group and itself (a peer group),
group and activity, or group and anticipated social role, etc.

Now some may argue that were all teachers good, differences
among them would tend to disappear. Yet the standards that determine
a good teacher have long been elusive. A study by Sorey [28] dealt
with personality characteristics of college faculty members who were
regarded as superior teachers by the students. The results indicated
that certain characteristics possessed by these teachers are generally
associated with the concept of a poor teacher. These results are
substantiated by Dugan [8], who claims that ego-centricity has often
aided in teaching, and unselfishness and emotional stability are not
necessary characteristics of the effective teacher. She goes on to
say that the characteristics of an effective teacher are apparently
inaccessible.

Perhaps the criteria determining excellent teaching differ from
person to person. This is precisely what is meant by certain teachers
being good for certain students. They may not be compatible with
others.

Statement of the Problem

The complexity of these interpersonal relationships is extremely
involved. There may be a feeling of compatibility experienced by a
student with a particular teacher, yet this feeling may not be
reciprocated. The teacher may feel that he would be having a more
pleasurable teaching experience if that student were not in his class.
An obvious example is the young student who has a crush on her teacher while the latter feels quite uncomfortable in that situation.

Generally speaking, the factors determining feelings of compatibility or lack of it are more subtle. It certainly is not the purpose of this study to attempt to identify these factors and their combinations that lead to compatibility. Their existence is posited. What will also be assumed is that there is a commonality among students who are compatible with a particular teacher, and likewise there is something common to all those who are not compatible with a teacher. Hence, if this quality can be measured, then students could be assigned to this teacher depending upon whether they possess this quality.

However, it was not the intention of this writer to investigate fully the results of grouping students on the basis of expected compatibility or satisfaction with their teacher. One of the goals of this study was to determine whether the satisfaction a student experiences with a particular teacher could be predicted. The prediction of satisfaction of a student was based on a kind of similarity between this student and those students whom the teacher had in previous classes and whose satisfaction with the teacher had been ascertained previously. It was felt that this was the step that logically precedes the actual grouping of students. In other words, a quantitative basis for associating students with particular teachers had to be demonstrated first.
Moreover, it was believed that there is some relationship between the satisfaction of a student and his academic success. No doubt the actual relationship is quite complex, but a naive guess might be that high satisfaction can be associated with outstanding academic success. Of course, academic success can be interpreted to mean several different things. On one hand, it can mean actual academic achievement as measured by course grade. On the other hand, it can mean that the student has over-achieved as determined by his previous and present course grades. In this study both concepts will be involved.

So the two primary objectives of this study were to demonstrate that (1) the satisfaction or dissatisfaction of a student with his teacher is predictable, and (2) the academic success of the student is a function of the teacher. If this were indeed the case, then there are grounds upon which to say that by selecting a particular teacher for a student the learning environment for the student is so arranged that the teaching of the teacher becomes more effective.

This first chapter has attempted to place the problem in an historical - philosophical context. The directions in which efforts have headed to produce more effective teaching have been described. The following chapter will discuss some of the literature that specifically relates to the problem and to its solution.
CHAPTER II

SURVEY OF RELATED RESEARCH

General

In the previous chapter a few studies were cited which contributed to the evolution in thought from the idea that there was one way to teach all students to the concepts that students can be grouped and that teachers are different. In this chapter a review of the literature that supports the notion of interpersonal relationships involved in the classroom will be presented. The last section of this chapter will be devoted to a study carried out by Thelen. His study is being singled out in this way because it served as a model for the present study.

Although the teacher is very often guided by school or department policy in his organization of a course, he is still able to give the course a flavor peculiar to him. A class acquires a personality in part due to the teacher involved. A study by Willingham [35] found that one student tended to rate the teacher higher when the course was what he had expected. In another study by McKeachie [19] it was found that a college student's grade was influenced in part by interactions between the way the teacher organized the class and the student's anxiety. For example, if the professor uses the lecture
method, a highly organized class may occur, and the degree of 
anxiety in the student may be an important factor in his achievement.

When students were using programmed texts, Stone [29] did not 
find that there was a relationship between the attitudes of the 
students and their performance. However, Crew [7] demonstrated that 
there was a significant relationship between similarities in the 
teacher and pupil personalities as measured by a personality profile 
congruence and pupil achievement. This latter study would seem to 
indicate that a matching of students and teachers who have similar 
personality characteristics might augment achievement. It does not 
follow that the class would be satisfying for either students or 
teacher. It certainly does suggest a grouping procedure based upon 
a factor other than ability.

An effort by Wightman [34] to show that achievement is related 
to interactions among levels of warmth, harshness, and directiveness 
demonstrated by the teacher and levels of intelligence, anxiety, and 
constructive and unconstructive compulsivity in the student failed. 
However he did show that children with low verbal intelligence 
demonstrate greater achievement when the classroom atmosphere is 
highly directive and that their achievement and teacher warmth are 
positively related. This research seems to support the contention 
that it is difficult to generalize for all students, but when groups 
of students are considered who share characteristics, some conclusions 
can be drawn.
Again the difficulty of generalizing is pointed out by the study by Fuller [11]. He identified several affective instructor characteristics such as genuineness, non-possessive warmth, and intensity and intimacy of interpersonal contact. College instructors differed in the degree to which they possessed these traits as perceived by the students. Nevertheless, there was no relationship between student achievement and the teacher's possession of these traits; but it may have been the case that a certain subset of the students which could be identified would exhibit over-achievement for instructors with a particular set of affective characteristics.

These studies attempted to show for the most part a relationship between academic achievement and factors relating to the teacher. When they failed to demonstrate a relationship, it was usually where heterogeneous classes of students were involved. When homogeneous subclasses were used, it was often possible to exhibit a relationship. The following references involve student satisfaction. Morgan [21] says that the human being always does his best work when he feels good about his fellow man. It will be observed that this is often difficult to substantiate.

When student satisfaction with their teacher is considered, it is probably important to know when the feelings of satisfaction or dissatisfaction were expressed. Tuckman and Oliver [33] claim that students are more critical of their teacher at the end of the term than at the middle. There are, no doubt, other times as well when their opinions are more negative than usual.
That the satisfaction of the student should be a factor considered in arranging his academic life is attested to by Willsey [36]. He claims that not only is the student's satisfaction with the faculty related to his grade, but his satisfaction with the educational institution is influential with regard to his behavior. Similarly, Newman [23] studied relationships between the rating of instructors by college students and certain characteristics of the students. She found that a relationship existed between the rating given the instructor and the variables of student grade and personality.

Good [14] found a significant correlation between a similarity in attitudes of student and teacher assumed to exist by the former and his attraction to the teacher. This is not unusual in so far as a person probably assumes someone to whom he is attracted is much like himself. But it does help substantiate the idea that the teacher is important in determining how the student feels about the class. If the student believes the teacher's attitudes are contrary to his, he might experience a feeling of discomfort in the class.

The study by Munn [22] is one of the rare instances where satisfaction is related to a particular attribute without qualifying the type of student for which the relationship exists. He claims that satisfaction is greatest when the teacher evinces a personal interest in the student's welfare and provides specific assignments. However, rather than being interpreted to mean that a highly directed situation
is most satisfying, the implication of the second result may be that an organized class lesson is desirable.

Another possibility for the satisfaction of a student is his teacher's ability to teach a particular course and his desire to do so. In a study by Smith [26] it was demonstrated that individual differences exist among teachers with respect to their capacity to teach the various ability levels of students. Not surprising is the result that the instructor's stated preference for an ability level is a good indicator of the ability level at which he is most capable.

In 1964 Fox, Lippitt, and Schmuck [10] conducted an experiment utilizing 27 public school classes in the Detroit area. Among their objectives were (a) to determine the relationships between teacher attitudes and student attitudes and performance, (b) to study the effects of parent, peer, and teacher factors on student performance, and (c) to study the determinants and effects of teacher - student compatibility patterns. The results of the experiment produced several important implications. (1) Isolation, the assignment of a low reward value by the student to attitudes he believes the teacher values highly, from the teacher is accompanied by dissatisfaction with the teacher. (2) Dissatisfaction with the teacher is accompanied by dissatisfaction with oneself. (3) Satisfaction with the teacher and utilization of intelligence are positively related. (4) Students with more compatible affective relations with the teacher utilize their intelligence at a higher level than do those students who have less compatible relations with the teacher. Here is a study then that
seems to demonstrate the existence of a complex network of factors which are influential in learning.

It was mentioned in the first chapter that the efforts by educators to find an ideal teaching style were unsuccessful. An example of such a study is one by Hoover [17] in which a methods course was taught by three different approaches called teacher-, pupil-, and group-centered. No significant differences were observed in student attitudes toward the instructor.

However Solomon, Bezdek, and Rosenberg [27] suggest that teachers should develop particular aspects of their personal teaching behavior. They found that certain behaviors are better suited for some groups of students than are others. They go on to say that teaching styles could be developed for particular audiences. That is to say, if possible, an audience, i.e., a class, should be chosen for an instructor which would interact best with that style. Thus it would be necessary to determine the teaching style by which a student would benefit most. In other words, it would be essential to be able to predict whether a student would be satisfied with a particular teacher.

Thelen's

In 1961 Thelen [30], [31], [32] and his assistants recognized four different types of classroom teachers. Each type produced a particular climate in the classroom, and in one of these climates the
student must exist. These climates are created by the teacher who
(1) exploits the student for his own fulfillment, (2) desires a
comfortable, tensionless class, (3) desires a well managed highly
disciplined class, and (4) places great emphasis on achievement. No
attempt is made to judge whether these classroom climates are good or
bad, nor are the teachers judged who created them. They exist. Thus
standards, values, and expectations differed from class to class.
The study was in part an effort to group students so as to provide
each teacher with a class of what he would consider to be teachable
students. A teachable student was one who was similar to students in
the past whom the teacher believed had profited from his class.

One of the results of "teachability grouping" as Thelen has
designated this particular method of assigning students to classes
was that the students in the experimental classes (the teachable
classes) received higher grades than those in the control classes
(randomly assigned classes). Nevertheless, achievement tests showed
no differences in achievement between control and experimental groups.
Apparently the teachable students were being rewarded for something
other than achievement. Moreover, the students in the teachable
classes found the teacher less desirable to work and chat with than
did the students in the control class; but the teachable class did
exhibit greater cohesiveness in interpersonal relationships at the
peer level.

This study raises two important questions, as well as some con-
cern. Is it desirable to group students under the aegis of providing
each teacher with a teachable class if (1) grades do not reflect achievement and (2) a feeling of compatibility between teacher and student is not reciprocated on the part of the student?

The result of higher grades without an achievement differential is a disconcerting outcome of this study. There does not appear to be any other beneficial growth in the student involved. The existence of stronger relationships within the peer group does not appear to be as healthy as it might, since it is accompanied by a correspondingly weaker relationship with the teacher. In fact, if the hypothetical, although not unrealistic, situation is regarded in which no grades are given, but the student is evaluated on progress, it is difficult to see where the advantage in this method of grouping students lies. It was the teacher who was the primary beneficiary of such grouping, and he benefited through the satisfaction of certain of his own needs by his students. His teaching did not necessarily become more effective. In fact there was evidence that in some cases the teaching was of a poorer quality in the experimental class. The teacher found the teachable class more comfortable or satisfying to teach.

Unlike the intention of the Thelen study to satisfy the needs of the teacher by assigning to his class particular students, the intention of the present study was to determine if it is possible to predict whether a student will be satisfied with a particular teacher. Moreover, an effort was made to determine whether a satisfied student,
satisfied, that is, with his teacher, will exhibit a greater utilization of his intellectual ability than a dissatisfied student.

In this chapter several studies were mentioned that dealt with the problem of determining factors leading to a student's or teacher's satisfaction and with factors that influence the achievement of the student. The next chapter will describe a pilot study which preceded the principal study.
CHAPTER III

THE PILOT STUDY

During the Autumn quarter of 1971 a pilot study was initiated to begin the investigation of the problem. Three instruments were to be used in the main study. They would be called the Questionnaire, the Opinionnaire, and the Profile. The Profile would actually be derived from the Questionnaire in a way to be described shortly, and one purpose of this pilot study was to determine whether the technique used in the derivation of the Profile was actually useful. These instruments will be described in detail in the fourth chapter, but an outline of them will be presented here to facilitate an understanding of subsequent remarks about them.

The Questionnaire was a 160 item multiple choice instrument. The items were very similar and often identical to the items used in the Thelen battery of tests. However, far fewer items were employed in the Questionnaire. Both the battery of tests used in the Thelen study and the Questionnaire are included as Appendices A and B respectively.

The Opinionnaire was a 20 item instrument which was used to determine the students' satisfaction with their instructors. This
too was a multiple choice instrument. Scores on the Opinionnaire ranged from 0 to 20, and from observing the results, it seemed reasonable to call a student satisfied with his instructor if his score was either 19 or 20. He was called dissatisfied with his instructor if his score was 15 or below. It should be emphasized that the decision to base these definitions of satisfaction and dissatisfaction on the above mentioned scores was arbitrary. The Opinionnaire is included as Appendix C.

The Profile was derived from the Questionnaire by considering the response patterns of the satisfied and dissatisfied students for the 160 items on the latter instrument. If for a particular instructor his satisfied students tended to respond to an item one way and his dissatisfied students responded in another way, then the item became an item on the Profile of this instructor. However, if no such pattern in the responses emerged, then this item was not included on the Profile.

For example, suppose 15 satisfied students responded the same way as did one dissatisfied student to an item on the Questionnaire, and the remaining 5 satisfied students responded as did the remaining 4 dissatisfied students. A tabulation of these results might appear as the array

\[
\begin{array}{cc}
15 & 5 \\
1 & 4
\end{array}
\]

The rows represent satisfied and dissatisfied students, and the columns represent type of response to the item on the Questionnaire.
It seems apparent from the data that there was a difference in the way the satisfied and dissatisfied students responded to this item on the Questionnaire. To give the process of selecting items for the Profile a more quantitative basis a chi-square was calculated for this 2x2 contingency table where the expected frequencies were computed to be

\[
\begin{array}{cc}
12.8 & 7.2 \\
3.2 & 1.8
\end{array}
\]

If the chi-square exceeded 2.70, then the item became part of the Profile. In this example, the chi-square is 5.25, so this item would have become an item on the Profile.

The purposes of the pilot study were four-fold.

1. To determine whether the Profile had any predictive power. That is, would the Profile be able to designate those students who would be satisfied with their instructors and those who would be dissatisfied. It would also be determined if the Profile could predict which students would be over- and under-achievers.

2. To determine which of the 160 items on the Questionnaire were non-discriminating. It was hoped that several of the items could be removed from the Questionnaire and thus shorten the instrument.

3. To determine the reliability of the Questionnaire.

4. To determine whether there were any snags in the administration of the instruments lurking about which had not been anticipated.

Three instructors who could not be a part of the main study inasmuch as they would be teaching only one class were chosen for the
pilot study. Their experience as instructors at Ohio State University varied. Instructor A was a second year graduate student in mathematics, Instructor B was a third year graduate student in mathematics education, and Instructor C was a fifth year graduate student in mathematics education. Each of them taught one class of some mathematics course but the course was different for each.

Near the end of the Autumn quarter these three instructors at their convenience distributed the 160 item Questionnaire and the 20 item Opinionnaire, which was attached to the Questionnaire, to their students. The students were given also a multiple choice answer form on which they could record their responses to the Questionnaire and provide the biographical data of sex, number of older siblings, class rank, and student identification number. The last item permitted matching of response sheet with Opinionnaire, a necessary condition since the students were not requested to provide their names. The students took the instruments with them and were asked to complete them and return them to their instructor the following day. The instructors were not told to provide absentees with the instruments nor were they told to prod or cajole their students into returning the completed forms.

Approximately two-thirds of the students in these three sections were canvassed, and of these about one-half returned the completed forms. A few of the returned forms were incomplete. Without a doubt, the length of the Questionnaire was a factor which detered many students from taking time to respond to it. The table below
indicates the returns from the classes which had enrollments of about thirty students each.

**TABLE 1**

**NUMBER OF COMPLETED QUESTIONNAIRES IN PILOT STUDY**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Number of Questionnaires Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>18</td>
</tr>
<tr>
<td>B</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
</tr>
</tbody>
</table>

If the Opinionnaire was completed and the Questionnaire had only a few missing responses, then the data from these instruments was used. However, if the Opinionnaire was incomplete, then the Questionnaire was not counted as returned in the tabulation above.

The Opinionnaire was scored as follows. There were four possible responses. A response of 1 or 2 indicated that the student was satisfied or felt at ease with that particular trait or characteristic of the instructor. A response of 3 or 4 reflected dissatisfaction. The total number of responses indicating satisfaction was recorded for each student and is called the student's satisfaction score. The frequency of scores is listed in Table 2 by instructor.
### TABLE 2

**FREQUENCY OF OPINIONNAIRE (SATISFACTION)**

**SCORES IN PILOT STUDY**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Opinionnaire Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
</tr>
<tr>
<td>A</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
</tr>
</tbody>
</table>

As has been said, a student was called satisfied if he scored 19 or 20, dissatisfied if he scored below 16, and neutral if his score was 16, 17, or 18.

In an effort to shorten the Questionnaire, items were removed from it if they did not seem to be discriminating between the satisfied and dissatisfied students for any instructor. That is, if all the students of all three instructors responded to an item on the Questionnaire in essentially the same way, the item was not used on the final form. For example, if the frequency array for each instructor was similar to

\[
\begin{align*}
  x & \quad 0 \\
  y & \quad 0
\end{align*}
\]

then the item was not used. In this way nearly sixty items were removed from the Questionnaire, and thus its length was shortened from 160 items to 100 items. No such reduction seemed feasible or desirable for the Opinionnaire.
It was also decided not to use the response sheets in the main 
study. It was felt that it would be easier for the student to record 
his response if he could do so next to the item. Thus on the final 
form of the Questionnaire, the form used in the main study, a space 
was placed in front of each item on the Questionnaire in which the 
student could record his response.

The reliability of the Opinionnaire was calculated by means of 
split halves. The ten items which were assigned to the first half 
were selected by using a random numbers table. The coefficient was 
.67. From comments written by some students about their instructors 
on the Opinionnaire, it was evident that they thought that this 
instrument was being used to determine whether the instructor was a 
good or bad teacher. This was not the intention, of course. It 
might well be, however, that a student thinks the instructor is a 
good teacher if he is satisfied with him. The instructions on the 
final form of the Opinionnaire used in the study emphasized the fact 
that the instrument was not an evaluation of the instructor.

Once the Profiles were constructed, they were administered to 
these three instructors' Winter quarter classes near the middle of 
the quarter. The student was also asked to record his first midterm 
grade on the Profile. The course taught by Instructor A had no 
midterms, so much of the previous effort he had made was wasted. 
Since the Profiles for Instructors B and C consisted of only seven 
items and for Instructor A twelve, they were administered during the 
class hour, and hence the number of instruments returned was much
greater than for their 160 item ancestor. The differences between the first midterm grade and previous course grade were ranked as were the scores on the Profile. A second Profile score was also calculated by weighting the individual items according to their chi-squares. Again there is more detail as to how this was done in the fourth chapter. These scores were then ranked as well. In the case of Instructor B the chi-squares were the same for all items, and thus the weighted scores were identical to the unweighted ones.

The following definitions are made to simplify the discussion that follows. Let

\[ p \] 
be the rank of the Profile score,

\[ p^\# \] 
be the rank of the weighted Profile score,

\[ d \] 
be the rank of the difference between the midterm and the previous course grade, and

\[ m \] 
the rank of the midterm grade.

