# A STUDY OF THE DISCREPANCIES BETWEEN INSTRUCTOR GRADES AND TERM-END EXAMINATION GRADES AMONG BASIC COLLEGE STUDENTS AT MICHIGAN STATE UNIVERSITY

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
Elden G. Kelly
1956

THESIS

This is to certify that the

thesis entitled

A Study of the Discrepancies between Instructor Grades and Term-End Examination Grades among Basic College Students At Michigan State University

presented by

Eldon G. Kelly

has been accepted towards fulfillment of the requirements for

PhD degree in Administrative and Educational Services (Guidance and Counseling)

Walter F. Johnson

Major professor

Date July 31, 1956

O-169

Dedicated to -

My Wife, Margaret

# A STUDY OF THE DISCREPANCIES BETWEEN INSTRUCTOR GRADES AND TERM-END EXAMINATION GRADES AMONG BASIC COLLEGE STUDENTS AT MICHIGAN STATE UNIVERSITY

By

Eldon G. Kelly

AN ABSTRACT

Submitted to the School for Advanced Graduate
Studies of Michigan State University of
Agriculture and Applied Science
in partial fulfillment of the
requirements for the degree
of

DOCTOR OF PHILOSOPHY

Department of Administrative and Educational Services

Year 1956

Approved Walter F. Johnson

Eldon G. Kelly Abstract

The purpose of the investigation was defined as an attempt to discover how those Basic College students who consistently received a higher grade on the common departmental term-end examinations than they received from their instructors differed from those students who consistently received the higher grades from their instructors than they received on the term-end examinations.

Two groups of students, called the "higher instructor grade group" and the "higher examination grade group," were selected on the basis of consistent deviations between instructor and term-end examination grades. The higher instructor grade group consistently received the higher grade from their instructors, while the higher examination grade group repeatedly received the higher grade on their term-end examinations. There were fourteen males and fifteen females in the higher instructor grade group and twenty males and twelve females in the higher examination grade group. These students were juniors and almost all of them had completed all of the Basic College courses.

The author hypothesized that the consistent differences between instructor and examination grades among students in the two extreme groups were non-random phenomena related to specific, measurable variables.

The Findings. The mean Inventory of Beliefs score of the higher instructor grade group was found to be significantly lower (beyond the .01 level of confidence), characterizing this group as the more

compulsive, rigid, conforming, and authoritarian.

The mean ACE score of the higher instructor grade group was found to be significantly lower (beyond the .01 level of confidence) than that of the higher examination grade group. A similar relationship was found between the two groups on scores obtained on the Michigan State University Reading Test.

The mean instructor grades of the two groups were strikingly similar. However, the mean examination grade of the higher examination grade group was B plus while that of the higher instructor grade group was C minus.

Interview data showed the higher instructor grade group to be more anxious, threatened and insecure. The higher examination grade group appeared to be confident about their ability to perform and unalarmed about their consistently lower instructor grades.

Conclusion. On the basis of the evidence obtained, the following conclusion is presented: Consistent deviations in the direction of either higher instructor grades or higher term-end examination grades were to a considerable extent a function of personality traits, or affective factors. This is to say that the group of students who were characterized as being more conforming, compulsive, rigid, and authoritarian received higher grades from their instructors than would be expected of them on the basis of ability alone, while the higher examination grade group was capable of receiving higher grades from their instructors than they did.

Recommendations. The author recommends that the relative importance of the ability and personality factors be clarified with reference to the higher instructor grade group and that a more thorough and definitive approach be made to investigating the personality factors involved in the problem with respect to both groups.

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Guidance and Counselor Training

1956

5/28/57
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## ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to Dr. Paul L. Dressel and Dr. Walter F. Johnson, co-directors of the dissertation, under whose supervision this research was initiated and completed.

He is also particularly indebted to Dr. Willard G. Warrington for his assistance and encouragement and to Dr. Harry W. Sundwall for his helpful suggestions. Special thanks are also due Mrs. Opal Young who did almost all of the statistical calculations.

Finally, many thanks are also due the students whose willing cooperation made the study possible.

Eldon G. Kelly

candidate for the degree of

Doctor of Philosophy

Final examination, July 31, 1956, 3:00 p.m., Room 17, Morrill Hall

Dissertation: A Study of the Discrepancies between Instructor Grades and Term-end Examination Grades Among Basic College Students at Michigan State University

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# CHAPTER I

## INTRODUCTION

### Nature of the Problem

In 1944, a Basic College was established as a separate administrative unit at Michigan State University, providing a comprehensive program of basic, or general, education. Underlying the establishment of the program was the point of view that college students need, and should be provided, a general education which will help them to live more intelligently in a free society.

The curriculum in the Basic College embodies four comprehensive areas: Communication Skills and Natural Science, usually taken during the freshmen year; and Social Science and Humanities, usually taken during the sophomore year. Each area of the Basics consists of three courses taken in sequence, and both instructors and students are provided with a common syllabus for each course.[1]

All students entering Michigan State University as freshmen are required to complete the Basic College program. Transfer students whose previous college work does not meet the course requirements of the Basics are required to eliminate such deficiencies as are deemed to exist.

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[1] Each three-term sequence is a unified course in itself, although each course is given a different number. For purposes of clarity, they are referred to here as separate courses.

Credit in a Basic College course may be earned by special examination. Permission to take the examination is given if the Department or Dean considers the student qualified for it. This judgment may be based on pre-test evidence, performance in the course, or other evidence.

The procedure for determining and assigning students' final grades in the Basic College courses is unique in that it differs from traditional grading procedures which place the entire responsibility for grading on the instructor and his tests. Final grades in the Basic College courses are derived from two sources, an instructor grade and a common term-end examination grade, each of which counts fifty per cent toward the final grade. The departmental term-end examinations are multiple-choice tests which are constructed by the Basic College Board of Examiners in conjunction with the various departments.[2] These examinations are cumulative and increasingly comprehensive from one term to the next. Thus, examinations for the second and third terms include materials from the preceding terms as well as material of the current term.

Both instructor grades and term-end examination grades are assigned on the basis of a fifteen-point scale, with a score of one corresponding to F minus and a score of fifteen corresponding to A plus. These separate grades are then combined to determine the value of the final letter grade.

In general, students receive approximately the same numerical grade on their term-end examinations as they do from their instructors. A

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[2] The Board of Examiners is a non-instructional department of the Basic College which helps develop, coordinate, and administer the program of examinations and evaluation. It is concerned not only with evaluation of progress but with the identification of student problems which need attention.

few students, however, quite consistently receive considerably different grades on the term-end examination than they do from their instructors. A critical review of this phenomenon suggested the existence of at least two quite distinctive patterns of behavior. Some of the students whose examination grades rarely corresponded with their instructor grades consistently received the higher grades from their instructors, while another group of students just as consistently received a higher term-end examination grade.

Several questions might be raised with respect to the nature of the factors underlying these differences in performance. The questions which interested the author were those related to the difference between these two groups of students in certain abilities and personality traits.

It seems perfectly logical to assume that students who consistently received a lower grade on their term-end examinations than they received from their instructors; and it seems equally logical to assume that this difference probably cannot be described in terms of a single variable.

The Basic College grading procedure, in which both instructor and term-end examination grades count fifty per cent toward the final grade, provides unusual opportunities for research with respect to the importance of some of the variables which influence the grades that students obtain. Moreover, the problem described above concerns both students and the educators involved in instructing, examining, and assigning grades.

Since it is possible for students to learn of the grades they received from each of the two sources, it is quite likely that many of these students were consciously or unconsciously troubled by the problems

underlying their discrepant performances. The continued sense of failure among students who consistently obtained a lower grade on their term-end examination must have had psychological implications of a decidedly negative value.

On the other hand, many students who consistently received higher grades on their term-end examinations conceivably might have acquired negative feelings toward their instructors and classroom activities. Consistently receiving the higher grade on the term-end examination provides the setting, too, for the ready rationalization that it is really the term-end examination which measures one's achievement and knowledge of the material and that there is probably something unfair about the instructors' grades.

To the extent that an investigation of this problem leads to a description of some of the variables involved, future students who appear to be candidates for either of these categories might be helped. This, of course, is of great importance to the students.

The Pilot Study

A small pilot study on this problem was accomplished in the spring of 1955. The pilot study consisted chiefly of a survey of the grades of students who had enrolled in the Basic College courses in 1952 and of interviews with a number of students whose records revealed consistent deviations in the direction of either higher instructor grades or higher term-end examination grades. The interviews gave some suggestions with respect to some of the factors involved in the problem and suggested some approaches for the investigation which was finally undertaken.

Statement of the Problem

The main purpose of this investigation is to discover if the two extreme groups, hereafter referred to as "higher instructor grade group" and "higher examination grade group" differ from each other in certain specifically defined characteristics.