A Spearman rank difference correlation coefficient \( s \) was computed for the following pairs of variables: \((p,d)\), \((p^\#,d)\), and \((p,m)\). These coefficients are listed in Table 3 with the sample size in parentheses.
TABLE 3

CORRELATION COEFFICIENTS FOR THE PAIRS OF VARIABLES

\((p,d), (p\#d), \) and \((p,m)\) IN PILOT STUDY

<table>
<thead>
<tr>
<th>Instructor</th>
<th>(s(p,d))</th>
<th>(s(p#d))</th>
<th>(s(p,m))</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>.78</td>
<td>.78</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>(14)</td>
<td>(14)</td>
<td>(16)</td>
</tr>
<tr>
<td>C</td>
<td>-.06</td>
<td>-.01</td>
<td>-.09</td>
</tr>
<tr>
<td></td>
<td>(22)</td>
<td>(22)</td>
<td>(25)</td>
</tr>
</tbody>
</table>

These results certainly do not show a uniform trend between Instructors B and C. They do suggest the possibility that the Profile may be a valuable device for predicting student academic success for some instructors but useless as such for others. It might be the case that a completely different set of items must be used in the Questionnaire to construct the Profile for Instructor C. Another possibility for the near zero correlation in the case of Instructor C is that the Fall quarter and Winter quarter classes were quite different. The Profile was constructed using a Math 150 class which was made up of students of average ability. The Profile was administered to a Math 150 class as well, but now the typical student had had to take a remedial math course. Yet another possibility is that some students may over-achieve if they are satisfied with their instructor and others may under-achieve if they are satisfied. Similarly some dissatisfied students may over-achieve and others may under-achieve.
It was unfortunate that Instructor A was unable to provide data to support either the implications of Instructor C's results or those of Instructor B. It was also unfortunate that the Opinionnaire was not administered to these instructors' Winter quarter classes, but it was necessary to begin the experiment, and at least the results from Instructor B's data indicated that the experiment might provide some interesting results. There was now an aura of suspense settling upon the study.
CHAPTER IV

THE EXPERIMENTAL DESIGN

This chapter will describe the procedure used to determine whether the conjectures stated in the first chapter can be supported by evidence. It should be pointed out that in the Thelen study the students could be assigned to experimental and control groups so that a classroom of students belonged to either one or the other group. No such grouping was possible in this study inasmuch as this investigator had considerably less influence to assign students to classes than did Thelen. In the final chapter of this work an advantage of the design used in this study will be pointed out with regard to future testing of the concept presented herein.

Selection of the Instructors

During the Autumn quarter a number of instructors were approached, and the study was explained to them. After the role they would be expected to play was outlined, they were asked if they would participate. One of their primary concerns was the amount of class time it would take. This concern was removed once it was made clear that they would have to use only fifteen minutes or so of class time. Another
concern was whether special materials would be used in class as alternate methods of instruction or presentation. They were assured that the study did not involve tampering with their instruction. Perhaps it was the willingness to cooperate on the part of the instructors or their reluctance to object, but no one refused to participate.

Not every available instructor was approached as a possible participant. To be considered he had to satisfy the following criteria. First he had to be teaching at least two sections during the Autumn quarter. (This criterion was waived in a few instances where the only class the instructor had was quite large due to the nature of his teaching assignment.) The two sections need not have been of the same course. In fact, they need not have been sections of a mathematics course. Upon hearing about the nature of the study, an instructor in the Spanish department asked if she might be included in the study. Her wish was granted. But the returns from her class to the Questionnaire were so meager that her participation in the study was terminated. Secondly, the instructor would have to be teaching at least two sections during the Winter quarter. Again it was not required that these be sections of the same course. To require that the instructor must teach only sections of the same course may have been preferable, but it also would have diminished the number of students available from whom data could be collected as well as the number of instructors available to take part in the study. Of course, the data could still be collected from all sections and grouped by
course. It was feared, however, on the basis of the pilot study that this would not have provided a sufficient number of students for any one group. It will be seen in the section of this chapter dealing with the collection of data that this would have been the case for many instructors. Thirdly, on the basis of gossip among instructors and unsolicited opinions of students that certain instructors were unreliable or undistinguished teachers, these instructors were not considered for the study.

Nearly everyone approached was a graduate student. The only exception was an instructor who had received her degree the previous year. All the instructors considered were either teachers by profession or had a reputation among students and other instructors of performing well as teachers in this their initial teaching experience. The sort of instructor who was avoided was one who had asserted that he was teaching only to finance his graduate training. If an instructor held his teaching ability in esteem, it was thought that he would not feel threatened by the nature of the study. The supposition was that a self-confident teacher would realize that the existence of one or more students who were dissatisfied with his instructional techniques or characteristics would not indicate necessarily that he was a poor teacher. Since the cooperation of the instructor was required at several points over a two quarter span of time, this investigator did not want to permit a situation to arise in which the instructor would believe his competency might come into question and thus become a reluctant participant.
Most of the instructors were approached in person, but there were several who were contacted by letter. It had been decided to begin the experiment with twenty instructors, and there were Questionnaires and Opinionnaires for this number. So when that number of instructors had indicated a willingness to take part in the study, the ones who subsequently responded favorably to the overtures were not included in the study. When the study began, the composition of the instructors by department in which they were doing graduate work was as follows. Twelve instructors were working toward a degree in mathematics education, and one already had her degree from this department; three were in mathematics; three were in education; and one was in Spanish. The preponderance of instructors in mathematics education does not reflect the composition overall of the assortment of graduate students teaching for the mathematics department. However, most of the instructors who teach more than one course are pursuing their degrees in areas other than mathematics. Table 4 summarizes some information about the instructors. Only Instructors 1 - 12 completed the study. Reasons for the early release of the last eight will be made explicit in the section entitled Procedure.
TABLE 4

INSTRUCTOR DATA

<table>
<thead>
<tr>
<th>Instructor Number</th>
<th>Sex</th>
<th>Graduate Student Status</th>
<th>Years of Teaching Experience at O.S.U. (Including 1971-72)</th>
<th>Number of Courses Taught</th>
<th>Number of Sections Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>Math Education</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>Curriculum and Foundations</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>Mathematics</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>Degree in Math Education</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>Educational Development</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>Math Education</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>Math Education</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>Educational Development</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>Math Education</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>Mathematics</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>Math Education</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>Math Education</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>F</td>
<td>Spanish</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>F</td>
<td>Math Education</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>M</td>
<td>Math Education</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>Math Education</td>
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<td>1</td>
</tr>
<tr>
<td>17</td>
<td>M</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>M</td>
<td>Mathematics</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>M</td>
<td>Math Education</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>M</td>
<td>Math Education</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
As the study progressed the participating instructors were reminded of their commitments to the study, and the parts they were to play were explained in detail at appropriate times.

Instrumentation

There were two instruments that had to be constructed for the study. They were the Questionnaire and the Opinionnaire. A third instrument, the instructor Profile, evolved from the Questionnaire.

Most of the items on the Questionnaire were identical to items used in the battery of tests in the study by Thelen. The battery of tests used by Thelen is included as Appendix A. Some items were modified to be applicable to a college rather than a high school or junior high school setting. For example, "instructor" was substituted for "teacher". However, the essence of the item was the same.

The number of items was reduced considerably. Several sections of the Thelen battery were discarded entirely as inappropriate. Other sections were discarded because the instructions were very elaborate. Anything that smacked of being too complicated to follow upon a casual reading was considered suspect. It must be remembered that the classes in the Thelen study, being in the public school system, were essentially captive audiences and were required to complete the instruments. But in this study the student was neither required to attend class, nor to return the instrument completed. The only pressure present was whatever moral responsibility the student might feel.
The instructor was told explicitly not to make it appear that the students were required to complete the Questionnaire and the Opinionnaire. Their participation in this study had not been announced at registration time as a requirement of the course. This restriction on the behavior of the instructor caused grave concerns about the robustness of the returns. The pilot study had indicated that the number of returns would not be overwhelming. So the Questionnaire could not be so long that its very size would discourage the student from completing it. As it was, sixty items had been removed from the version used in the pilot study. (See Chapter 3 for an explanation of how this was done.) Yet this instrument had to contain enough items to enable the investigator to discriminate between satisfied and dissatisfied students from instructor to instructor. Although it was believed that this reduction was a necessity to guarantee sufficient returns for the initial success of the study, there was the apprehension that the number might not be sufficient to provide adequate discrimination among instructors.

It was not the purpose of this study to determine whether the selection of items by Thelen could be improved upon. Nor was there any firm psychological foundation for selecting the items used in this study. Perhaps to a psychologist the responses to the items would yield secrets of the responder's personality, but again it was not intended to do this in the study, nor were the items selected on any such basis. The items in the Thelen study were used to place students with teachers so as to construct teachable classes for the teacher. A
subset of those items was used here to determine if these items could also be instrumental in the prediction of student satisfaction and academic achievement. It remains to be considered whether another collection of items or some other basis for prediction would demonstrate greater efficacy in this pursuit.

The situation was different in the case of the Opinionnaire. No such instrument existed in the Thelen study. The counterpart in that study was asking the teachers which of their students they thought would be most and least successful. So an instrument was needed to measure the satisfaction that the student had with his instructor, or the empathy he felt toward him. It was thought plausible to question the student about his feelings toward his instructor with reference to specific characteristics and behavior patterns of the instructor. The items on the Opinionnaire came from several sources.

Several items arose from the experiences of this investigator. What were the traits of his teachers that satisfied or dissatisfied him? What were those traits in other teachers about which his students have from time to time expressed their pleasure or contempt?

An attempt was made to reject items referring to symptoms of bad teaching. For example, if it was the teacher's trait to stand squarely in front of what he was writing on the blackboard and then erase it before his students could finish reading it, this peculiarity could hardly be satisfying to anyone. Rather it appears to be a case of the teacher being inconsiderate and oblivious to the students' needs, a clearly poor teaching technique. If, however, the professor
meticulously fills in all the details of a proof, this could be satisfying to those students who want to see a proof in its entirety, but dissatisfying to those students who would like to become actively involved in the construction of the proof. An item referring to this characteristic of the instructor might have been included on the Opinionnaire. An example of such an item is number 8 on the Opinionnaire. The student is asked to respond how satisfied or dissatisfied he is with the manner in which the instructor developed new ideas.

Another source of items for the Opinionnaire was extant teacher evaluation forms. Usually such instruments as were examined attempted to measure teaching ability; but some contained items that could be modified for inclusion in the Opinionnaire. Often a teacher behavior that some critics suggest should be avoided for good teaching may actually be satisfying to some students. For example, the teacher may lecture the entire time and discourage student participation - hardly a behavior that is advocated by many educators. Nevertheless, it is conceivable that this behavior could induce an atmosphere most conducive for the learning of a particular kind of student. An example from the Opinionnaire is item number 9. The student is asked to indicate his satisfaction with the extent to which the instructor provided rules or formulas to solve problems.

A third source of items was the literature. Traits that might satisfy or dissatisfy the student were not mentioned per se. Rather they were usually referred to as characteristics that could be used to
evaluate a teacher. A couple of these were modified and used on the Opinionnaire. The Opinionnaire is included as Appendix C.

Procedure

At the end of the Winter quarter the 100 item Questionnaire and the twenty item Opinionnaire were given to the twenty instructors for distribution in their classes. The students were asked to complete the Questionnaire and Opinionnaire and bring them back to their instructors or to this writer's office. By giving the student the opportunity to return the instruments to someone other than his instructor, it was hoped that the student might respond honestly and have less reluctance to return them if he felt that his responses were not complimentary to his instructor. Only a few students took advantage of this recourse. Several of the instructors met only twice a week with their classes. This longer time span between classes in the case of these instructors could have increased the probability of a student not returning the instruments.

The instructors were asked to encourage their students to return the instruments, but not to take class time to respond to them. Nevertheless, one instructor did ask her students to complete them in class. Needless to say, more completed forms were returned to her than to any other instructor.

Most of the forms were distributed on Wednesday and were returned Thursday or Friday or in a few cases at the final exam, which occurred
the following Tuesday. In those classes which met only Tuesdays and Thursdays the instructors passed out the instruments on Tuesday or Thursday and collected them on Thursday or at the final exam.

Although the instruments were ready for distribution on Tuesday, only a few instructors had them in their possession before Wednesday. The most convenient means of notifying instructors was by notes in their mailboxes. However, several instructors seem to have made infrequent trips to their mailboxes. The packets containing the Questionnaires and Opinionnaires were a floor below the room with the mailboxes, so lack of proximity was not a factor in this case. If by Thursday the packets had not been picked up, this writer hand delivered them to instructors in class. However, it was still the responsibility of these instructors to explain to their classes what was requested of them. In order to avoid disturbing interruptions the investigator had no contact with the classes. This reliance on the instructor must certainly have diminished the uniformity of distribution.

Table 5 reveals the number of classes each instructor had and the number of instruments returned. It must be remembered that the Opinionnaire was attached to the Questionnaire and so the return of one almost guaranteed the return of the other. In only a few cases were the instruments not sufficiently completed. For example, the Opinionnaire may have been completed but not the Questionnaire. In such cases the responses on the completed instrument were ignored. It was necessary to have both instruments completed. But if responses to a few items on the Questionnaire were omitted, the other responses
were still accepted. If only a couple of items on the Opinionnaire were without responses, the rest were accepted. In computing the student's satisfaction the decision was made to count only responses which indicated satisfaction.

**TABLE 5**

**NUMBER OF SECTIONS AND COMPLETED QUESTIONNAIRES**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>Sections</td>
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<td>2</td>
<td>3</td>
<td>3</td>
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<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Completed</td>
<td>38</td>
<td>40</td>
<td>31</td>
<td>42</td>
<td>31</td>
<td>24</td>
<td>31</td>
<td>92</td>
<td>11</td>
<td>32</td>
</tr>
<tr>
<td>Instruments</td>
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<td>31</td>
<td>42</td>
<td>31</td>
<td>24</td>
<td>31</td>
<td>92</td>
<td>11</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructor</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sections</td>
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<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Completed</td>
<td>20</td>
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<td>7</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>25</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Instruments</td>
<td>20</td>
<td>21</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>25</td>
<td>19</td>
<td>0</td>
</tr>
</tbody>
</table>

Certainly the number of instruments returned differed greatly from instructor to instructor. This can be attributed to the number of class days that were left for collecting them from the students, the attitude of the instructor toward the study, and the general attendance of his classes. However this was one variable that could not be controlled. Neither could the students be required to complete the instruments even if they were in attendance, nor could the instructor be required to wholeheartedly endorse the study and execute the
distribution and collection of the instruments without reluctance even though he had volunteered to take part in the experiment. In any case, it was not only what the instructor may have said about the instruments or study, but also his non-verbal reactions that could have operated as a factor in determining the number of instruments returned.

The next step was to score the Opinionnaires. Each response marked either 1 or 2 was said to reflect the student's satisfaction with that trait or behavior of the instructor and counted 1 point. The total number of points on the Opinionnaire was the measure of the student's satisfaction with his instructor. The maximum score was, of course, 20 points. Table 6 indicates the frequencies of Opinionnaire scores by instructor.
TABLE 6

FREQUENCY OF OPINIONNAIRE (SATISFACTION) SCORES

<table>
<thead>
<tr>
<th>Instr.</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</td>
</tr>
<tr>
<td>1</td>
<td>17 9 3 1 1 5 1 0 1</td>
</tr>
<tr>
<td>2</td>
<td>9 5 2 5 4 3 1 2 3 1 1 1 1 1 0 0 1</td>
</tr>
<tr>
<td>3</td>
<td>20 4 2 1 2 1 0 0 0 1</td>
</tr>
<tr>
<td>4</td>
<td>24 6 3 4 1 1 0 0 0 0 1 1 1</td>
</tr>
<tr>
<td>5</td>
<td>12 3 4 2 2 2 2 4 0 0 0 0 0 0 0 0 1</td>
</tr>
<tr>
<td>6</td>
<td>5 4 4 6 1 0 1 1 0 0 0 0 1 0 0 0 0 0 1</td>
</tr>
<tr>
<td>7</td>
<td>12 6 3 3 0 1 1 4 1</td>
</tr>
<tr>
<td>8</td>
<td>32 18 14 6 4 5 6 1 4 2</td>
</tr>
<tr>
<td>9</td>
<td>0 2 0 1 0 0 0 1 1 0 0 3 1 1 0 1</td>
</tr>
<tr>
<td>10</td>
<td>6 9 3 5 3 1 3 1 1</td>
</tr>
<tr>
<td>11</td>
<td>1 3 1 7 1 3 2 0 1 0 1</td>
</tr>
<tr>
<td>12</td>
<td>3 2 4 2 1 1 2 2 1 0 2 1</td>
</tr>
<tr>
<td>13</td>
<td>0 1 3 1 0 0 0 0 1 0 0 0 1</td>
</tr>
<tr>
<td>14</td>
<td>6 3 0 1</td>
</tr>
<tr>
<td>15</td>
<td>4 2 0 0 1 0 0 1</td>
</tr>
<tr>
<td>16</td>
<td>4 2 2 1 0 0 0 0 1</td>
</tr>
<tr>
<td>17</td>
<td>6 2 3 1 0 0 0 0 1</td>
</tr>
<tr>
<td>18</td>
<td>16 6 2 0 0 0 0 0 1</td>
</tr>
<tr>
<td>19</td>
<td>14 0 2 0 2 0 0 0 1</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

As had been done in the pilot study, a student was said to be satisfied with his instructor if his score on the Opinionnaire was above 18, and he was said to be dissatisfied if his score was below 16. The tabulation of scores reveals what might have been flaws in
choosing these cut-offs and in originally having tried to choose instructors who would not feel intimidated by the questions of the Opinionnaire. Most of the instructors had students who were generally satisfied with them as indicated by the number of scores of 19 and 20. There was at least one notable exception, Instructor 9. But several of the instructors had few or no students who could be called dissatisfied with them.

There were six instructors each of whom had either one or no students dissatisfied with him. There was one instructor who had only one student who was satisfied. These seven instructors besides the instructor who never returned any instruments were removed from the study. In the majority of cases they had turned in fewer completed instruments than those who were retained in the study. Had they been able to return a larger number of the instruments, no doubt many more of them would have been retained. Nevertheless, the decision was made arbitrarily to require at least two satisfied and two dissatisfied students before allowing the instructor to remain in the experiment. It will be seen that the Profile for Instructor 3 had the greatest predictive power, yet he had fewer dissatisfied students than any other of the instructors retained.

Instructor Profile

Next the Questionnaires were sorted into groups on the basis of whether the student was satisfied, dissatisfied, or neutral as
determined by the Opinionnaire scores. A 2x2 matrix was constructed for each of the 100 items on the Questionnaire and for the three student background items on the cover sheet. This was done for each of the remaining twelve instructors. The entries represented frequencies and were defined as follows:

\( a_{11} \) - the number of satisfied students whose response to this item was either A or B. Call either an A or B response an L response (L for left hand part of the scale).

\( a_{12} \) - the number of satisfied students whose response to this item was either C or D. Call such a response an R response.

\( a_{21} \) - the number of dissatisfied students who made an L response to this item.

\( a_{22} \) - the number of dissatisfied students whose response to this item was an R response.

A chi-square was computed for each of these matrices. If, for a particular matrix, the chi-square exceeded 2.70, the differences in cell frequencies were significant at the 0.1 level, and the item of the Questionnaire corresponding to this matrix became an item on the instructor's Profile. The Profile then was a subset of the Questionnaire and contained those items for which the responses of the satisfied and dissatisfied students were significantly different as determined by the value of the chi-square.

It was realized that by chance alone a particular frequency distribution would occur a certain percent of the time if the responses to the items were given randomly. But a considerable number
of items were answered in the same way by all students, a number far exceeding the percentage due to chance. For example, if the 103 matrices for Instructor 1 are examined, it is seen that for over three-fourths of them \( a_{11} > a_{12} \) and \( a_{21} > a_{22} \) or \( a_{11} < a_{12} \) and \( a_{21} < a_{22} \). It seemed apparent that these distributions were not occurring by chance. Essentially this study is trying to test the conjecture that these frequencies are due to something intrinsic rather than to mere chance. Thus an item which so differentiates, it was proposed, would discriminate subsequently as well for that instructor between a satisfied student and a dissatisfied student, and it could be used to predict whether a future student would or would not be satisfied with a particular instructor. Naturally the Profile for one instructor was not the same as the Profile for another.

Since the instructor Profile was to play a vital role in the study, it was necessary to be very critical of its development. Its construction introduced a number of limitations which should probably be examined in detail. It should be noticed that for many instructors the number of students returning the Questionnaire and Opinionnaire was small in relation to the number of students enrolled in his courses. Besides it was frequently the case that there were few students who were classified as being dissatisfied with the instructor. The Profile could have been altered considerably if data from one additional student had been introduced or if a student had chosen a different response for an item on the Opinionnaire. In the latter
case the student may have also changed categories from being a satisfied student to a neutral student, for example.

However, there was no way to guarantee that everyone in a class obtain a copy of the instruments let alone return them. Because these instruments were handed out at the end of the quarter, they no doubt failed to reach many students who would have been classified as dissatisfied students had they still been in attendance or enrolled in the class. If it would have been possible to include the data from these students, the Profile for the instructor might have been different. Moreover, it was the Opinionnaire that determined the definition of a student being satisfied or dissatisfied. If the assumption is correct that many students who never took the Questionnaire because of their lack of attendance or withdrawal from the course were actually dissatisfied with the instructor, then if they had taken it and their results on the Opinionnaire tabulated, the mean score on the Opinionnaire would have been lowered. Thus it may have been more natural to define a dissatisfied student as one whose score was, for example, less than 10 on the Opinionnaire. It may have been the case that many students who were called dissatisfied were just being hypercritical of the instructor but were essentially pleased with him. But these students were grouped with those who were truly dissatisfied and did respond. There may have been students who chose not to reveal their lack of satisfaction, being apprehensive lest the instructor see the Opinionnaire and seek vengeance through the course grade.
There was another boundary condition imposed upon the study. The Questionnaire used in the pilot study had 160 items plus some student background information that was requested. The Questionnaire used in the main study had only 100 items plus this additional information. The 60 items were deleted for reasons based on the results of the pilot study and because it was felt that 160 items was an imposition on the students' time. It was not certain, however, that 100 items was going to be a sufficient number, or 160 for that matter. But the investigator believed that an instrument having considerably more items would have been even less likely to be returned. It was also impossible to utilize class time to respond to the Questionnaire and Opinionnaire because of their combined length. Nor did it seem reasonable to request the instructors to keep a record of those who never received the instruments so as to be able to get one to each student nor to hound those who never returned them.

Instructor Key

It was also necessary to note whether the response of the satisfied student tended to be an L response or an R response. Of course, if the satisfied and dissatisfied students both chose an L response, for example, the chi-square for that item would not have been significant. The situation did arise, however, where the satisfied students' responses were as often L as R. But the dissatisfied students' responses were essentially all L, for example.
The chi-square associated with this matrix may have been sufficiently large to include that item on the Profile. The Key would have \( R \) listed as the response that should be chosen if the student might be expected to be satisfied with that instructor. For example, if the matrix for some item were

\[
\begin{array}{cc}
L & R \\
S & 8 \ 8 \\
D & 4 \ 0
\end{array}
\]

the chi-square would be 3.33, and thus the item would become part of that instructor's Profile. The instructor's Key would have \( R \) for that response. This is not to say that the satisfied student, more often than not, would select an \( R \) response. This was not the case. But the dissatisfied student clearly chose an \( L \) response. It is not unreasonable to expect that two instructors' Profiles could contain the same item yet their Keys be different for that item. Indeed, this did occur.

Hypotheses

A Profile for each instructor had now been constructed, and copies of it were about to be distributed in the classes of the instructor to begin the collection of data that would enable the hypotheses of the study to be tested. Each student would be assigned a score on the Profile and a weighted score. The scoring and weighting methods used will be explained in the next section.
In summary:

1. The Profile score and the weighted Profile score are measures of the anticipated satisfaction of the student with his classroom instructor.

2. The Opinionnaire score is the measure of the student's satisfaction with his classroom instructor.

3. The difference between the student's grade in his present course and his grade in the previous mathematics course is the measure of his net gain in academic achievement.

4. The student's grade in his present course is the measure of his academic achievement.

The following are the hypotheses which were tested. They are stated in the null form.

\( H_1 \): There is a correlation of zero between the anticipated satisfaction of the student as measured by his Profile score and his actual satisfaction.

\( H_2 \): There is a correlation of zero between the anticipated satisfaction of the student as measured by his weighted Profile score and his actual satisfaction.

\( H_3 \): There is a correlation of zero between the anticipated satisfaction of the student as measured by his Profile score and his net gain in academic achievement.

\( H_4 \): There is a correlation of zero between the anticipated satisfaction of the student as measured by his weighted Profile score and his net gain in academic achievement.
$H_4$: There is a correlation of zero between the anticipated satisfaction of the student as measured by his Profile score and his academic achievement.

$H_6$: There is a correlation of zero between the anticipated satisfaction of the student as measured by his weighted Profile score and his academic achievement.

$H_7$: There is a correlation of zero between the student's actual satisfaction and his net gain in academic achievement.

$H_8$: There is a correlation of zero between the student's actual satisfaction and his academic achievement.

Each of the preceding hypotheses was tested for each of the twelve instructors. It was hoped that hypotheses $H_1$, $H_2$, $H_3$, and $H_4$ would be rejected and that hypotheses $H_5$ and $H_6$ would not be rejected. It was expected that hypotheses $H_7$ and $H_8$ would be rejected.

Collection of the Data

Near the beginning of the Winter quarter each of the twelve instructors remaining in the experiment administered his Profile to the students in his classes. Class time was used to complete this instrument since it consisted of only ten items on the average plus some biographical data. Completing them in class would also guarantee a greater percent of the forms being returned. Nevertheless, it was left to the decision and mood of the instructor when he wanted to
distribute them and if he wanted to get them to those students who were absent the day the class took the Profile.

The students' responses to the items on the Profile were tabulated, 1 point being awarded if the student's response and the instructor's Key agreed, -1 point if they disagreed, and 0 points if the student did not respond to the item. The total of the points was the student's score for that instructor's Profile, and this score was one measure of anticipated satisfaction. A weighted Profile score was also obtained by multiplying 1, 0, or -1 by the chi-square for that particular item and instructor. The sum of these products was the weighted Profile score and was another measure of anticipated satisfaction. It was conjectured that the weighted Profile score would be a better predictor of student satisfaction and net gain in achievement than would the unweighted score. An example of the scoring follows in Table 7. It is taken from the data of one of the students of Instructor 1. There were six items on this instructor's Profile. The sixth item is one that came from the biographical data on the Questionnaire. For this instructor it appeared that a satisfied student tended to be an upperclassman (U) while the dissatisfied student tended to be a Freshman (Fr). The column marked "Response" lists the student's responses. The column marked "Key" lists the way in which a satisfied student could be expected to respond. This student's Profile score is 4, and his weighted Profile score is 20.8.
TABLE 7

EXAMPLE OF SCORING A STUDENT'S RESPONSES

TO AN ITEM ON INSTRUCTOR I'S PROFILE

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Key</th>
<th>Score</th>
<th>Weights</th>
<th>Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L</td>
<td>L</td>
<td>1</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>2</td>
<td>L</td>
<td>L</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>3</td>
<td>L</td>
<td>L</td>
<td>1</td>
<td>8.9</td>
<td>8.9</td>
</tr>
<tr>
<td>4</td>
<td>L</td>
<td>L</td>
<td>1</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>5</td>
<td>L</td>
<td>L</td>
<td>1</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>6</td>
<td>Fr</td>
<td>U</td>
<td>-1</td>
<td>2.8</td>
<td>-2.8</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>4</td>
<td></td>
<td></td>
<td>20.8</td>
</tr>
</tbody>
</table>

At the end of the Winter quarter the Opinionnaire was administered to the students by their instructors. Time was taken in class to allow the students to complete them. This was done to ensure a high percent of returns, and could be done because the time required to complete them need not have exceeded ten minutes. The Opinionnaire was scored the same way as the one administered the preceding quarter had been scored: 1 point for each response that indicated satisfaction. This Opinionnaire score was the measure of the student's actual satisfaction with his instructor. As was always the case, the instructor decided when was a convenient time and day to have his students complete the Opinionnaire. It was suggested to them that they have their students complete it at the beginning of the class period so as to avoid the happenings of the day influencing the
responses. The percent of the enrolled students who actually took the Opinionnaire varied from instructor to instructor. But more critical than a difference in the number of returns was the difference in atmosphere from class to class. It was possible that Opinionnaires responded to the day of a test, for example, would reflect more the feelings of the student that day toward his instructor rather than those longer-range opinions which had been forming during the quarter.

Finally, at the end of the Winter quarter, the instructors were asked for the grades of their students. Although the students recorded only their student identification numbers on the instruments, the cards on which the course grades were entered had both student name and identification number. Thus, it was possible to match student grades, which were paired with student names, with student Profile and Opinionnaire scores, which were paired with student identification numbers.

It would seem that an instructor would be consistent in his assigning of grades. Within a class this is probably true. However, because most instructors taught two different courses, inconsistencies could arise here. In certain courses the final grade is largely determined by the results on departmental examinations. In other courses the instructor himself devises his own testing procedures and assigns final grades with few external guidelines to follow.

It had been hoped that the returns from the Questionnaires and Opinionnaires during the Autumn quarter would have been sufficient to enable the construction of a Profile for each instructor for each
course. However, when the meager returns made this impossible, plans to stratify the data collected during the Winter quarter on the basis of course were discarded. As it was, several instructors mentioned that the level of satisfaction was quite different in two different courses (even sections of the same course). This in understandable. What is crucial, however, and what could have affected the outcome is whether those items on the Questionnaire which contrast the satisfied and dissatisfied students in one course would be the same as those that contrast the two groups of students in another course.

The data that had been assembled for each student were a Profile score, a weighted Profile score, an Opinionnaire score, a course grade, and the grade received in the previous mathematics course taken. The last item was provided by the student on the Profile along with other biographical information. The Profiles for each instructor are included as Appendix E.

As an example, the data collected for the student whose Profile response data was given on page 53 is listed below.

| TABLE 8 |

| EXAMPLE OF STUDENT DATA COLLECTED |

<table>
<thead>
<tr>
<th>Student ID Number</th>
<th>Profile Score</th>
<th>Weighted Profile Score</th>
<th>Opinionnaire Score</th>
<th>Course Grade</th>
<th>Previous Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>20.8</td>
<td>20</td>
<td>A</td>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>
It should be pointed out here that the net achievement gain for this student would be 1.

Not every student had an entry in each column. He may not have had a previous math course, and thus the last column would have no grade. Likewise, a student may have been absent when the Opinionnaire was administered or had withdrawn from the course before the final grade was assigned.

Analysis of the Data

The principal variables that were to be used in the analysis of the data were:

- p - the Profile score which was the measure of the student's anticipated satisfaction.
- p# - the weighted Profile score which was another measure of the student's anticipated satisfaction.
- u - the Opinionnaire score which was the measure of the student's actual satisfaction with the instructor.
- n - the net achievement score.
- g - the course grade.

As was mentioned at the end of the previous section, not every variable was defined for each student. The values assumed by each variable are reviewed next.

The range of values the variable p assumes varies from instructor to instructor. It depends on the number of items on the
instructor Profile. If there are \( x \) items on the Profile, then
\[
p \in \{ z \mid z \in \mathbb{Z} \text{ and } |z| \leq x \}.
\]
See page 52 for the method of computing \( p \).

The range of values assumed by \( p^# \) depends on the instructor as did that of \( p \). In general, if there are \( x \) items on the instructor Profile and \( w_1, \ldots, w_x \) are the weights (chi-squares) associated with items 1, \ldots, and \( x \) respectively, then
\[
|p^#| \leq \sum_{i=1}^{x} w_i.
\]
See page 52 for the manner in which \( p^# \) was computed for each student.

Since \( u \) was obtained by counting the number of responses on the Opinionnaire which indicated that the student was satisfied with the instructor,
\[
u \in \{0, 1, \ldots, 19, 20\}.
\]

The grade \( g \) is the simplest to determine. \( A \) is 4, \( B \) is 3, \( C \) is 2, \( D \) is 1, and \( E \) is 0. No value is attached to an Incomplete or a Withdrawal.

To determine the value of \( n \), the grade received in the previous math course is converted to a numerical value just as the course grade is. The difference between the present course grade and the previous course grade is the net gain in achievement. If no previous course had been taken, then no value was assigned to this variable for this student. In general, it is clear that
\[
n \in \{ z \mid z \in \mathbb{Z} \text{ and } |z| \leq 4 \}.
\]
The following pairs of variables were used in the testing of the hypotheses of the study: \((p_u), (p_u,n), (p_n), (p_n,u), (p_g), (p_g,u), (u,n), \) and \((u,g)\). The values of these variables were ranked and a Spearman rank-difference correlation coefficient was computed for each of the above pairs of variables for each instructor. Let \(s(x,y)\) be the Spearman rank-difference correlation coefficient for the pair of variables \(x\) and \(y\).

The Spearman coefficient loses some of its precision, however, and generally overestimates the amount of correlation if there are many tie scores. At least for the variables \(n\) and \(g\) there had to be many ties. So a Pearson product-moment correlation coefficient was also computed. Let \(r(x,y)\) be the Pearson coefficient of correlation between the variables \(x\) and \(y\).

Since the Profiles were constructed by considering responses of satisfied students and dissatisfied students and these determined by scores above 18 and below 16 on the Opinionnaire, it was thought reasonable and advisable to stratify the data collected for each variable by means of the associated Opinionnaire score. The three strata were determined by the cut-offs 15.5 and 18.5. An analysis of variance was employed to determine if differences among the means of the three strata were significant.

The data was also examined in such other ways as seemed reasonable to check conclusions and seek out further interpretations.
CHAPTER V

RESULTS AND CONCLUSIONS

Results

In this chapter the results from the analysis of the data generated for the previously mentioned pairs of variables will be presented. Both \((p,\_1)\) and \((p\#,\_1)\) will be reported together. At the same time an attempt will be made to observe any trends in the results for the twelve instructors.

Each of the first five tables gives the instructor number, the size of the sample, the Spearman rank-difference coefficient of correlation and the Pearson product moment coefficient of correlation for each instructor.

The hypotheses underlying the use of either correlational test are not perfectly satisfied. As has been mentioned earlier, the Spearman statistical test loses some reliability if there are many tied ranks. However, the coefficient of correlation resulting from this test is included for the sake of completeness and because it may hint at some truth underlying the data. It should also be pointed out that because a coefficient of correlation is being computed for twelve instructors, the probability that an hypothesis of zero correlation
will be rejected for some instructor is much greater than the probability that it will be for a particular instructor. As the results are inspected, it is important to consider whether rejection of the hypothesis appears to be a trend among the instructors or whether a rejection is merely an apparent isolated instance. Further discussion of this point will be deferred until the next chapter.

An asterisk after the Pearson correlation coefficient $r(\_,\_)$ indicates that the coefficient is significantly different from zero at the $\alpha$-level of 0.1. This level for rejection of the null hypothesis was chosen because it was believed that the numerous variables which could not be readily controlled would prevent the observing of differences significant at a more commonly used $\alpha$-level of 0.05 or 0.01. The first of these tables, Table 9, presents the correlation coefficients for the pairs of variables $(p,u)$ and $(p\#,u)$. 
TABLE 9

CORRELATION COEFFICIENTS FOR THE PAIRS
OF VARIABLES (p,u) AND (p#,u)

$H_0: r = 0$

$\alpha = 0.1$

<table>
<thead>
<tr>
<th>Instructor</th>
<th>N</th>
<th>s(p,u)</th>
<th>s(p#,u)</th>
<th>r(p,u)</th>
<th>r(p#,u)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>46</td>
<td>.13</td>
<td>.19</td>
<td>.16</td>
<td>.11</td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>.27</td>
<td>.33</td>
<td>.27*</td>
<td>.37*</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>.41</td>
<td>.43</td>
<td>.43*</td>
<td>.45*</td>
</tr>
<tr>
<td>4</td>
<td>51</td>
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<td>.20</td>
<td>.03</td>
<td>.09</td>
</tr>
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<td>-.05</td>
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<td>27</td>
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<td>.15</td>
<td>.01</td>
<td>-.14</td>
</tr>
<tr>
<td>11</td>
<td>40</td>
<td>.22</td>
<td>.22</td>
<td>.14</td>
<td>.19</td>
</tr>
<tr>
<td>12</td>
<td>58</td>
<td>.01</td>
<td>-.01</td>
<td>-.08</td>
<td>-.14</td>
</tr>
</tbody>
</table>

$H_0$ is rejected for Instructors 2 and 3 when either the unweighted or the weighted Profile score is used.

Although weighting the items on the instructor's Profile did not result in rejecting the null hypothesis for more instructors, four of the six highest coefficients of correlation were increased by weighting the items on the Profile. Only three of the lowest six were increased, and several of these were very nearly zero.
The next table presents the correlation coefficients for the pairs of variables \((p,n)\) and \((p\#,n)\).

**TABLE 10**

CORRELATION COEFFICIENTS FOR THE PAIRS OF VARIABLES \((p,n)\) AND \((p\#,n)\)

<table>
<thead>
<tr>
<th>Instructor</th>
<th>(N)</th>
<th>(s(p,n))</th>
<th>(s(p#,n))</th>
<th>(r(p,n))</th>
<th>(r(p#,n))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37</td>
<td>.23</td>
<td>.21</td>
<td>.19</td>
<td>.17</td>
</tr>
<tr>
<td>2</td>
<td>38</td>
<td>-.02</td>
<td>-.07</td>
<td>-.10</td>
<td>-.16</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>-.01</td>
<td>.00</td>
<td>-.17</td>
<td>-.27</td>
</tr>
<tr>
<td>4</td>
<td>55</td>
<td>.21</td>
<td>.26</td>
<td>.18</td>
<td>.23*</td>
</tr>
<tr>
<td>5</td>
<td>32</td>
<td>.12</td>
<td>.06</td>
<td>.01</td>
<td>.05</td>
</tr>
<tr>
<td>6</td>
<td>40</td>
<td>.11</td>
<td>.00</td>
<td>.03</td>
<td>-.01</td>
</tr>
<tr>
<td>7</td>
<td>44</td>
<td>.21</td>
<td>.12</td>
<td>.17</td>
<td>.13</td>
</tr>
<tr>
<td>8</td>
<td>38</td>
<td>.07</td>
<td>-.11</td>
<td>-.08</td>
<td>-.02</td>
</tr>
<tr>
<td>9</td>
<td>16</td>
<td>.26</td>
<td>.17</td>
<td>.16</td>
<td>.27</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>.07</td>
<td>.08</td>
<td>-.07</td>
<td>.06</td>
</tr>
<tr>
<td>11</td>
<td>44</td>
<td>.11</td>
<td>.05</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>12</td>
<td>70</td>
<td>-.06</td>
<td>-.34</td>
<td>-.09</td>
<td>-.07</td>
</tr>
</tbody>
</table>

\(H_0: r = 0\)

\(\alpha = 0.1\)

\(H_0\) is rejected only for Instructor 4 and only when the weighted Profile scores are used.