The basic hypothesis is that the consistent differences between the instructor and examination grades among students in the two extreme groups are a non-random phenomena related to specific, measurable variables.

The following sub-hypotheses are presented:

1. Students in the higher instructor grade group are more compulsive, rigid, conforming, and authoritarian, or, stated otherwise, less democratic and flexible in their attitudes and general outlook, than students who comprise the higher examination grade group, as indicated by a test designed to measure such traits. This hypothesis is based on the author's assumption that students possessing the above traits tend to find satisfaction in the activities involved in day-to-day course work and that this satisfaction is reflected in the grades received from the instructors. This is to say that students who possess these traits to a high degree tend to be more diligent and compulsive in complying with all aspects of their instructors' procedures and standards. It is not meant to suggest that diligence, compulsiveness, and conformity are in themselves rewarded by instructors, rather than the quantity and quality of work growing out of the possession of these traits, though it is certainly conceivable that some instructors might reward the traits themselves.

2. Students in the higher instructor grade group are characterized by greater feelings of anxiety than students in the higher examination grade group. The assumption here is that a high degree of anxiety would function to impair performance on the term-end examinations, while it would not have such an adverse impact on the day-to-day activities involved in the course work.

3. The higher examination grade group has higher reading scores, i.e., scores based on vocabulary and reading comprehension, than the higher instructor grade group. In general, the term-end examinations require a rather considerable amount of reading, so that differences in reading ability would be reflected in performance on these examinations.

Statement of Limitations

The tests which are used to measure the variables under consideration have certain limitations, and the limitations inherent in these instruments also become the limitations of the study.

Further, an investigation of this type requires the cooperation of the students who have been selected, and this requirement in itself imposes limitations on the study. Compulsory participation of students is objectionable on so many points as to merit no consideration at all. While the soliciting of voluntary cooperation of students overcomes many of the objections of mandatory participation, the sample becomes more limited because not all of the students who fall into a given category will be willing to cooperate. Moreover, there is a limit to the amount of time the investigator can ask of those students who are willing to cooperate, and this has imposed some limitations on the investigation.

The amount of time that can be asked of students was taken into consideration in the selection of diagnostic instruments. Though the author believes the selected tests broadly satisfy the purpose of the investigation, more thorough diagnoses and more complete profiles certainly would have been helpful in investigating the problem.

## Plan of the Study

In Chapter II a review of the literature pertinent to this particular problem will be presented. Chapter III will consist of a presentation and discussion of the methodology and statistical design of the study. Selection of the sample, interview technique, statistical methods employed, and the tests used will be discussed in this chapter.

Chapter IV will be devoted to a presentation and interpretation of the results of the statistical analysis of test score data and the interviews. This chapter will include tables of results of the statistical analyses of test scores. The significance of the data will be discussed, and an attempt will be made to relate test score data to the interview data.

Chapter V will consist of a summary of the findings and the author's conclusions.

# CHAPTER II

## REVIEW OF RELATED RESEARCH

The Basic College of Michigan State University is a unique organization in general education. The Basic College program of evaluation is equally as unique. Traditionally, the evaluation of student progress have left entirely to the instructor but the College program of evaluation provides two independent evaluations of students' progress, namely, the individual instructor's evaluation and the term-end examination. Only in an organizational setting of this nature would the problem which is the subject of this investigation be likely to arise. Thus, the literature contains no reports of studies in which the problem of consistent deviations between instructor and term-end examination grades was investigated.

A number of studies concerned with various factors related to student achievement have been reported in the literature, however. Many investigators have recognized the influence of affective factors on the student's level of achievement and a number of studies have been made in an attempt to identify factors related to over-achievement and under-achievement.

Although the author has no basis on which to classify either of the groups involved in this study as over-achievers or under-achievers, a review of the studies which proceed on the basis of such classification was fruitful. These studies were found to have some relation to this study in their concern about the influence of affective factors in academic performance.

Some of the earlier studies of achievement indicated an interest in the relationship between the sex factor and differences in achievement between males and females. Other investigators have studied the relationship of reading ability to academic achievement, and these too were reviewed in relation to this study. Relevant previous research is discussed below.

The Sex Factor and Achievement

One of the first factors to be recognized as serving a differentiating role in achievement is sex bias. Stephens (15) reports on a study which found that girls were unquestionably more successful than boys in getting the higher grades from teachers than they received on standard achievement tests, while boys got higher scores on the standard achievement tests than they received from their teachers.