Not only could the null hypothesis be rejected in merely one case, there is not even a trend visible. The effect of weighting the items on the Profile was more pronounced here than in the previous
case. This time, however, the absolute value of the coefficients of correlation should be considered. Four of the six largest of these values were increased by the weighting process whereas only one of the six smallest was increased.

Table 11 presents the correlation coefficients for the pairs of variables \((p,g)\) and \((p\#_g)\).

<table>
<thead>
<tr>
<th>Instructor</th>
<th>(N)</th>
<th>(s(p,g))</th>
<th>(s(p#_g))</th>
<th>(r(p,g))</th>
<th>(r(p#_g))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>.21</td>
<td>.23</td>
<td>.15</td>
<td>.19</td>
</tr>
<tr>
<td>2</td>
<td>61</td>
<td>.03</td>
<td>.01</td>
<td>-.08</td>
<td>-.05</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>-.24</td>
<td>.06</td>
<td>-.29</td>
<td>-.07</td>
</tr>
<tr>
<td>4</td>
<td>83</td>
<td>.03</td>
<td>.08</td>
<td>-.07</td>
<td>.01</td>
</tr>
<tr>
<td>5</td>
<td>39</td>
<td>.13</td>
<td>.02</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td>6</td>
<td>42</td>
<td>.08</td>
<td>-.01</td>
<td>.01</td>
<td>-.04</td>
</tr>
<tr>
<td>7</td>
<td>49</td>
<td>.08</td>
<td>.09</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td>8</td>
<td>52</td>
<td>.02</td>
<td>-.13</td>
<td>-.10</td>
<td>-.12</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>.09</td>
<td>-.13</td>
<td>.09</td>
<td>.11</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
<td>-.13</td>
<td>-.20</td>
<td>-.26</td>
<td>-.24</td>
</tr>
<tr>
<td>11</td>
<td>45</td>
<td>-.10</td>
<td>-.01</td>
<td>-.03</td>
<td>-.06</td>
</tr>
<tr>
<td>12</td>
<td>71</td>
<td>-.18</td>
<td>-.17</td>
<td>-.24*</td>
<td>-.27*</td>
</tr>
</tbody>
</table>

\(H_0\) is rejected only for Instructor 12.
It is interesting to note that the coefficients with the largest absolute values are negative.

The same pattern exists here as did in the preceding two tables. Weighting the items on the Profile again increased the absolute value of four of the six coefficients having the largest absolute values. Only two of the smallest six in absolute value saw their absolute values increased.

Table 12 presents the correlation coefficients for the pair of variables \((u,n)\).

TABLE 12

<table>
<thead>
<tr>
<th>Instrutor</th>
<th>N</th>
<th>s((u,n))</th>
<th>r((u,n))</th>
<th>Instrutor</th>
<th>N</th>
<th>s((u,n))</th>
<th>r((u,n))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33</td>
<td>.15</td>
<td>.24</td>
<td>7</td>
<td>36</td>
<td>.07</td>
<td>.25</td>
</tr>
<tr>
<td>2</td>
<td>33</td>
<td>-.03</td>
<td>.05</td>
<td>8</td>
<td>27</td>
<td>.13</td>
<td>.05</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>.32</td>
<td>.23</td>
<td>9</td>
<td>13</td>
<td>.38</td>
<td>.23</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
<td>.09</td>
<td>.28</td>
<td>10</td>
<td>14</td>
<td>.41</td>
<td>-.08</td>
</tr>
<tr>
<td>5</td>
<td>32</td>
<td>.46</td>
<td>.25</td>
<td>11</td>
<td>40</td>
<td>.21</td>
<td>.16</td>
</tr>
<tr>
<td>6</td>
<td>36</td>
<td>.26</td>
<td>.32*</td>
<td>12</td>
<td>55</td>
<td>.13</td>
<td>-.06</td>
</tr>
</tbody>
</table>

\(H_0: r = 0\)

\(\alpha = 0.1\)

\(H_0\) is rejected only for Instructor 6.

Even though the null hypothesis is rejected for only one instructor, five of the remaining correlation coefficients are larger than .20.
Table 13 lists the coefficients of correlation for the pair of variables (u, g).

### TABLE 13

**CORRELATION COEFFICIENTS FOR THE PAIR OF VARIABLES (u, g)**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>N</th>
<th>s(u, g)</th>
<th>r(u, g)</th>
<th>Instructor</th>
<th>N</th>
<th>s(u, g)</th>
<th>r(u, g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53</td>
<td>.41</td>
<td>.36*</td>
<td>7</td>
<td>53</td>
<td>.06</td>
<td>-.05</td>
</tr>
<tr>
<td>2</td>
<td>72</td>
<td>.22</td>
<td>.20*</td>
<td>8</td>
<td>47</td>
<td>.18</td>
<td>-.02</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>.03</td>
<td>-.26</td>
<td>9</td>
<td>38</td>
<td>.44</td>
<td>.41*</td>
</tr>
<tr>
<td>4</td>
<td>63</td>
<td>.02</td>
<td>.19</td>
<td>10</td>
<td>32</td>
<td>.28</td>
<td>.06</td>
</tr>
<tr>
<td>5</td>
<td>42</td>
<td>.38</td>
<td>.07</td>
<td>11</td>
<td>50</td>
<td>.14</td>
<td>.06</td>
</tr>
<tr>
<td>6</td>
<td>40</td>
<td>.38</td>
<td>.37*</td>
<td>12</td>
<td>58</td>
<td>.44</td>
<td>.35*</td>
</tr>
</tbody>
</table>

$H_0$: $r = 0$

$\alpha = 0.1$

$H_0$ is rejected for Instructors 1, 2, 6, 9, and 12.

Again it is interesting that for five of the instructors the correlation coefficient is essentially zero while for the rest it is evidently not. Likewise the coefficient associated with Instructor 3 is interesting. It seems unlikely that the grade would correlate negatively with the student's opinion of the instructor. Although the coefficient is not sufficiently large to reject the null hypothesis, it does suggest the possibility that if the instrumentation were more refined, the designated level of significance would have been attained.
As was mentioned before, the data was stratified on the variable u, the Opinionnaire score, using the two cut-off points of 15.5 and 18.5. Analysis of variance was used to determine whether there were differences among the means of the three levels. The mathematical model used was

\[ X_{ij} = \mu_i + \alpha_j + e_{ij} \]

where \( X_{ij} \) is the Profile score of the \( i^{th} \) student in the \( j^{th} \) level, \( \mu_i \) is the mean Profile score of the entire population, \( \alpha_j \) is the mean effect of the \( j^{th} \) population, and \( e_{ij} \) is the random sampling effect or error term. Subsequently, weighted Profile score, net gain score, and grade will be substituted for Profile score. In every case the range of \( i \) varies, but \( j \) assumes the values 1, 2, and 3.

Table 14 exhibits the results of the analysis of variance when the Profile scores are stratified on the Opinionnaire scores.
TABLE 14

ANALYSIS OF VARIANCE FOR PROFILE SCORES

H₀: α₁ = α₂ = α₃

α = 0.1

<table>
<thead>
<tr>
<th>Instructor</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17.32</td>
<td>2</td>
<td>8.66</td>
<td>1.72</td>
</tr>
<tr>
<td></td>
<td>215.90</td>
<td>43</td>
<td>5.02</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>14.00</td>
<td>2</td>
<td>7.00</td>
<td>1.57</td>
</tr>
<tr>
<td></td>
<td>240.24</td>
<td>54</td>
<td>4.85</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>29.21</td>
<td>2</td>
<td>14.60</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>245.26</td>
<td>14</td>
<td>17.52</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>7.39</td>
<td>2</td>
<td>3.70</td>
<td>0.99</td>
</tr>
<tr>
<td></td>
<td>179.35</td>
<td>48</td>
<td>3.74</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2.79</td>
<td>2</td>
<td>1.39</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>164.80</td>
<td>36</td>
<td>4.58</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7.83</td>
<td>2</td>
<td>3.92</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>149.05</td>
<td>38</td>
<td>3.92</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>16.56</td>
<td>2</td>
<td>8.28</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>596.51</td>
<td>38</td>
<td>15.69</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>22.33</td>
<td>2</td>
<td>11.17</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>294.64</td>
<td>37</td>
<td>7.96</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>19.57</td>
<td>2</td>
<td>9.79</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>145.67</td>
<td>18</td>
<td>8.09</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>8.34</td>
<td>2</td>
<td>4.17</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>108.40</td>
<td>24</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>3.66</td>
<td>2</td>
<td>1.83</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td>189.94</td>
<td>37</td>
<td>5.13</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>9.63</td>
<td>2</td>
<td>4.82</td>
<td>0.37</td>
</tr>
<tr>
<td></td>
<td>713.74</td>
<td>55</td>
<td>12.98</td>
<td></td>
</tr>
</tbody>
</table>
$H_0$ is not rejected for any instructor.

Table 15 lists the results of the analysis of variance when the weighted Profile scores are stratified on the Opinionnaire scores. As before the asterisk indicates that the $F$-ratio is significant at the $\alpha = 0.1$ level.
TABLE 15

ANALYSIS OF VARIANCE FOR WEIGHTED PROFILE SCORES

H₀: α₁ = α₂ = α₃

α = 0.1

<table>
<thead>
<tr>
<th>Instructor</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>df</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>187.66</td>
<td>2</td>
<td>93.83</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>5045.22</td>
<td>43</td>
<td>117.33</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>616.95</td>
<td>2</td>
<td>308.47</td>
<td>3.20*</td>
</tr>
<tr>
<td></td>
<td>5213.06</td>
<td>54</td>
<td>96.54</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4419.74</td>
<td>2</td>
<td>2209.87</td>
<td>2.27</td>
</tr>
<tr>
<td></td>
<td>13643.23</td>
<td>14</td>
<td>974.52</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>122.70</td>
<td>2</td>
<td>61.35</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>3156.90</td>
<td>48</td>
<td>65.77</td>
<td></td>
</tr>
<tr>
<td>5</td>
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<td>22.36</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>3153.07</td>
<td>36</td>
<td>87.59</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>122.35</td>
<td>2</td>
<td>61.17</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>3689.40</td>
<td>38</td>
<td>97.09</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1155.05</td>
<td>2</td>
<td>577.53</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>22669.46</td>
<td>38</td>
<td>596.56</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>202.38</td>
<td>2</td>
<td>101.19</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>6454.64</td>
<td>37</td>
<td>174.45</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>295.11</td>
<td>2</td>
<td>147.56</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>3053.98</td>
<td>18</td>
<td>169.67</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>145.74</td>
<td>2</td>
<td>72.87</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>2052.09</td>
<td>24</td>
<td>85.55</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>29.54</td>
<td>2</td>
<td>14.77</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>1807.09</td>
<td>37</td>
<td>48.84</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>414.09</td>
<td>2</td>
<td>207.04</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>9576.18</td>
<td>55</td>
<td>174.11</td>
<td></td>
</tr>
</tbody>
</table>
$H_0$ is rejected only for Instructor 2.

Even when the Profile scores are weighted, it is clear that there are no significant differences between the means of the levels generally speaking. Moreover, a comparison of the F-ratios generated by the weighted Profile scores with the data generated by the unweighted Profile scores does not reveal a trend. Looking at the six largest F-ratios and the six smallest, one finds that three of each group increased when the Profile scores were weighted.

Table 16 presents the results of the analysis of variance when the net gain scores are stratified on the Opinionnaire scores.
TABLE 16
ANALYSIS OF VARIANCE FOR NET GAIN SCORES

$H_0$: $\alpha_1 = \alpha_2 = \alpha_3$
$\alpha = 0.1$

<table>
<thead>
<tr>
<th>Instructor</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between 2.68</td>
<td>2</td>
<td>1.34</td>
<td>2.13</td>
</tr>
<tr>
<td></td>
<td>Within 18.84</td>
<td>30</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Between 5.95</td>
<td>2</td>
<td>2.97</td>
<td>6.67*</td>
</tr>
<tr>
<td></td>
<td>Within 13.38</td>
<td>30</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Between 2.01</td>
<td>2</td>
<td>1.00</td>
<td>4.46*</td>
</tr>
<tr>
<td></td>
<td>Within 2.93</td>
<td>13</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Between 6.49</td>
<td>2</td>
<td>3.25</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>Within 48.89</td>
<td>23</td>
<td>2.13</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Between 2.92</td>
<td>2</td>
<td>1.46</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Within 53.08</td>
<td>29</td>
<td>1.83</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Between 3.55</td>
<td>2</td>
<td>1.78</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>Within 30.75</td>
<td>33</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Between 4.43</td>
<td>2</td>
<td>2.22</td>
<td>2.83*</td>
</tr>
<tr>
<td></td>
<td>Within 25.87</td>
<td>33</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Between 0.14</td>
<td>2</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>Within 23.94</td>
<td>24</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Between 3.23</td>
<td>2</td>
<td>1.62</td>
<td>1.62</td>
</tr>
<tr>
<td></td>
<td>Within 10.00</td>
<td>10</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Between 1.11</td>
<td>2</td>
<td>0.56</td>
<td>1.33</td>
</tr>
<tr>
<td></td>
<td>Within 4.60</td>
<td>11</td>
<td>0.42</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Between 3.74</td>
<td>2</td>
<td>1.87</td>
<td>1.83</td>
</tr>
<tr>
<td></td>
<td>Within 37.86</td>
<td>37</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Between 5.52</td>
<td>2</td>
<td>2.76</td>
<td>2.83*</td>
</tr>
<tr>
<td></td>
<td>Within 50.59</td>
<td>52</td>
<td>0.97</td>
<td></td>
</tr>
</tbody>
</table>
H₀ is rejected for Instructors 2, 3, 7, and 12.

It may not appear unusual that the means of the net gains of the students grouped by Opinionnaire scores should differ, but inspection of the following table reveals that in each case where the F-ratio was significant, the means of the satisfied and the dissatisfied students were essentially the same. The mean for the neutral students was larger for Instructors 2, 3, and 7 and lower for Instructor 12.

**TABLE 17**

**NET GAIN MEANS OF THE THREE STRATA**

**FOR INSTRUCTORS 2, 3, 7, AND 12**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>( \mu_1 )</th>
<th>( \mu_2 )</th>
<th>( \mu_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.0</td>
<td>1.143</td>
<td>0.158</td>
</tr>
<tr>
<td>3</td>
<td>-0.667</td>
<td>0.286</td>
<td>-0.167</td>
</tr>
<tr>
<td>7</td>
<td>0.0</td>
<td>1.077</td>
<td>0.450</td>
</tr>
<tr>
<td>12</td>
<td>-0.571</td>
<td>-1.231</td>
<td>-0.429</td>
</tr>
</tbody>
</table>

\( \mu_1, \mu_2, \text{ and } \mu_3 \) are the mean net gains of the dissatisfied, neutral, and satisfied students respectively.

The next table presents the results from the analysis of variance when the grades are stratified on the variable \( u \), the Opinionnaire score.
TABLE 18

ANALYSIS OF VARIANCE FOR GRADES

$H_0: \alpha_1 = \alpha_2 = \alpha_3$
$\alpha = 0.1$

<table>
<thead>
<tr>
<th>Instructor</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.81</td>
<td>2</td>
<td>3.91</td>
<td>3.49*</td>
</tr>
<tr>
<td></td>
<td>56.00</td>
<td>50</td>
<td>1.12</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.20</td>
<td>2</td>
<td>0.60</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>60.80</td>
<td>61</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.25</td>
<td>2</td>
<td>0.13</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>10.17</td>
<td>16</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5.80</td>
<td>2</td>
<td>2.90</td>
<td>3.10*</td>
</tr>
<tr>
<td></td>
<td>56.13</td>
<td>60</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.92</td>
<td>2</td>
<td>0.96</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>55.72</td>
<td>39</td>
<td>1.43</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7.61</td>
<td>2</td>
<td>3.80</td>
<td>3.73*</td>
</tr>
<tr>
<td></td>
<td>37.77</td>
<td>37</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.24</td>
<td>2</td>
<td>0.12</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>47.31</td>
<td>50</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0.88</td>
<td>2</td>
<td>0.44</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>36.40</td>
<td>44</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4.49</td>
<td>2</td>
<td>2.24</td>
<td>2.07</td>
</tr>
<tr>
<td></td>
<td>37.86</td>
<td>35</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1.96</td>
<td>2</td>
<td>0.98</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>22.04</td>
<td>29</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>0.17</td>
<td>2</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>51.83</td>
<td>47</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>12.13</td>
<td>2</td>
<td>6.07</td>
<td>5.63*</td>
</tr>
<tr>
<td></td>
<td>59.27</td>
<td>55</td>
<td>1.08</td>
<td></td>
</tr>
</tbody>
</table>

$H_0$ is rejected for Instructors 1, 4, 6, and 12.

Once again it does not seem unusual that the means of the three groups of students should differ. Comparison of the means reveals the expected result, namely, $\mu_1$ is the smallest. But $\mu_2$ is the largest mean for Instructors 4 and 6. Below is the table of means for these four instructors.

### TABLE 19

**GRADE MEANS OF THE THREE STRATA**

**FOR INSTRUCTORS 1, 4, 6, AND 12**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>$\mu_1$</th>
<th>$\mu_2$</th>
<th>$\mu_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.500</td>
<td>2.556</td>
<td>2.925</td>
</tr>
<tr>
<td>4</td>
<td>2.222</td>
<td>3.176</td>
<td>2.676</td>
</tr>
<tr>
<td>6</td>
<td>2.000</td>
<td>3.333</td>
<td>2.739</td>
</tr>
<tr>
<td>12</td>
<td>1.091</td>
<td>1.714</td>
<td>2.136</td>
</tr>
</tbody>
</table>

$\mu_1$, $\mu_2$, and $\mu_3$ are the mean grades of the dissatisfied, neutral, and satisfied students respectively.

**Conclusions**

On the basis of the results of the statistical analysis a number of conclusions will be drawn, taking into consideration the limitations, which were mentioned earlier, that may have affected the outcome of the experiment.
There were two main conjectures which led to this study. First, that it was possible to predict whether a student will be satisfied with his instructor. Second, that it was possible to predict whether a student will over-achieve while studying under his present instructor. To this end it was necessary to measure the student's anticipated satisfaction and his actual satisfaction. The anticipated satisfaction was determined by responses to the items on an instrument called the instructor Profile. The score on the Profile was a measure of how closely the responses of the student agreed with those of students who apparently were satisfied with the instructor in the past. His actual satisfaction was measured by an instrument called an Opinionnaire, and his net gain in academic achievement, i.e., whether the student was an over-achiever, was determined by course grades. These two hypotheses and several subordinate ones were tested and the results exhibited in the preceding section of this chapter. Here an attempt will be made to interpret these results.

Neither of the two above mentioned principal conjectures was strongly supported by the evidence. The first hypothesis was only rejected for two of the instructors and the second hypothesis for only one. At least in the latter instance the occurrence of a coefficient of correlation high enough to cause the rejection of the hypothesis could well be due to chance since there were twelve instructors involved. Nevertheless, there is reason to believe that the Profile score is indicative of the ultimate satisfaction of the student with his instructor for about half of the instructors.
It may be that this effort to anticipate the satisfaction of the student will never be productive for every instructor, but may be successful with some of them. There are several plausible explanations for this. Perhaps a more important one is that the behavior of the instructor differs from course to course or year to year. A teacher may enjoy teaching one course considerably more than another. How this manifests itself is not really important. What is important is that the teacher affects the students in the two classes differently. A behavior pattern may induce satisfaction in the student with that teacher in one course, and yet in another course or at another time with the same teacher the student may not be as satisfied because the person is essentially not the same teacher. On the contrary, if the behavior of an instructor is quite static or predictable from class to class and from course to course, the Profile score could be a good indicator of a student's ultimate satisfaction with the instructor.

There may be justification for separating the data collected from the students by course. However, there was one instructor who taught only one course. This was Instructor 5. But her results do not support this suggestion that to stratify by course will boost the correlation. There may have been other reasons, of course, why the correlation coefficient of this instructor was so nearly zero (in fact, negative).

Another possible explanation for the lack of statistical support for the rejection of the first hypothesis is that there was insufficient
data available because of the previously mentioned boundary conditions imposed on the study for the construction of an accurate Profile. That is to say, it may well be possible to construct a Profile for every instructor which would faithfully distinguish between satisfied and dissatisfied students. But further development of the Questionnaire would be necessary to effect an accurate prediction of satisfaction of students with those instructors whose associated coefficients of correlation are now zero. Perhaps several new classes of items for the Questionnaire would be essential.

It appears that for those instructors where predicting the satisfaction results in a modicum of success, weighting the items on the Profile will make the prediction process even more successful. This suggests that it may have been correct to surmise that certain items on the Questionnaire that become incorporated into the Profile are more important than others. Thus it seems that weighting the items increases the effectiveness of the Profile as a predicting instrument if its use is restricted to those instructors for whom it has revealed some predictive power. In other words, since it may not be possible to construct a useful Profile for each instructor, when one is constructed, the item should be weighted. In any case it does appear that the satisfaction of a student with certain instructors can be predicted even though the results of this study do not conclusively support this contention.
The second main contention received even less support from the data. Only one of the coefficients of correlation was significant at the modest level of $\alpha = 0.1$, and only then when the Profile scores had been weighted. Nevertheless it would be hasty to dismiss forthwith the conjecture that an instrument can be devised with which to predict the net gain in achievement of a student under a particular instructor. First of all several of the coefficients are distant enough from zero to cause suspicion that there is a relationship between the student's anticipated satisfaction and his gain in achievement, but that the Profile, as it exists, has not satisfactorily revealed this relationship. Again it is conceivable that the Profile could be a good predictor of achievement gain, if it were refined, for only certain instructors. The reasons would no doubt be similar to those advanced above when discussing the ability to predict satisfaction from the Profile score. Weighting the items on the Profile had an even greater salutary effect in the case of net gain. The fact that the six largest coefficients were increased in absolute value while the six smallest decreased generally, lends weight to the argument that using an instrument such as the Profile to predict satisfaction or net gain in achievement may only make sense with certain instructors.

In talking about the size of the coefficients associated with net gain, it was necessary to regard their absolute values. While it seems clear that characteristics associated with satisfaction in the past should also be associated with satisfaction in the future, it is not evident that these characteristics should also be associated with
success in the future. This is what the second contention effectively was saying. It may well be that even though a student is expected to be satisfied with his instructor, it could also be expected that he will under-achieve. Thus a negative coefficient of correlation arises. Although it was not one of the main purposes of this research to determine if a satisfied student is an over-achiever or an under-achiever, it does suggest the question of whether the instructor makes a difference. The results seem to support the natural position that the satisfied student tends to be the over-achiever, and the dissatisfied student is the under-achiever. Nevertheless, only one of the coefficients was significant although such a trend is indicated. Why should not the results be more supportive of this position?

Recall that over- and under-achievement were defined to be the difference of the present course grade and the previous course grade. It may be that this is at best a crude measure of that quality. We need go no farther than to the data of Instructor 9 in this study to catch a glimpse of a possible reason. He was a teacher in two different courses. In one course where he had the authority to determine the final grade he gave many A's and B's and no E's. Meanwhile in the course in which the final grades were determined by department test scores, he was forced to give few A's and B's and many D's and E's. It is likely that many more over-achievers as defined in this study, would be found in the former course than in the latter. These grades could reflect the actual situation, but it is unlikely.
As expected the Profile is not a good predictor of the course grade. For three of the instructors there may be some value in the use of the Profile as a predictive instrument. Interestingly enough the correlation coefficients are negative in each case. However when the weighted Profile scores are used, there is doubt cast upon the use of this instrument for one of these instructors as the new coefficient is more nearly zero. The negative coefficients would seem to indicate that if a student, on the basis of his Profile score, is expected to be satisfied with his instructor, it might unfortunately be the case that he will receive a lower grade than those students who are expected to be dissatisfied. This does indeed seem strange. But if the correlation coefficients \( r(p,u) \) and \( r(p\#,u) \) indicating the predictive power of the Profile in terms of satisfaction are considered, we see that they are also negative for Instructors 10 and 12. Since the Profile was not a good predictor of satisfaction for these two instructors, it is not reasonable to say a particular student will probably be satisfied and hence not achieve, at least on the basis of the results of the Profile. At best it seems to say that the Profile for these instructors cannot be used to predict the satisfaction of a student, but it may be useful in suggesting whether this student will demonstrate academic achievement.

Once again the results were enhanced by using the weighted Profile scores. This would seem to indicate the predictive power of the Profile or its possible descendents would be increased if the items
were weighted in some way. The virtue of the weighting method chosen for this study was that it seemed natural.

The actual satisfaction is a rather good indication of what the student's final grade in the course will be, at least for five of the instructors. This does not seem unreasonable inasmuch as the student has a good idea by the last week of classes what his final grade will be and whether he is satisfied with his achievement. In this sense the actual satisfaction of the student with the instructor as measured by the Opinionnaire is probably in some cases the satisfaction of the student with his achievement in the course. Thus the satisfaction of a student with an instructor may be determined by his grade. Rightly or not, the student may choose to blame his instructor for lack of achievement rather than assuming the responsibility himself. But this suggests another reason for the failure of the Profile to be a better predictor. There is the factor of course grade or anticipated course grade which may affect the satisfaction of some students with their instructors and thus contaminate the results. Of course this was also present when the Profile was constructed, so its influence is felt twice.

But this transfer of blame for failing to achieve up to a student's expectations does not have to be the only cause for a correlation between satisfaction and course grade. The student for reasons other than grades may find himself dissatisfied with the instructor. This dissatisfaction may produce an atmosphere hostile to accomplishing much academically, and thus the student demonstrates a
lack of achievement. All this is to say that even if there appeared to be a relationship between satisfaction and achievement, it is not possible from the results of this study to determine whether one was the cause of the other.

By and large the analysis of variance confirmed the lack of evidence to reject the hypotheses. The mean Profile scores (weighted and unweighted) of the three strata were not significantly different. However when the net gain scores and the grades were stratified, it was found that there tended to be significant differences among the means of the three levels, at least for four instructors in each instance. In the case of net gain, it was the mean of the neutral students that was higher in three cases and lower in one. This seems strange. A reasonable interpretation of this result is difficult to find. Possibly it is an indication that some students need a tranquil classroom setting. If they enjoy too much or too little empathy with their instructor, it may be the case that their achievement is affected adversely.

Summary

The results of the study did not unequivocally confirm the main conjectures. Even though it does appear that in general the Profile is an instrument by which the satisfaction of the student with a particular instructor can be predicted, there did appear to be the trend that in the case of certain instructors the Profile might prove
to be a useful instrument. From the results it seems doubtful that the academic success of a student can be reliably predicted from the instructor Profile. The relationship between the two is perhaps more complicated than the more direct one that would seem to exist between student satisfaction and his response pattern on the Profile.

It was surmised that the weighted Profile score would be more useful than the unweighted score. What was unexpected was that the use of the Profile in this study seemed to be reasonable with certain instructors and only with these was it generally the case that the weighted Profile score made the Profile a better predictive instrument.

In summary, this writer feels that on the basis of the results of this study an instrument such as the Profile could be a useful and reasonable way to determine the student who would probably relate well with a particular instructor. This is not to say that a student who has empathy for his instructor would meet with academic success. But the use of the Profile could provide a basis upon which assignment of students to classes can be made. In the next chapter suggestions will be made for the directions that future research in this area could take.
CHAPTER VI

SUGGESTIONS FOR FUTURE RESEARCH

Many questions were raised during the course of this study for which future research could attempt to provide answers. Several were due to results that were not anticipated. It is probably true that some of these questions need not have been asked if certain initial conditions imposed on the study had not existed.

One unanticipated result was that the Profile has a possible future as a predictive instrument only for certain teachers. This could actually be the case. However, a consideration is that the Questionnaire may not have contained a sufficient number of items or a broad enough sampling of items to be able to discriminate between satisfied and dissatisfied students. To suggest this raises yet another question. There were items on the Questionnaire that seemed to distinguish between satisfied and dissatisfied students. Why did not those same items, when constituting the Profile, accurately designate the satisfied and dissatisfied students? There are two answers that suggest themselves.

First, the cell frequencies which these items generated when on the Questionnaire may have occurred simply by chance. That is, there
is absolutely no relationship between the response by a student to that item and his satisfaction with the instructor. If several such items made up the Profile, it would indeed be a sorry predictive instrument.

A second possible answer to this question is that the two classes involved, one which responded to the Questionnaire and the other to the Profile, are distinctly different. That is to say, the satisfied students in one class would not respond to the Profile items as would the satisfied students in the other class. In other words, the original sample of students was so small that it was not representative of the entire population. An exploration of this question might prove interesting.

Further study is needed regarding the weighting of items on the Profile. In fact, if an item is going to be weighted according to its chi-square, why only use those items on the Profile with chi-squares greater than a certain number? Would it not be reasonable to simply use all the Questionnaire items? There is, of course, a practical answer to this query, namely the time involved would be prohibitive. But is that the only reason?

As was mentioned earlier in this report, the definition of satisfied and dissatisfied students were rather arbitrarily made. It was suggested that perhaps a student who scores 15 on the Opinionnaire is not really dissatisfied. There is little difference between scores of 19 and 15. It would have been preferable if the range of scores was greater. It is possible for a student to be dissatisfied with the
teacher yet he tends to respond agreeably or affirmatively to instruments and thus appears to be satisfied. Meanwhile a truly satisfied student may respond negatively to instruments and appear to be dissatisfied. It may have been possible to identify certain of these students if both statements and their opposites were somehow included in the Opinionnaire. Again homage was being paid to brevity in not utilizing this technique.

In the pilot study the results of one instructor showed a high correlation between net gain in academic achievement and the Profile score. The main study did not substantiate this. But the question remains whether an instrument such as the Profile can be constructed to predict successfully those students who will be over-achievers with a particular instructor. It does not seem to be necessarily the case that the over-achiever will be the satisfied student. Perhaps a student, if he feels some sort of tension due to being dissatisfied with his teacher, will actually invest more effort than normal and over-achieve. It would enhance an instrument like the Profile if it could identify those students who would likely be satisfied and over-achieve. It is questionable whether it would be sound educational practice to place a student with a teacher with whom he will probably do well academically while at the same time be miserable because of the teacher. Similarly it does not seem to be beneficial to place a student with a teacher with whom he will be satisfied but at the same time accomplish little academically.
But now the question of grouping has arisen. This was the point of departure for this study. It had originally been the intention of this investigator to predict whether a student would be satisfied with each teacher available and assign the student to the class of the instructor on whose Profile he scored best. Thus students would be grouped on the basis of their anticipated satisfaction. However, it soon became evident that it would be nearly impossible to carry out a grouping procedure on such a large scale, especially since the students had already been assigned to classrooms by a computer scheduling process. The questions still remain, however, whether such a grouping procedure might be advantageous and whether it might yield results that this study did not. It seems likely that both questions would be answered affirmatively.

A possible advantage derived from grouping the students on the basis of anticipated satisfaction is that the atmosphere might be more supportive of their feelings. For example, if a student is quite satisfied with his teacher, he would probably freely admit his satisfaction on an instrument like the Opinionnaire if he were a member of a class which is composed of students rather satisfied with the teacher. On the other hand, if there were several vocal students who were dissatisfied with their instructor, the satisfied student might feel somewhat restrained from expressing utter satisfaction and might find his enthusiasm for the teacher somewhat dampened. This phenomenon, if it exists, would also manifest itself in the case of a dissatisfied student being in a class of students generally critical
of the teacher where he would probably express his dissatisfaction freely. If he were with students who thoroughly enjoyed the teaching, he might be more reserved in his criticism. Call this the dampening effect.

Grouping to avoid this dampening effect could provide results that reveal differences in achievement between experimental and control groups. Suppose it were the case that for a certain teacher the satisfied student is the over-achiever. The results might substantiate this position better if there were no dampening effect. It may well be the case that there is the kind of student who becomes complacent when there is no tension between student and teacher and as a result under-achieves. Grouping on satisfaction might better uncover such students and facilitate the identification of the characteristics of such a student.

In spite of the advantages that might accrue through a grouping process based on satisfaction, it would still be necessary to construct Profiles on the basis of classes heterogeneous in terms of satisfaction, as was done in this study. Moreover, if it is the case that regardless of the refinements in the instrumentation, the satisfaction of students cannot be predicted for all teachers, then a simpler non-grouping procedure, such as was used in this study, to identify these instructors would be useful.

Even if the Profile became a viable instrument with which to predict satisfaction and academic success, there is the problem of whether the Profile needs to be kept up-to-date. It would seem likely
that as the teacher changes (hopefully he does not remain static, but
grows) and ages, the kind of student who would find him satisfying
would change, and hence the Profile of this instructor would change
was well. But it would be hoped that the change is not too rapid or
sudden. The stability of the Profile would be an interesting topic
to investigate. It may well be that the most important factor is the
kind of teacher the person wants to be for a particular class. In
this case, the Profile could not be a reliable instrument because
the teacher tries to adopt different teaching styles and character-
istics depending on the situation.
APPENDIX A

Thelen's Battery of Tests
Here is a list of activities that occur in the classroom. We have found that students have differing opinions as to which of these activities are the most meaningful and worthwhile. We would like you to indicate on the Response Sheet which of these activities mean most to you. There is no "right way" to respond to any of these items, so simply give your personal opinion about each one. Read all the items carefully and mark each in the appropriate space provided on the response sheet.

For each item (1-40) mark space:
1. If for you the activity is worthless— a waste of time
2. If for you the activity is not so good—slightly dull
3. If for you the activity is about average—neither exciting nor dull
4. If for you the activity is quite good—rather interesting
5. If for you the activity is highly worthwhile—get a good deal from it

(Be sure to start with Response Sheet I)

1. Have planning sessions in which the whole class is involved.
2. Work with a committee on a written report.
3. Take a test or quiz.
4. Take notes while the teacher lectures.
5. Review a test and correct mistakes.
6. Have a general class discussion led by another student.
7. Go on a field trip.
8. Work with a committee to prepare a lesson to present to the class.
9. Have teacher assign exercises for practice.
10. Work independently on a project you choose yourself.
11. Get individual help and instruction from the teacher while doing class work.
12. Listen to other students recite on assigned homework.
13. Be a member of a panel discussion
14. Grade or evaluate your own performance in an activity.
15. Do research in the library for your term paper.
16. Have teacher lead a discussion in which basic principles are explained.
17. Take notes on a movie or film strip.
18. Have a class discussion on a topic suggested by the teacher.
19. Discuss with the teacher possible activities you could do.
20. Organize a group activity with a few other students.
21. Explain a homework problem to the class.
22. Engage in class discussion of a movie or filmstrip.
23. Have a conference with the teacher concerning your progress in class.
24. Perform a demonstration or experiment for the class.
25. Discuss class material with a group of other students.
26. Have a spelling bee or some type of quiz game.
27. Prepare, on your own, to make a report to the class.
28. Listen to the teacher explain or demonstrate a lesson.
29. Participate in a class drill on fundamentals.
30. Work with other students in designing and completing a project.
31. Have teacher “crack down” on class order and discipline.
32. Watch as problems are put on the board by another student.
33. Study by yourself to prepare for a test.
34. Go to the library with your committee to do research.
35. Have teacher give specific instructions on how to do something.
36. Study basic course content as a member of a small group of students.
37. Begin homework assignments.
38. Be a member of a committee that plans a special event for the class.
39. Have teacher make it clear what is expected of the class.
40. Evaluate the quality of committee work with other group members.

Some things are really very enjoyable to do. Others are less pleasant, and still others are most unpleasant. How pleasant or unpleasant for you is each of the following? Indicate your preference for each item (46-95) by blackening spaces:

1. If doing this is indeed very unpleasant for you.
2. If doing this is, on the whole, rather unpleasant for you.
3. If doing this is neither pleasant nor unpleasant.
4. If doing this is, on the whole, rather pleasant for you.
5. If doing this is very enjoyable for you.

Sample:

45. Hearing the teacher read a story to the class. 45. 1 2 3 4 5
(The black mark says that this activity, number 45, is, on the whole, rather unpleasant.)
(Be sure to skip to item 46 on Response Sheet I)

46. Hearing the ideas of other students during class discussion of some topic.
47. Listening to others on a student committee discuss a topic on the agenda.
48. Reading a book and deciding what the author is really trying to say to you.
49. Telling a group of your friends your ideas and feelings about the plans they are discussing.
50. Pointing out good ideas and attacking bad ideas offered during class discussion.
51. Hearing another student make a spur-of-the-moment speech about himself to the class.
52. Listening to another student explain his ideas about a topic you both are familiar with.
53. Telling a group of friends your most intimate and personal feelings.
54. Listening to other members of a student committee talking about the anxieties and pleasures they experience in the committee.
55. Giving a prepared report to the class.
56. Being told by another student just what are your good and bad points.
57. Reading a story in which the author describes the innermost private feelings of the characters.
58. Having one of your friends give advice to the whole gang.
59. Thinking about an argument you might have used to persuade others.
60. Listening to another member of a student committee to which you belong explain about parliamentary rules.
61. Explaining to a group of friends how they ought to go about doing their job.
62. Making a speech to the class about your personal experience.
63. Telling a group of friends what is good or bad about their ideas and behaviors.
64. Telling another student your secret thoughts and hopes.
65. Thinking about all the things you have to do today.
66. Keeping class discussion on the beam by bringing the others back to the problem.
67. Telling a visiting student from another school about the program of courses taught in your school.
68. Having the teacher call on individual students by name to answer his questions during class discussion.
69. Hearing another student tell you what he would do if he were you.
70. Listening to a group of your friends very frankly criticizing each other's behavior and appearance.
71. Reading a book in order to learn all about some topic.
72. Listening to other students giving carefully prepared and detailed reports to the class.
73. Listening to others in a group of your friends discuss their ideas and beliefs about some problem you all have.
74. Critically comparing yourself to one of the characters in a TV show or play.
75. Telling a student committee your views about the project they are discussing.
76. Hearing others in a group of your friends tell their innermost feelings about their private problems.
77. Sitting by yourself remembering things that happened today.
78. Reporting to a group of your friends all about an article you read recently.
79. Giving another student your opinion of his strengths and weaknesses.
80. Being one of the more active persons during a lively class discussion.
81. Evaluating a TV program and criticizing the parts that are dull, silly, etc.
82. Telling a student committee what to do next when they appear mixed up or confused.
83. Having a student committee you belong to appraise the performances of the various members.
84. Trying to interest another student in some hobby or interest of yours.
85. Listening to a group of your friends discuss some event such as a football game they went to.
86. Telling another student your ideas about a problem you both have.
87. Hearing the class give opinions about the quality of their own discussion.
88. Writing a letter in which you explain your deepest feelings.
89. Having the chairman of a student committee explain exactly what everyone must do.
90. Hearing the private experiences of another student.
91. Sitting by yourself quietly thinking about things that interest or puzzle you.
92. Pointing out to a student committee in what ways its members are being helpful or making trouble.
93. Hearing a student from another school talk about his school.
94. Telling a student committee quite frankly how you feel about the various members.
95. Describing to a student committee what a similar committee did last year.