Anastasi (2) reports on a four year high school study which revealed that the girls generally obtained better grades than the boys, though the boys tended to make a better showing on achievement tests.

While there is no research evidence explaining why sex seems to be a differentiating factor in the achievement of males and females, speculation has generally lead to the guesses that the female's demonstrated superior linguistic aptitude and her more submissive and cooperative attitudes provide the answer.

Personality Factors and Achievement

McQuarry (10) selected for study two groups of students who had been classified as extreme over- and under-achievers because their grade-point averages were a standard deviation above and below those

of students receiving similar scores on the American Council on Education Psychological Examination. There were fifty students in the over-achiever group and twenty-seven in the under-achiever group. Certain data of the information type was gathered on the students in each group. From this data McQuarry concluded that the over-achievers were more likely to have had less fortunate backgrounds as evidenced by 1) a smaller perentage of fathers engaged in professional or semi-professional occupations, 2) less formal education for fathers and mothers, 3) a greater percentage of deceased parents, 4) a great percentage of foreign born parents, and 5) a higher percentage of totally self-supporting students.

The under-achievers, on the other hand, were more likely to have sought a college education because friends were attending and because of the prestige and social enjoyment involved. A significantly higher percentage of the under-achiever group were uncertain about their vocational choices, while the over-achievers were more likely to have made choices at least one year prior to entrance to college.

McQuarry neither presented the magnitude of the percentages which separated the two groups on each factor nor defined what he considered a "significantly higher percentage."

In a latter study McQuarry and Trux (9) made an effort to develop an under-achievement scale with items selected from the Minnesota Multiphasic Personality Inventory. The final scale, which apparently was not tested for reliability or validity, was composed of twenty-one items which discriminated (C.R. 2.33) between over- and under-achievers. In this case, over-achievers and under-achievers were students whose grade-point averages were one-half of a standard deviation above and below the grade-point average of students who had received similar scores on the

ACE. When some control was made on ACE total score by taking only those students with ACE totals greater than the 40th percentile and scale scores of fifteen or greater, 77.7 per cent achieved less than expected. Similarly, by taking only those students with ACE total scores less than the 60th percentile and scale scores of six or less 90.9 per cent achieved higher grades than expected.

Altus (1) equated two groups of twenty-five students each on the basis of the Altus "Measure of Verbal Aptitude." These students' grades in an elementary psychology course were compared with scores on the verbal test to discover the over- and under-achievers. Over-achievers and under-achievers were then compared for differences in responses to items of the Minnesota Multiphasic Personality Inventory. Altus reported that the trend on eight of the nine clinical scales of the MMPI was for slightly greater maladjustment on the part of non-achievers. The only scale showing significance at the .01 level of confidence between the means of the two groups was Hypomania. A difference of five or more points between the two groups was found on sixty items. When these sixty were analyzed by the upper-lower quartile method, with honor-point ratio as the criterion, twenty-six were retained. These items were found to correlate .39 with honor-point ration, and .40 with psychology grades.

Ryan (14) hypothesized that deviations from general predicted scores are positively related to super-ego status, that is, the degree to which certain moral and social values are accepted.

Three groups, over-achievers, under-achievers and normal achievers, were compared on the basis of Rorschach responses, using Davidson's sign

approach, scores on the Strong Vocational Interest Blan, and responses to a questionnaire designed to obtain information about family backgrounds.

Total adjustment scores on the Rorschach did not separate the three groups. However, the over-achiever group was reported as showing significantly greater frequency of popular responses, animal responses, and an excess of animal movement over human movement. These findings were interpreted as being in harmony with the hypothesis.

Scores on the Strong Blank showed under-achievers to score significantly lower on the minister scale and significantly higher on the masculinity-femininity scale.

Questionnaire results showed parents marital status and mothers' occupational status to have significant and linear relationship to scholarship. Both divorce and occupational activity, other than housewife, were independently associated with under-achievement. Ryan concluded that these findings indicate a positive relationship between positive deviations in grades and super-ego status.

Rust and Ryan (13) investigated the relationship of Rorschach variables to academic behavior with three groups of Yale juniors and seniors who had been designated as under- normal- and over-achievers. These groups were equated on the basis of the relationship of grades for the preceding year to general predicted score, a composite of 1) adjusted secondary school record; 2) scholastic aptitude test scores; 3) three College Entrance Board Examinations.

Group Rorschachs were administered to the three groups. Five of the fifty-seven comparisons showed statistically significant

differences at the .01 level of confidence, while two more were significant at the .02 level. Under-achievers and normals appeared to be "birds of a feather."