Most students have a general impression of what teachers are like; that is, they can describe a "typical" teacher. Students also have ideas about the sort of teacher from whom they can learn most, and the sort of teacher in whose class they feel most comfortable. In this section, you are asked to decide how well each of the six paragraphs describes your impression of the typical teacher, the one from whom you would learn most, and the one you are most comfortable with.

Thus, you will judge each paragraph three times. In each case blacken answer space numbered:

1. If the paragraph best fits your impression.
2. If the paragraph generally fits your impression, even though it is not quite accurate in some respects.
3. If the paragraph talks about other things so that you can't tell whether or not the teacher would fit your impression.
4. If the paragraph clearly is out of line with your impression.
5. If the paragraph contradicts your impression or describes the opposite of your impression.

On the IBM response sheet, use items numbered 106-111 to judge the paragraphs according to your impression of the typical teacher.

Use items numbered 112-117 to judge the paragraphs according to your impression of the teacher you would learn most from.

Use items numbered 118-123 to judge the paragraphs according to your impression of the teacher you would be most comfortable with.

(Be sure to skip to item 106, on Response Sheet I)

<table>
<thead>
<tr>
<th>Item</th>
<th>For typical teacher use item</th>
<th>For learn most use item</th>
<th>For feel comfortable use item</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>This teacher really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.</td>
<td>106</td>
<td>112</td>
</tr>
<tr>
<td>B</td>
<td>This teacher plans learning activities with the students. He takes time to get suggestions from the students and tries to help them work out a plan with which they all are satisfied. He allows students a good deal of freedom in choosing people with whom to work and in deciding on what topics they will work within the plan.</td>
<td>107</td>
<td>113</td>
</tr>
<tr>
<td>C</td>
<td>This teacher makes sure that rules are clear from the start so that students will know what is expected of them. He reminds the students of the rules when he thinks they have forgotten them. He tries to help the students become aware of the necessity of meeting requirements.</td>
<td>108</td>
<td>114</td>
</tr>
<tr>
<td>D</td>
<td>This teacher expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.</td>
<td>109</td>
<td>115</td>
</tr>
</tbody>
</table>
E. This teacher wants students to feel that he can be one of them. He knows a lot about what teen-agers like to do. He plans the work of the class around these things and enjoys discussing them in class.

F. This teacher makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.

There is an amazingly large number of decisions that seem to affect learning. One way or another, each decision in the classroom is made by:

A—You alone
B—Teacher alone
C—Class-as-a-whole
D—You plus one or a few other students, as a small group
E—You plus the teacher

The purpose of this questionnaire is to find out from both students and teachers, their opinions about who should make certain decisions. We are not asking what these decisions should be, but only who should decide.

Read each sentence. When you have decided which person or groups (A, B, C, D, or E) should make the decision, blacken the corresponding space (A, B, C, D or E) on Response Sheet II.

Sample:
1. What questions should be on a test? A B C D E
   (If you feel the teacher should make this decision, then you would blacken the space under column B for item 1.)
   (Be sure to use Response Sheet II)

1. Whether your project group should meet after school.
2. Whether, and under what conditions, you will work alone.
3. How much help you should accept from another student.
4. With whom you will work on a project.
5. How worthwhile was your contribution to the class discussion.
7. "Is what extent the teacher should give you his personal opinion of yourself.
8. What conclusions you should reach from a discussion of current-events.
9. When a committee should ask one of its disturbing members to leave.
10. How good a job the teacher did today.
11. Whether the teacher should tell you an answer, or expect you to dig it out for yourself.
12. "To what extent is the behavior of another student "out of line."
13. How worthwhile was the class discussion today.
14. How hard will you work on an assignment that you consider "stupid."
15. Whether the committee you were on did a good job or not.
16. Whether it is a good idea to see the school counselor about a personal problem.
17. What type of project you will work on next.
18. When you will come in for a conference with the teacher.
19. Whether you will do extra-credit work.
20. Who you should sit next to in class.
21. Whether you are making satisfactory progress.
22. When you need to go to the library.
23. When your skit or report is ready to present to the class.
24. Whether it is all right to ask questions to end someone's boring report.

You will be presented with one-sentence descriptions of a lot of incidents of the kind that frequently occur in classrooms.
Each of these descriptions is given in an incomplete sentence that can be finished in either of two ways, A or B. Decide which way you prefer to finish each sentence. On the separate response sheet, either A or B (not both) should be marked opposite the number of the sentence, to complete the sentence.
Make your selections quickly. Don't linger over the items—your first impression is good enough.
Please do not leave out any items.
(\textbf{Be sure you skip to item 31, on Response Sheet II})

31. When I wanted to work with Frank, I...  
\textbf{A.} felt we could do well together.  
\textbf{B.} asked if it would be all right with him.
32. When the group wanted his views about the task, Sam...  
\textbf{A.} wondered why they wanted his views.  
\textbf{B.} thought of what he might tell them.
33. When the leader made no comment, I . . .
   A. offered a suggestion of what to do.
   B. wondered what to do next.
34. When Don said he felt closest to me, I . . .
   A. was glad.
   B. was suspicious.
35. When I felt helpless, I . . .
   A. wished that the leader would help me.
   B. found a friend to tell how I felt.
36. When Henry was annoyed, Ray . . .
   A. thought of a way to explain the situation to him.
   B. realized just how he felt.
37. When Ned felt eager to go to work, he . . .
   A. got mad at the late-comers.
   B. wanted to team up with Jim.
38. When Glenn bawled me out, I . . .
   A. lost interest in what we were supposed to be doing.
   B. thought that some of his ideas would be useful.
39. When the leader lost interest, Mort . . .
   A. suggested a way to get everybody working.
   B. started talking with his neighbors.
40. When Phil felt warm and friendly, he . . .
   A. accomplished a lot more.
   B. liked just about everyone.
41. When the leader was unsure of himself, Norm . . .
   A. wanted to leave the group.
   B. didn't know what to do.
42. When the group just couldn't seem to get ahead, I . . .
   A. felt like dozing off.
   B. became annoyed with them.
43. When the group wasn't interested, I . . .
   A. just didn't feel like working.
   B. thought that the leader should do something about it.
44. When the leader said he felt the same way I did, I . . .
   A. was glad that I had his approval.
   B. thought we would probably begin to make progress now.
45. When I became angry at Jack, I . . .
   A. felt like dozing off.
   B. ridiculed his comments.
46. When the leader wanted me to tell the class about my plan, I . . .
   A. wished I could get out of it.
   B. wished that he would introduce it for me.
47. When Art criticized Bert, I . . .
   A. wished that the teacher would help Bert.
   B. felt grateful to Art for really expressing what we both felt.
48. When Henry and Mary enjoyed each other's company so much, I . . .
A. thought that I'd like to leave the room.
B. felt angry.
49. When the leader changed the subject, Al ...
   A. suggested that they stick to the original topic.
   B. felt glad that the leader was finally taking over.
50. When the others became so keen on really working hard, I ...
   A. made an effort to make really good suggestions.
   B. felt much more warmly toward them.
51. When I felt angry enough to boil, I ...
   A. wanted to throw something.
   B. wished that the leader would do something about it.
52. When Lee was not paying attention, I ...
   A. did not know what to do.
   B. wanted to tell him he was wasting our time.
53. When Henry thought that he needed a lot of help, Martin ...
   A. warmly encouraged him to get it.
   B. helped him analyze the problem.
54. When Jack reported his results so far, I ...
   A. laughed at him.
   B. was bored.
55. When everyone felt angry, I ...
   A. suggested that they stop and evaluate the situation.
   B. was glad that the leader stepped in.
56. When no one was sticking to the point, I ...
   A. got bored with the whole thing.
   B. called for clarification of the topic.
57. When Herb said he felt especially friendly toward me, I ...
   A. wanted to escape.
   B. wanted to ask his advice.
58. When the group agreed that it needed more information about how members felt, I ...
   A. described my feelings to the group.
   B. wasn't sure I wanted to discuss my feelings.
59. When the leader offered to help Carl, Joe ...
   A. wanted help too.
   B. resented the leader's offer.
60. When Dave and Lou argued, I ...
   A. asked Hank how he felt about them.
   B. hoped they would slug it out.
61. When Chuck felt especially close to Steve, he ...
   A. let him know it.
   B. hoped he could turn to him for assistance.
62. When several members dropped out of the discussion, Henry ...
   A. thought it was time to find out where the group was going.
   B. got sore at what he thought was their discourtesy.
63. When Stan told me he felt uncertain about what should be done, I ...
A. suggested that he wait awhile before making any decisions.
B. suggested that he get more information.

64. When Jim realized that quite a few people were taking digs at each other, he . . .
A. wanted to call the group to order.
B. got angry at the stupidity of their behavior.

65. When the group suggested a procedure, I . . .
A. thought the teacher ought to express his approval or disapproval of it.
B. thought we ought to decide whether to carry it out.

66. When Ed seemed to be daydreaming, Bill . . .
A. winked at Joe.
B. felt freer to doodle.

67. When Tom and Mary arrived twenty minutes late for the meeting, the group . . .
A. went right on working.
B. was very annoyed.

68. During the argument, Roy's opposition caused Earl to . . .
A. withdraw from the discussion.
B. look to the teacher for support.

69. When Marvin suggested we evaluate how well we were working as a group, I . . .
A. was glad that the period was almost over.
B. gladly backed him up.

70. When the group seemed to be losing interest, Pat . . .
A. became angry with the other members.
B. thought it might just as well adjourn.

71. Together John and Fred . . .
A. wasted the group's time.
B. supported one another's arguments.

72. When Mai offered to help me, I . . .
A. said I was sorry, but I had something else to do.
B. was pleased that we would be partners.

73. When the other group became so interested in their work, George . . .
A. wanted to ask their leader if he could join them.
B. felt resentful that his group was so dull.

74. When Art left the meeting early, Dick . . .
A. and Michael told each other what they felt about Art.
B. was glad that he had gone.

75. When Lou turned to me, I . . .
A. wished that he would mind his own business.
B. asked him for help.

76. When Hal felt hostile to the group, he . . .
A. wished he would not have to come to the meeting.
B. was glad that Bob felt the same way.

77. While Dan was helping me, I . . .
A. became annoyed with his superior attitude.
B. felt good about being with him.

78. When I lost track of what Paul was saying, I . . .
   A. asked the teacher to explain Paul's idea to me.
   B. was pleased that it was Mike who explained Paul's idea to me.

79. While the group was expressing friendly feelings toward Bill, Ken . . .
   A. thought that now Bill would be able to work.
   B. opened a book and started to read.

80. When the leader offered to help him, Pete . . .
   A. said that he did not want any help.
   B. realized that he did need help from someone.

* * * * *

We have classified activities as being Ways of Doing Things: with a teacher, in a class, with a few others, or by yourself. As students participate in activities of these kinds they are often aware of certain disadvantages. On the next two pages you will find a number of disadvantages that various students have told us about. To some extent, each kind of activity may have some of these disadvantages for you too. Please indicate, in your opinion, how often each of the following disadvantages is likely to occur. The ratings to be used are as follows:

A—almost always
B—frequently
C—often as not
D—occasionally
E—almost never

Read each sentence. When you have decided how often each disadvantage occurs for you, blacken the space under the appropriate letter on the answer sheet.

(Do not skip to Item 91 on Response Sheet II)

91. When doing things in a class I forget ideas that have been explained previously.

92. When talking with a teacher I lose the thread of conversation.

93. When doing things with a few other students I get confused in my work.

94. When doing things as a member of the class I get into trouble with others.

95. When doing things by myself I delay getting started on work.

96. When discussing things with a teacher I lose interest in ideas.

97. When doing things with a few other students I become upset easily.

98. When doing things as a member of a class I get distracted from my work.

99. When doing things alone I find it hard to think clearly about myself.

100. When doing things with a few other students I get into trouble.

101. When I have work to do with a teacher I don't feel like getting started.

102. When doing things as a member of the class I become upset easily.

103. When doing things by myself I lose interest in ideas.
When doing things with a teacher I feel very little enjoyment.
While doing things with a few other students I forget ideas that have been explained.
When doing things by myself I think about things I want to say to others.
When doing things in a class I find it hard to consider ideas.
When doing something with a teacher I have difficulty talking.
When doing things with a few other students I waste time.
When doing things in a class I lose interest in what others say.
When doing things by myself I get distracted from work easily.
When discussing things with a teacher I find it hard to consider ideas.
When doing things with a few other students I feel very little enjoyment.
When doing things as a member of a class I get confused in my work.
When doing things by myself I become upset easily.
When doing things with a few other students I have difficulty talking.
When I do something with a teacher I get confused in my work.
When doing things as a member of the class I feel very little enjoyment.
When doing things by myself I have difficulty understanding ideas.
When doing things with a teacher I find it hard to think clearly about myself.
When doing things with a few other students I find it hard to consider ideas.
When doing things by myself I think about people I dislike.
When doing things as a member of a class I get confused in my thinking.
When doing something with a teacher I feel difficulty in asking for help.
When doing things with a few other students I learn very little for my work efforts.
When discussing things in a class I have difficulty talking to others.
When doing things by myself I get confused in my work.
When doing something with a teacher I get confused in my thinking.
When doing things with a few other students I have difficulty expressing my feelings.
When doing things as a member of a class I learn very little for my work efforts.
I feel very little enjoyment when doing things by myself.
When doing things with a few other students I feel difficulty in getting help as needed.
When doing something with a teacher I waste time.
When doing things as a member of the class I have trouble expressing my feelings.
When doing things by myself I find it hard to consider ideas.
When doing something with a teacher I become upset easily.
When doing things with a few other students I get confused in my thinking.
When doing things by myself I feel difficulty in not being able to get help as needed.
In any situation there are a number of ways of acting which you or any other person might choose. You are being asked to choose some of these ways of acting.

Following is a description of a situation and fifteen possible ways of acting. These ways are numbered 1-15, corresponding to items 1-15 on Response Sheet III. You will deal with these ways of acting in three steps.

Step I. For each way of acting (1-15), blacken space:
1. If you would act this way or 2. If you would not act this way in this situation.

Step II. Now picture all the ways of acting being done by someone else. Then, for each way of acting (1-15), blacken space:
3. If you think a girl would act this way. 
4. If you think a boy would act this way.

or

5. If you find it impossible to see any difference between a boy or a girl acting in this way.

Step III. Now think how you would feel if someone else were to do these things. Then, for each way of acting (1-15) blacken space:
6. If you would feel good. 
7. If you would feel bad.

(As sure to use Response Sheet III)

Situation: You are a member of a small group which is trying to think up a project which they will work on together and present to the class. Quite a few ideas have been offered and there is strong disagreement among the group members about which of the ideas is the best.

Items:
1. Suggest some aims that the project should have. 
2. Tell the group to stop acting like babies.
3. Excuse yourself politely and leave the discussion. 
4. Show your friendly support to the ideas of others.
5. Tell the group to select a leader to tell them what to do next.
6. Think to yourself about the different ideas the group has to choose from. 
7. Insist that each person show exactly how his idea will work.
8. Just wait quietly for the group to settle its differences and reach some agreement.
9. Whisper to a neighbor the way you feel.
10. Decide for yourself which idea most of the others think will work, in order to make up your own mind.
11. Get the group to look calmly at the fact that they are showing a lot of personal feeling.
12. Strongly defend your own point of view against the attack of others. 
13. Suggest a completely new topic that would be easier for the group to discuss.
The following questionnaire is concerned with personal values. It contains a list of sixty statements all of which describe an important and desirable approach to life. We want you to rate them according to how important you think each is for your own personal life.

Read each statement carefully. If the statement describes an approach to life which for you is of extreme importance, then fill in space 9 on the response sheet; if you feel the statement is of average importance then fill in space 5; or if for you the statement is of little importance, then fill in space 1. The spaces numbered 2-4 and 6-8 should be used to rate statements which you think fall somewhere between these points.

Remember you are to rate the statements to the degree you think they describe ways of living which will help you get the most out of life. A 1 rating does not mean that you consider the statement to be unimportant. It simply means that in your opinion, for your own personal life, it is of little importance. Likewise, the 9 rating should be given to statements which you think are of extreme importance for your own personal life. Probably everyone will consider some statements to be of extreme importance for his personal life, while at the same time he will see others as being of little importance. Think carefully about each statement and use the whole range of responses 1 through 9.

This diagram shows the location of the spaces on the Response Sheet.

![Diagram showing the location of spaces on the response sheet.](image)

To get the most out of life I think it is important to...

16. hold my feelings in check and live a life of self-control
17. have confidence in my personal strength and ability to do things on my own
18. cherish personal privacy and the chance it affords to simply be myself
19. live a life of service to others.
20. relax and enjoy every possible moment
21. live a life in which the interests of others are put ahead of my own
22. do things actively and with enthusiasm
23. find the center or real meaning for life within myself, e.g., self-awareness
24. use the wisdom of the past in order to make a better future
25. experience simple physical pleasure to the fullest
26. behave in a self-disciplined manner
27. have time to think about the deep issues of my personal life
28. be at ease both physically and mentally without being too ambitious
29. live in close relationship with others sharing their joys and sorrows
30. live an adventuresome, daring life
31. plunge courageously into the challenges of life
32. become a responsible, conscientious citizen
33. enjoy good food and drink with a group of friends
34. be aware of and understand my innermost thoughts
35. be grateful and undemanding in my acceptance of life experiences
36. live in a reasonable and intelligent way
37. develop and maintain my bodily strength and health to the fullest
38. develop understanding of others through self-awareness
39. be sensitive and responsive to life without trying to change things
40. be able to find pleasure in new experiences at any time
41. overcome, dominate, or conquer obstacles that hinder human progress
42. live a well-organized and productive life
43. be willing to make sacrifices for the welfare of others
44. realize that attaining future goals is more important than present pleasure
45. have much freedom at home, school and work
46. actively compete for the rewards of life
47. try always to act in a socially acceptable manner
48. be able to do things that are new and interesting even if they are risky
49. realize that though the world is disappointing I can find happiness in me
50. learn that affection and love for others is one of the main joys in life

Turn to Response Sheet IV and continue

1. be able to enjoy things as they are
2. live a refined and well-mannered life
3. work hard on my own and pioneer some endeavor
4. find the most enduring satisfactions within myself
5. live in harmony with nature and other men
6. tackle the job of changing society and making a better world
7. fully experience present pleasure and not worry about the past or future
8. live a moral life of high ideas
9. live a quiet, unassuming life that allows time for thought and meditation
10. have a sympathetic appreciation for the feelings of other people
11. be able to enjoy life without working too hard
12. master the world I live in by use of science, tools, and bodily energy
13. cultivate a wide circle of useful acquaintances
14. be the kind of person in whom others will want to put their trust
15. "go it alone," for the most part, and not be dependent on others
16. work hard to attain the good things of life honestly
Words or ideas mean different things to different people. On the following pages you will find several words written in capital letters and underlined. Below each such word, you will find 10 descriptive scales, like this:

13. Fair 1 2 3 4 5 6 Unfair

Describe the underlined idea by selecting where it fits along each of the scales, locations 1-6. Opposite the number of the scale on Response Sheet IV blacken the space, 1, 2, 3, 4, 5, or 6 corresponding to the place where the word fits along the scale.

Sample:

\[ \begin{array}{ccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \\
\end{array} \]

13. \[ \begin{array}{ccccccccccc}
\vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\
\end{array} \]

(Disregard spaces 7 to 15)

By blackening space 5, scale 13, we have indicated that some idea was somewhat "unfair."

Please do not omit any of the scales, and please indicate only one position per scale.

Sometimes it may seem to you that a scale is not related to a meaning or feeling you have about the underlined idea; nevertheless we would like to have you rate it anyway... It is your first impressions, the immediate "feelings" about the words, that we want. On the other hand, please do not be careless because we want your true impressions.

By blackening space 5, scale 13, we have indicated that some idea was somewhat "unfair."

*Be sure to skip to item 31, Response Sheet IV*
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
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<td>30. Little</td>
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<td>Big</td>
<td>40. Little</td>
<td>1 2 3 4 5 6</td>
<td>Big</td>
<td></td>
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</table>
GENERAL INSTRUCTIONS

On the response sheet fill in

1. Student Number (digits only). Use the first five spaces.
   Example: 32087

2. Sex

3. Class standing under TEST FORM where
   A is Freshman, B is Sophomore, C is Junior
   and D is Senior or other.

4. Number of older brothers and sisters under YR.
   Example: Shade in 0 if you have no
   older brothers or sisters.

5. Please bring the completed Response Sheet to class tomorrow.

This is part of a study in which the goal is to
improve instruction for the individual student by
placing him with an appropriate instructor.
I. Items 1 - 25

Here is a list of activities that may occur in the classroom. Indicate on the response sheet your opinion of each activity. There is no "right" or "wrong" response.

Mark A if you consider the activity Worthless or a Waste of Time.
B if you consider the activity Not so Good or Slightly Dull.
C if you consider the activity Good or Rather Interesting.
D if you consider the activity Quite Valuable or Profitable.

1. Taking a test.
2. Taking notes while the instructor lectures.
3. Reviewing a test and correcting mistakes.
4. Having a class discussion moderated by another student.
5. Working with a group to prepare a lesson to present to the class.
6. Having an instructor assign exercises for practice.
7. Getting individual help and instruction from the instructor while working problems.
8. Listening to other students explain homework problems
9. Taking an unannounced quiz
10. Doing research in the library
11. Having an instructor lead a discussion in which fundamental concepts are explained
12. Explaining a homework problem to the class
13. Having a conference with the instructor concerning your progress in the course
14. Working homework problems with other students
15. Watching the instructor solve problems
16. Discussing concepts from the course with other students
17. Participating in class drill on fundamental skills
18. Being part of an orderly, disciplined class
19. Watching problems put on the board by other students

20. Studying by yourself to prepare for a test

21. Having the instructor give specific instructions on how to do something

22. Studying basic course content as a member of a small group of students

23. Beginning homework problem in class

24. Having the instructor make clear what is expected of the class

25. Criticizing boardwork of other students

II. Items 26 - 40

Mark A if the activity is very unpleasant for you.

B if the activity is somewhat unpleasant for you.

C if the activity is rather pleasant for you.

D if the activity is very enjoyable for you.

26. Hearing the ideas of other students during a discussion in class of some concept
27. Expressing your opinions about ideas offered in class for the solution of a problem

28. Being asked to go to the board to solve a problem

29. Hearing another student explain his method for solving a problem

30. Listening to a friend express his personal feelings to you

31. Reading a novel in which the characters describe their innermost feelings

32. Hearing another student criticize your solution to a problem

33. Having to substantiate a statement in order to persuade others

34. Writing a theme that involves personal experience

35. Telling someone that you think his behavior is objectionable

36. Being called on in class to answer a question
37. Listening to the class discuss your work
38. Thinking about the things that happened during the day
39. Receiving a letter in which a friend has taken you into his confidence
40. Having someone ask you how you solved a problem.

III. Items 41 - 55

In this section decide how well the paragraphs describe your impression of the typical instructor, the instructor from whom you learn most, and the one with whom you feel most at ease. Each paragraph will be judged three times.

Mark A if the paragraph very closely fits your impression
   B if it generally fits your impression
   C if it is out of line with your impression
   D if it contradicts your impression
This instructor really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.

41. How well does the above paragraph fit your impression of the typical instructor?

42. Of the instructor from whom you learn most?

43. Of the instructor with whom you feel most at ease?

This instructor makes sure that rules are clear from the start so that students will know what is expected of them. He reminds the students of the rules when he thinks they have forgotten them. He tries to help the students become aware of the necessity of meeting requirements.

44. How well does the above paragraph fit your impression of the typical instructor?

45. Of the instructor from whom you learn most?

46. Of the instructor with whom you feel most at ease?
This instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.

47. How well does the above paragraph fit your impression of the typical instructor?

48. Of the instructor from whom you learn most?

49. Of the instructor with whom you feel most at ease?

This instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.

50. How well does the above paragraph fit your impression of the typical instructor?

51. Of the instructor from whom you learn most?

52. Of the instructor with whom you feel most at ease?
This instructor wants students to feel that he can be one of them. He knows a lot about what students like to do. He plans the work of the class around these things and enjoys discussing them in class.

53. How well does the above paragraph fit your impression of the typical instructor?

54. Of the instructor from whom you learn most?

55. Of the instructor with whom you feel most at ease?

IV. Items 56 - 70

In this section each item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark A if you alone should make the decision

B if you and the instructor together should make the decision.

C if the class as a whole should make the decision.

D if the instructor alone should make the decision
56. The questions to be on a test
57. How much help you should accept from another student
58. What was wrong with your solution of a problem
59. To what extent the instructor should give you his personal opinion of yourself
60. How well the instructor performed today
61. Whether the instructor should answer your question, or expect you to find the answer yourself
62. How worthwhile was the class discussion today
63. When you should be able to confer with the instructor outside of class
64. Where you should sit in class
65. Whether you are making satisfactory progress
66. Whether attendance should be required
67. When the tests should be given
68. Whether homework should be turned in
69. Whether a topic should be optional
70. Whether you should be able to take a make-up test
V. Items 71 - 100

The following statements refer to personal values. Decide how important each is to you.

Mark A if extremely important
Mark B if rather important
Mark C if rather unimportant
Mark D if of little importance

To get the most out of life it is important to ...

71. hold my emotions in check and practice self-control.
72. have confidence in my strength and ability to do things on my own.
73. cherish personal privacy and the chance it affords to simply be myself.
74. live a life of service to others.
75. relax in order to enjoy every moment.
76. live a life in which the interests of others are put ahead of my own.
77. do things actively and with enthusiasm.
78. find the meaning of life within myself.
79. use the wisdom of the past to make the future better.
80. experience physical pleasure to the fullest.
81. lead a self-disciplined life.
82. spend time thinking about the deep issues in my life.
83. be at ease physically and mentally without being too ambitious.
84. share the joys and sorrows of others.
85. live an adventuresome life.

86. become a responsible, conscientious citizen.

87. be grateful in my acceptance of life experiences.

88. develop understanding of others through self-awareness.

89. be sensitive and responsive to life without trying to change things.

90. overcome obstacles that hinder human progress.

91. live a well-organized life.

92. be willing to make sacrifices for the welfare of others.

93. realize that attaining future goals is more important than present pleasure.

94. experience new sensations.

95. learn that love for others is one of the main joys in life.
96. live a refined, socially accepted life.

97. fully experience present pleasure without regard for the past or future.

98. cultivate a wide circle of useful acquaintances.

99. be able to let oneself go and enjoy life.

100. get out and do things and not merely be a thinker or spectator.

VI. Items 101 - 160

In the following section you are asked to place a few words and phrases on a scale. Each word or phrase is accompanied by 10 items, each of which consists of a pair of antonyms and a scale. Decide where on the scale the word or phrase belongs. It is not necessary to think about the response. Just record your first impressions.

Example: Being wise is fair A B C D unfair.

If B were marked on the response sheet, it would mean that being wise seems more fair than unfair. Please respond to each item.
<table>
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<th>Girl is</th>
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<td>111. Tight A B C D Loose</td>
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<tr>
<td>102. Safe A B C D Dangerous</td>
<td>112. Safe A B C D Dangerous</td>
</tr>
<tr>
<td>103. Ugly A B C D Pretty</td>
<td>113. Ugly A B C D Pretty</td>
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<td>104. Weak A B C D Strong</td>
<td>114. Weak A B C D Strong</td>
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<td>105. Old A B C D New</td>
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<td>108. Loud A B C D Soft</td>
<td>118. Loud A B C D Soft</td>
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<tr>
<td>109. Good A B C D Bad</td>
<td>119. Good A B C D Bad</td>
</tr>
<tr>
<td>110. Small A B C D Large</td>
<td>120. Small A B C D Large</td>
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Being important is

121. Tight A B C D Loose
122. Safe A B C D Dangerous
123. Ugly A B C D Pretty
124. Weak A B C D Strong
125. Old A B C D New
126. Wrong A B C D Right
127. Dry A B C D Wet
128. Loud A B C D Soft
129. Good A B C D Bad
130. Small A B C D Large

Having power is

131. Tight A B C D Loose
132. Safe A B C D Dangerous
133. Ugly A B C D Pretty
134. Weak A B C D Strong
135. Old A B C D New
136. Wrong A B C D Right
137. Dry A B C D Wet
138. Loud A B C D Soft
139. Good A B C D Bad
140. Small A B C D Large
Boy is

141. Tight A B C D Loose
142. Safe A B C D Dangerous
143. Ugly A B C D Pretty
144. Weak A B C D Strong
145. Old A B C D New
146. Wrong A B C D Right
147. Dry A B C D Wet
148. Loud A B C D Soft
149. Good A B C D Bad
150. Small A B C D Large

Myself is

151. Tight A B C D Loose
152. Safe A B C D Dangerous
153. Ugly A B C D Pretty
154. Weak A B C D Strong
155. Old A B C D New
156. Wrong A B C D Right
157. Dry A B C D Wet
158. Loud A B C D Soft
159. Good A B C D Bad
160. Small A B C D Large
APPENDIX C

Opinionnaires Used in the Pilot Study
and
in the Study
OPINIONNAIRE

Instructions. Each item refers to an action, characteristic, or policy of the instructor, or a relationship between him and you.

Mark 1 if you are very satisfied with the trait or relationship
2 if you are satisfied
3 if you are dissatisfied
4 if you are very dissatisfied

Example. 2 The instructor's policy of suggesting supplementary work.

The response 2 indicates that you are satisfied with your instructor's policy of suggesting supplementary work. It could be that he does suggest it, and you are satisfied, or it could be that he does not suggest it, and you are satisfied.

This opinionnaire attempts to measure the satisfaction which you have with your mathematics class and the empathy that exists between you and your mathematics instructor. This is not an evaluation of your instructor, but an effort to determine how well you relate to him. The following statements refer to your classroom instructor only and not to a TV instructor.

Place your response in the space provided.
1. The extent to which the instructor involves the class in discussions.

2. The instructor's policy regarding the collection of homework.

3. The instructor's policy regarding the students working problems at the chalkboard.

4. The instructor's policy regarding quizzes.

5. The form used by the instructor in addressing individuals (first or last name).

6. The extent to which the instructor was able to maintain your interest.

7. The extent to which the instructor was available outside of class.

8. The manner in which the instructor developed new ideas.

9. The extent to which the instructor provided rules or formulas to solve problems.

10. The manner in which the instructor made use of his knowledge of the subject matter in class.
11. The extent to which you were able to express your opinions when you wanted to.

12. The extent to which the instructor tried to identify with the students.

13. The ease with which you could converse with the instructor outside of class.

14. The manner in which the instructor answered your questions.

15. The lack of irritating mannerisms in the instructor's classroom behavior.

16. The instructor's use of humor in the classroom.

17. The role which you played in influencing daily class activities.

18. The extent to which you felt free to ask questions during class.

19. The manner in which the instructor stimulated your thinking with new ideas.

20. The instructor's ability to understand your questions even though they may not have been expressed precisely.

Student Number ______________ (digits only)

Please bring this opinionnaire to class tomorrow.
OPINIONNAIRE

Instructions. Each item refers to an action, characteristic, or policy of the instructor, or a relationship between him and you.

Mark 1 if you are very satisfied with the trait or relationship.

2 if you are satisfied.

3 if you are dissatisfied.

4 if you are very dissatisfied.

Example. 2 The instructor's policy of suggesting supplementary work.

The response 2 indicates that you are satisfied with your instructor's policy of suggesting supplementary work. It could be that he does suggest it, and you are satisfied, or it could be that he does not suggest it, and you are satisfied.
This opinionnaire attempts to measure the satisfaction which you have with your mathematics class and the empathy that exists between you and your mathematics instructor. This is not an evaluation of your instructor, but an effort to determine how well you relate to him. The following statements refer to your classroom instructor only. Place your response in the space provided. Please respond to each item.

____ 1. The extent to which the instructor involves the class in discussions.
____ 2. The instructor's policy regarding the collection of homework.
____ 3. The instructor's policy regarding the students working problems at the chalkboard.
____ 4. The instructor's policy regarding quizzes.
____ 5. The form used by the instructor in addressing individuals (first or last name).
____ 6. The extent to which the instructor was able to maintain your interest.
____ 7. The extent to which the instructor was available outside of class.
8. The manner in which the instructor developed new ideas.

9. The extent to which the instructor provided rules or formulas to solve problems.

10. The manner in which the instructor made use of his knowledge of the subject matter in class.

11. The extent to which you were able to express your opinions when you wanted to.

12. The extent to which the instructor tried to identify with the students.

13. The ease with which you could converse with the instructor outside of class.

14. The manner in which the instructor answered your questions.

15. The lack of irritating mannerisms in the instructor's classroom behavior.

16. The instructor's use of humor in the classroom.

17. The role which you played in influencing daily class activities.

18. The extent to which you felt free to ask questions during class.

19. The manner in which the instructor stimulated your thinking with new ideas.

20. The instructor's ability to understand your questions even though they may not have been expressed precisely.
Student Number ______________________(digits only)
Instructor's Name ____________________________

Please return this opinionnaire with the questionnaire this week to your classroom instructor, or return them to Mr. Wetzler in MA 118.

Thank you. We hope that your contribution to this study will lead to improved classroom instruction.
This opinionnaire attempts to measure the satisfaction which you have with your mathematics class and the empathy that exists between you and your mathematics classroom instructor. This is not an evaluation of your instructor, but an effort to determine how well you relate to him.

INSTRUCTIONS (please read carefully)

Each item refers to an action, characteristic, or policy of the instructor, or a relationship between him and you.

Mark 1 if you are very satisfied with the trait or relationship
2 if you are satisfied
3 if you are dissatisfied
4 if you are very dissatisfied
Example "The instructor's policy of suggesting supplementary work."

Suppose response 2 is chosen. It would mean that you are satisfied with his policy. Either he suggests supplementary work, and you are satisfied, or he does not suggest supplementary work, and you are satisfied.

Please respond to each item on the other side.
1. The extent to which the instructor involves the class is discussions.
2. The instructor's policy regarding the collection of homework.
3. The instructor's policy regarding the student's working problems at the chalkboard.
4. The instructor's policy regarding quizzes.
5. The form used by the instructor in addressing individuals (first or last name).
6. The extent to which the instructor was able to maintain your interest.
7. The extent to which the instructor was available outside of class.
8. The manner in which the instructor developed new ideas.
9. The extent to which the instructor provided rules or formulas to solve problems.
10. The manner in which the instructor made use of his knowledge of the subject matter in class.
11. The extent to which you were able to express your opinions when you wanted to.
12. The extent to which the instructor tried to identify with the students.

13. The ease with which you could converse with the instructor outside of class.

14. The manner in which the instructor answered your questions.

15. The lack of irritating mannerisms in the instructor's classroom behavior.

16. The instructor's use of humor in the classroom.

17. The role which you played in influencing daily class activities.

18. The extent to which you felt free to ask questions during class.

19. The manner in which the instructor stimulated your thinking with new ideas.

20. The instructor's ability to understand your questions even though they may not have been expressed precisely.

_________________________________ Student Number (digits only) This is for matching purposes only and not for identification.
APPENDIX D

Questionnaire Used in the Study

140
Questionnaire

This is part of a study in which the goal is to improve instruction for the individual student by placing him with an appropriate instructor. Your completing this questionnaire can be of great help and is appreciated.

_________________ Student number (digits only)
_________________ Sex (M or F)
_________________ Class standing (Fr, So, J, Se, Grad).
_________________ Number of older brothers and sisters.

Instructions

Please return the completed Questionnaire and attached Opinionnaire this week to your instructor or to Mr. Wetzler in MA 118.
I. Items 1-13

Here is a list of activities that may occur in the classroom. Indicate in the space provided your opinion of each activity. There is no "right" or "wrong" response.

Mark A if you consider the activity **Worthless** or a **Waste of Time**.

Mark B if you consider the activity **Not so Good** or **Slightly Dull**.

Mark C if you consider the activity **Good** or **Rather Interesting**.

Mark D if you consider the activity **Quite Valuable** or **Profitable**.

____ 1. Taking notes while the instructor lectures

____ 2. Having a class discussion moderated by another student

____ 3. Listening to other students explain homework problems

____ 4. Taking an unannounced quiz

____ 5. Doing research in the library

____ 6. Having a conference with the instructor concerning your progress in the course
7. Working homework problems with other students
8. Discussing concepts from the course with other students
9. Participating in class drill on fundamental skills
10. Watching problems put on the board by other students
11. Studying basic course content as a member of a small group of students
12. Beginning homework problems in class
13. Criticizing boardwork of other students

II. Items 14-25

Mark A if the activity is very unpleasant for you.

B if the activity is somewhat unpleasant for you.

C if the activity is rather pleasant for you.

D if the activity is very enjoyable for you.
14. Hearing the ideas of other students during a discussion in class of some concept

15. Expressing your opinions about ideas offered in class for the solution of a problem

16. Being asked to go to the board to solve a problem

17. Hearing another student explain his method for solving a problem

18. Listening to a friend express his personal feelings to you

19. Reading a novel in which the characters describe their innermost feelings

20. Hearing another student criticize your solution to a problem

21. Having to substantiate a statement in order to persuade others

22. Writing a theme that involves personal experience

23. Telling someone that you think his behavior is objectionable

24. Being called on in class to answer a question

25. Listening to the class discuss your work
III. Items 26-40

In this section decide how well the paragraphs describe your impression of the typical instructor, the instructor from whom you learn most, and the one with whom you feel most at ease. Each paragraph will be judged three times.

Mark **A** if the paragraph very closely fits your impression

**B** if it generally fits your impression

**C** if it is out of line with your impression

**D** if it contradicts your impression

This instructor really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.
26. How well does the above paragraph fit your impression of the typical instructor?

27. Of the instructor from whom you learn most?

28. Of the instructor with whom you feel most at ease?

This instructor makes sure that rules are clear from the start so that students will know what is expected of them. He reminds the students of the rules when he thinks they have forgotten them. He tries to help the students become aware of the necessity of meeting requirements.

29. How well does the above paragraph fit your impression of the typical instructor?

30. Of the instructor from whom you learn most?

31. Of the instructor with whom you feel most at ease?

This instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.
32. How well does the above paragraph fit your impression of the typical instructor?

33. Of the instructor from whom you learn most?

34. Of the instructor with whom you feel most at ease?

This instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.

35. How well does the above paragraph fit your impression of the typical instructor?

36. Of the instructor from whom you learn most?

37. Of the instructor with whom you feel most at ease?

This instructor wants students to feel that he can be one of them. He knows a lot about what students like to do. He plans the work of the class around these things and enjoys discussing them in class.

38. How well does the above paragraph fit your impression of the typical instructor?
39. Of the instructor from whom you learn most?

40. Of the instructor with whom you feel most at ease?

IV. Items 41-49

In this section each item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark A if you alone should make the decision

B if you and the instructor together should make the decision.

C if the class as a whole should make the decision.

D if the instructor alone should make the decision.

41. What was wrong with your solution of a problem

42. To what extent the instructor should give you his personal opinion of yourself
43. Whether the instructor should answer your question, or expect you to find the answer yourself

44. How worthwhile was the class discussion today

45. When you should be able to confer with the instructor outside of class

46. Whether attendance should be required

47. When the tests should be given

48. Whether homework should be turned in

49. Whether you should be able to take a make-up test

V. Items 50-72

The following statements refer to personal values. Decide how important each is to you.
I &rk A if extremely important
B if rather important
C if rather unimportant
D if of little importance

To get the most out of life it is important to ...

___ 50. hold my emotions in check and practice self-control.
___ 51. live a life of service to others.
___ 52. relax in order to enjoy every moment.
___ 53. live a life in which the interests of others are put ahead of my own.
___ 54. do things actively and with enthusiasm.
___ 55. find the meaning of life within myself.
___ 56. experience physical pleasure to the fullest.
___ 57. lead a self-disciplined life.
58. spend time thinking about the deep issues in my life.
59. be at ease physically and mentally without being too ambitious
60. share the joys and sorrows of others.
61. be grateful in my acceptance of life experiences.
62. develop understanding of others through self-awareness.
63. be sensitive and responsive to life without trying to change things.
64. live a well-organized life.
65. be willing to make sacrifices for the welfare of others.
66. realize that attaining future goals is more important than present pleasure.
67. experience new sensations.
68. learn that love for others is one of the main joys in life.
69. live a refined, socially accepted life.
70. cultivate a wide circle of useful acquaintances.

71. be able to let oneself go and enjoy life.

72. get out and do things and not merely be a thinker or spectator.

VI. Items 73-100

In the following section you are asked to place a few words and phrases on a scale. Each work or phrase is accompanied by 10 items, each of which consists of a pair of antonyms and a scale. Decide where on the scale the word or phrase belongs. It is not necessary to think about the response. Just record your first impressions.

Example: Being wise is fair A B C D unfair.

If B were marked as the response sheet, it would mean that being wise seems more fair than unfair. Please respond to each item.
Being popular is

_____ 73. Tight A B C D Loose

_____ 74. Safe A B C D Dangerous

_____ 75. Old A B C D New

_____ 76. Dry A B C D Wet

_____ 77. Loud A B C D Soft

_____ 78. Good A B C D Bad

_____ 79. Small A B C D Large

Having power is

_____ 80. Ugly A B C D Pretty

_____ 81. Old A B C D New

_____ 82. Wrong A B C D Right

_____ 83. Good A B C D Bad
Boy is

84. Tight A B C D Loose
85. Safe A B C D Dangerous
86. Ugly A B C D Pretty
87. Old A B C D New
88. Wrong A B C D Right
89. Dry A B C D Wet
90. Good A B C D Bad

Myself is

91. Tight A B C D Loose
92. Safe A B C D Dangerous
93. Ugly A B C D Pretty
94. Weak A B C D Strong
95. Old A B C D New
96. Wrong A B C D Right
97. Dry A B C D Wet
98. Loud A B C D Soft
99. Good A B C D Bad
100. Small A B C D Large
APPENDIX E

Instructor Profiles

and

Instructor Keys
INSTRUCTOR PROFILE COVER SHEET

This is the second part of a study begun last quarter in which the goal is to improve instruction for the individual student by placing him with an appropriate instructor.

INSTRUCTIONS

1. Complete both sides of this sheet.
2. Return the completed sheet to your instructor.

STUDENT BACKGROUND

1. Student number (digits only). This is for matching purposes only - not for identification.
2. What was the number of the previous math course you took at O.S.U.? For example, 159.02.
3. What grade did you receive in this course? yes no
4. Did you take this course last quarter?
5. If so, who was your classroom instructor?
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Refer to the following set of responses when responding to items 1 - 4.

Mark A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression

1. How well does the following paragraph fit your impression of the instructor with whom you feel most at ease?

   The instructor makes sure that rules are clear from the start so that students will know what is expected of them. He reminds the students of the rules when he thinks they have forgotten them. He tries to help the students become aware of the necessity of meeting requirements.

2. How well does the following paragraph fit your impression of the typical instructor?

   The instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.
3. How well does the preceding paragraph fit your impression of the instructor with whom you feel most at ease?

4. How well does the following paragraph fit your impression of the instructor from whom you learn the most?

The instructor wants students to feel that he can be one of them. He knows a lot about what students like to do. He plans the work of the class around these things and enjoys discussing them in class.

II. The next item asks you to place a phrase on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

5. Having power is ...

Old A B C D New

III. Class standing. Use Fr for freshman and U for any other category.

6. What is your class standing? (Fr, U)
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. The first item refers to an activity that may occur in the classroom.

Mark 
A if you consider the activity worthless or a waste of time
B if you consider it not so good or slightly dull
C if you consider it good or rather interesting
D if you consider it quite valuable or profitable

1. Discussing concepts from the course with other students.

II. Refer to the following set of responses when responding to the next item.

Mark 
A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression

2. How well does the following paragraph fit your impression of the typical instructor?

The instructor really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things, and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.
III. The next item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark
A if you alone should make the decision
B if you and the instructor together should make the decision
C if the class as a whole should make the decision
D if the instructor alone should make the decision

3. To what extent the instructor should give you his personal opinion of you

IV. The next item refers to a personal value. Decide how important it is to you.

Mark
A if extremely important
B if rather important
C if rather unimportant
D if of little importance

4. To get the most out of life it is important to hold my emotions in check and practice self-control.
V. Items 5 - 7 ask you to place a phrase or word on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

__5. Being popular is ...

__6. Being popular is ...

__7. I myself is ...

VI. The last item requests your sex.

__8. Male (M) or Female (F)
Please respond to each item, using only one letter as a response.
If a decision seems difficult, record your first impulse.

I. Items 1 and 2 refer to activities that may occur in the classroom.

1. Mark A if you consider the activity **worthless** or a **waste of time**
   B if you consider it **not so good** or **slightly dull**
   C if you consider it **good or rather interesting**
   D if you consider it **quite valuable or profitable**

- 1. Having a class discussion moderated by another student.
- 2. Watching problems put on the board by other students.

II. Items 3 - 6 refer to classroom activities.

3. Mark A if the activity is **very unpleasant** for you
   B if the activity is **somewhat unpleasant** for you
   C if the activity is **rather pleasant** for you
   D if the activity is **very enjoyable** for you

- 3. Being asked to go to the board to solve a problem.
- 4. Hearing another student criticize your solution to a problem.
- 5. Being called on in class to answer a question.
- 6. Listening to the class discuss your work.
III. Refer to the following set of responses when responding to items 7 and 8.

A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression

7. How well does the following paragraph fit your impression of the instructor with whom you feel most at ease?

The instructor really knows his subject. He keeps informed on new ideas in his field. He likes to have students know about these things and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.

8. How well does the following paragraph fit your impression of the instructor with whom you feel most at ease?

The instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.
IV. The next item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark  
A if you alone should make the decision  
B if you and the instructor together should make the decision  
C if the class as a whole should make the decision  
D if the instructor alone should make the decision

9. When the tests should be given.

V. Items 10 and 11 refer to personal values. Decide how important each is to you.

Mark  
A if extremely important  
B if rather important  
C if rather unimportant  
D if of little importance

10. To get the most out of life it is important to relax in order to enjoy every moment.

11. To get the most out of life it is important to be grateful in my acceptance of life experiences.
Please respond to each item, using only one letter as a response.
If a decision seems difficult, record your first impulse.

I. The first item refers to a classroom activity.

Mark A if the activity is very unpleasant for you
B if it is somewhat unpleasant for you
C if it is rather pleasant for you
D if it is very enjoyable for you

1. Writing a theme that involves a personal experience.

II. Refer to the following set of responses when responding to items 2 and 3.

Mark A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression
2. How well does the following paragraph fit your impression of the typical instructor?

The instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.

3. How well does the preceding paragraph fit your impression of the instructor from whom you learn most?

III. The next item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark:
A if you alone should make the decision
B if you and the instructor together should make it
C if the class as a whole should make the decision
D if the instructor alone should make the decision

4. Whether the instructor should answer your question or expect you to find the answer yourself.
IV. The next item refers to a personal value. Decide how important it is to you.

Mark
A if extremely important
B if rather important
C if rather unimportant
D if of little importance

5. To get the most out of life it is important to lead a self-disciplined life.

V. The next item asks you to place a word on a scale. For example, "Winter is ... Fair: B C D Unfair." If B is selected as the response, it would mean that winter seems more fair than unfair.

6. I myself is ...

Small I B C D Large

VI. Older siblings

7. Do you have older brothers or sisters? (yes or no)
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Items 1 and 2 refer to classroom activities.

Mark A if the activity is very unpleasant for you
B if it is somewhat unpleasant for you
C if it is rather pleasant for you
D if it is very enjoyable for you

__1. Hearing the ideas of other students during a discussion in class about some concept.

__2. Being asked to go to the board to solve a problem.

II. Refer to the following set of responses when responding to the next item.

Mark A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression

__3. How well does the following paragraph fit your impression of the instructor from whom you learn the most?

The instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.
III. Items 4 and 5 refer to personal values. Decide how important each is to you.

Mark A if extremely important
B if rather important
C if rather unimportant
D if of little importance

4. To get the most out of life it is important to lead a self-disciplined life.

5. To get the most out of life it is important to be able to let oneself go and enjoy life.

IV. The last two items ask you to place a word on a scale. For example, "Winter is ... Fair A B C D Unfair." If B is selected as the response, it would mean that winter seems more fair than unfair.

6. Boy is ... Dry A B C D Wet

7. Myself is ... Loud A B C D Soft
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Refer to the following set of responses when responding to items 1 and 2.

Mark A if the paragraph very closely fits your impression
     B if it generally fits your impression
     C if it is out of line with your impression
     D if it contradicts your impression

_1. How well does the following paragraph fit your impression of the typical instructor?

The instructor makes sure that rules are clear from the start so that students will know what is expected of them. He reminds the students of the rules when he thinks they have forgotten them. He tries to help the students become aware of the necessity of meeting requirements.

_2. How well does the following paragraph fit your impression of the instructor with whom you feel most at ease?

The instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.
II. Items 3 - 5 ask you to place a phrase or word on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

___3. Being popular is ... Old A B C D New

___4. Being popular is ... Small A B C D Large

___5. Myself is ... Loud A B C D Soft

III. Class standing. Use Fr for freshman and U for any other category.

___6. What is your class standing? (Fr, U)
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Items 1 - 3 refer to activities that may occur in the classroom.

Mark:
A if you consider the activity worthless or a waste of time
B if you consider it not so good or slightly dull
C if you consider it good or rather interesting
D if you consider it quite valuable or profitable

1. Having a conference with the instructor concerning your progress in the course.

2. Watching problems put on the board by other students.

3. Criticizing boardwork of other students.

II. Items 4 - 6 refer to classroom activities.

Mark:
I if the activity is very unpleasant for you
B if it is somewhat unpleasant for you
C if it is rather pleasant for you
D if it is very enjoyable for you

4. Hearing the ideas of other students during a discussion in class about some concept.

5. Hearing another student explain his method for solving a problem.

6. Having to substantiate a statement in order to persuade others.
III. Refer to the following set of responses when responding to items 7 and 8.

   A if the paragraph very closely fits your impression
   B if it generally fits your impression
   C if it is out of line with your impression
   D if it contradicts your impression

   7. How well does the following paragraph fit your impression of the typical instructor?

      The instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.

   8. How well does the following paragraph fit your impression of the instructor from whom you learn most?

      The instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.
IV. The following item refers to a personal value. Decide how important it is to you.

Mank: A if extremely important
B if rather important
C if rather unimportant
D if of little importance

9. To get the most out of life it is important to relax in order to enjoy every moment.

V. The last item asks you to place a word on a scale. For example, "Winter is ... Fair A B C D Unfair." If B is selected as the response, it would mean that winter seems more fair than unfair.

10. Boy is ... Safe A B C D Dangerous
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Items 1 and 2 refer to classroom activities.

Mark A if the activity is very unpleasant for you
B if it is somewhat unpleasant for you
C if it is rather pleasant for you
D if it is very enjoyable for you

__1. Being asked to go to the board to solve a problem.
__2. Listening to the class discuss your work.
II. Refer to the following set of responses when responding to items 3 - 5.

Mark:
A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression

3. How well does the following paragraph fit your impression of the typical instructor?

The instructor really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things, and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.

4. How well does the following paragraph fit your impression of the instructor from whom you learn most?

The instructor wants students to feel that he can be one of them. He knows a lot about what students like to do. He plans work of the class around these things and enjoys discussing them in class.

5. How well does the preceding paragraph fit your impression of the instructor with whom you feel most at ease?
III. The next item represents a decision that is made that affects the learning situation. Decide who should make the decision.

Mark:  
A if you alone should make the decision  
B if you and the instructor together should make the decision  
C if the class as a whole should make the decision  
D if the instructor alone should make the decision

---6. Whether homework should be turned in.

IV. Items 7 - 9 refer to personal values. Decide how important each is to you.

Mark:  
A if extremely important  
B if rather important  
C if rather unimportant  
D if of little importance

To get the most out of life it is important to ...

---7. experience physical pleasure to the fullest.

---8. spend time thinking about the deep issues in my life.

---9. live a well-organized life.

V. Items 10 and 11 ask you to place a word on a scale. For example, "Winter is ... Fair / B C D Unfair." If E is selected as the response, it would mean that winter sees more fair than unfair.

---10. I myself is ...

Mark:  
Weak / B C D Strong

---11. I myself is ...

Mark:  
Small / A B C D Large
Please respond to each item, using only one letter as a response.
If a decision seems difficult, record your first impulse.

I. The first item refers to a classroom activity.

Mark: 
A if you consider the activity worthless or a waste of time
B if you consider it not so good or slightly dull
C if you consider it good or rather interesting
D if you consider it quite valuable or profitable

1. Doing research in the library.

II. Refer to the following set of responses when responding to items 2 – 4.

Mark: 
A if the paragraph very closely fits your impression
B if it generally fits your impression
C if it is out of line with your impression
D if it contradicts your impression
2. How well does the following paragraph fit your impression of the typical instructor?

The instructor really knows his subject. He keeps informed on the new ideas in his field. He likes to have students know about these things, and he brings new ideas and information into his course. He spends extra time with students who show a particular interest in his subject.

3. How well does the following paragraph fit your impression of the instructor from whom you learn most?

The instructor expects students to work independently and to take responsibility for seeing tasks through to the finish. He tries to challenge them to tackle problems that call for imagination and resourcefulness. He encourages students to search for possible solutions on their own and to try out ideas that seem worthwhile to them.

4. How well does the following paragraph fit your impression of the typical instructor?

The instructor wants students to feel that he can be one of them. He knows a lot about what students like to do. He plans the work of the class around these things and enjoys discussing them in class.
III. The next item refers to a personal value. Decide how important it is to you.

A if extremely important
B if rather important
C if rather unimportant
D if of little importance

5. To get the most out of life it is important to hold my emotions in check and practice self-control.

IV. Items 6 and 7 ask you to place a phrase on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

6. Having power is ... Old A B C D New

7. Having power is ... Good A B C D Bad
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. Items 1 and 2 refer to classroom activities.

1. If the activity is very unpleasant for you
   A. if the activity is very unpleasant for you
   B. if it is somewhat unpleasant for you
   C. if it is rather unpleasant for you
   D. if it is very enjoyable for you

   1. Expressing your opinion about ideas offered in class for the solution of a problem.

   2. Being called on in class to answer a question.

II. The next item refers to a personal value. Decide how important it is to you.

1. If extremely important
   A. if extremely important
   B. if rather important
   C. if rather unimportant
   D. if of little importance

   3. To get the most out of life it is important to spend time thinking about the deep issues in my life.
III. Items 4 - 6 ask you to place a phrase or word on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

4. Having power is ... Old A B C D New

5. Boy is ... Safe A B C D Dangerous

6. Myself is ... Wrong A B C D Right
Please respond to each item, using only one letter as a response. If a decision seems difficult, record your first impulse.

I. The first item refers to a classroom activity.

Mark A if the activity is very unpleasant for you
B if it is somewhat unpleasant for you
C if it is rather pleasant for you
D if it is very enjoyable for you

___1. Writing a theme that involves personal experience.

II. Items 2 and 3 refer to personal values. Decide how important each is to you.

Mark A if extremely important
B if rather important
C if rather unimportant
D if of little importance

___2. To get the most out of life it is important to live a life of service to others.

___3. To get the most out of life it is important to live a life in which the interests of others are put ahead of my own.
III. Items 4 and 5 ask you to place a word on a scale. For example, "Winter is ... Fair A B C D Unfair." If B is selected as the response, it would mean that winter seems more fair than unfair.

4. Myself is ...
   Ugly A B C D Pretty

5. Myself is ....
   Wrong A B C D Right

IV. Class standing. Use Fr for freshman and U for any other category.

6. What is your class standing? (Fr, U)
Please respond to each item, using only one letter as a response.
If a decision seems difficult, record your first impulse.

I. Refer to the following set of responses when responding to the first item.

- **A** if the paragraph very closely fits your impression
- **B** if it generally fits your impression
- **C** if it is out of line with your impression
- **D** if it contradicts your impression

_1. _How well does the following paragraph fit your impression of the typical instructor?

The instructor makes use of a variety of materials and activities which he has worked out and tested in previous classes. He plans the work that the students are to do and tries to make it interesting to them. He expects them to be successful in their work and is interested to know how much they have gotten from it when it is finished.

II. The next item represents a decision that is made that affects the learning situation. Decide who should make the decision.

- **A** if you alone should make the decision
- **B** if you and the instructor together should make the decision
- **C** if the class as a whole should make the decision
- **D** if the instructor alone should make the decision

_2. _Whether the instructor should answer your question or expect you to find the answer yourself.
III. Items 3 - 5 refer to personal values. Decide how important each is to you.

- A if extremely important
- B if rather important
- C if rather unimportant
- D if of little importance

To get the most out of life it is important to ...

- 3. experience physical pleasure to the fullest.
- 4. realize that attaining future goals is more important than present pleasure.
- 5. cultivate a wide circle of useful acquaintances.

IV. Items 6 - 11 ask you to place a phrase or word on a scale. For example, "Being wise is ... Fair A B C D Unfair." If B is selected as the response, it would mean that being wise seems more fair than unfair.

- 6. Being popular is ...
- 7. Being popular is ...
- 8. Being popular is ...
- 9. Being popular is ...
- 10. I yself is ...
- 11. I yself is ...
Instructor Keys

Profile Item Number

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33. Tuckman, Bruce W. and Oliver, Wilmot F.  "Effectiveness of Feedback to Teachers as a Function of Source," *Journal of Vocational Psychology,* Volume 59 (1965), 257 - 301.