On the basis of the Rorschach findings, the authors submitted the "highly speculative" portrait of the over-achiever as being over-conventional, or a conformist, who is practical-minded and exhibits a stereotypy in his thinking, showing little introversion or self-preoccupation, and he is probably immature.

- Beier (3) studied the effects of induced anxiety on certain aspects of intellectual functioning. His main interest was that of determining whether or not a state of induced anxiety would cause rigidity and disorganization.

Two groups of females were equated with respect to age, education, Rorschach adjustment rating, abstract reasoning, intelligence, and a capacity to perform in an area of abstract reasoning.

Anxiety was induced by use of structural Rorschach interpretations. Both groups were then re-tested for measures of rigidity and disorganization, using abstract reasoning, a sorting test, and a mirror drawing test.

A statistically significant difference was found for all tests which followed the induced threat, to the disadvantage of the threatened group. Beier concluded that poor performance on the tests did not necessarily indicate poor capacity, but seemed to be a function of the threat.

Achievement and Reading Ability

Mouly (11) attempted to determine the effects of a remedial reading program on academic grades in a large Southern university. An experimental group of 155 students who took remedial reading for one semester was equated with a control group of 164 students (analysis

of co-variance) who were excused from the remedial program for experimental reasons. A number of students in the experimental group dropped out of the reading program before the end of the semester. However, when only that portion of the experimental group who successfully completed the program were compared with the controls, differences in grades in favor of the experimental group were found to be significant at the .01 level of confidence. Mouly concluded that remedial reading can result in improvement in grades for those students who take it seriously.

Preston and Trux (12) obtained a coefficient of only .16 in correlating measured reading skill and college achievement, though a coefficient of .48 was obtained in correlating the relationship between college scholastic aptitude test scores and reading scores. Remedial reading for students in the lower decile resulted in an improvement of .61 points in grades. In comparing these grades with a matched group of readers from the lower decile who had not taken the remedial training at value of 2.51 was obtained.

In this investigation the Iowa Silent Reading Test was used to measure reading skill. Preston and Botel do not mention what aspects of reading skill the Iowa Silent measures. They did not indicate, for example, if the time factor in this test is important in determining scores obtained on comprehension. If the time factor in this test does have an important effect on comprehension scores, then therelationship between speed of reading and comprehension needs to have been defined. In its present context, a coefficient of .16 between reading skill and grades is not very meaningful.

All of the above studies have at least one thing in common, i.e., all were concerned with relating factors other than intelligence to students' level of achievement. Those studies which were concerned with the relation of affective factors to performance had in common the additional element of broadly similar conclusions, particularly with respect to the characteristics of the over-achiever. Thus it appears that affective factors have not only been found to be relevant to students' level of achievement but also that somewhat similar characterizations of over- and under-achievers tended to emerge from different studies involving different methods of studying the problem.

# CHAPTER III

## METHODOLOGY

The purpose of the investigation has been defined as an attempt to discover some ways in which students who consistently obtain higher instructor grades differ from those students who consistently receive higher term-end examination grades. Certain hypothesis about the nature of the differences have been proposed for study. The basic hypothesis presented earlier was that the consistent differences between instructor and examination grades among students in the extreme groups were non-random phenomena related to specific, measurable variables.

### The Sampling

The population from which these students were drawn enrolled as freshmen in the fall term of 1953. Most of the students who enrolled at this time had completed the twelve Basic courses when this study was undertaken in the fall of 1955.

The author decided, as was suggested in Chapter I, to deal mainly with extreme cases, i.e., with those students who consistently received higher instructor grades and those who consistently received the higher grade from the term-end examination. Students selected for the higher instructor grade group and the higher examination grade group were those whose pattern of grades corresponded to a pre-determined definition of consistent deviation of grades in the direction of either higher instructor or higher examination grades.

Two alternative criteria, and thus, two different methods of selection were considered by the author. One alternative was that of selecting for the samples all of those students whose grade from one source was higher than that obtained from the other source in a given number of instances: for example, in nine or ten instances out of the twelve possible. This criterion of selection, however, would tend to bring into the samples students whose differences between instructor and examination grades were slight in many instances, even though consistent in direction. This would bring into the samples many students who were not different in any important characteristics from students whose examination grades and instructor grades were approximately the same.

A second alternative involved the selection of students whose differences between instructor and examination grades were quite large, and this is the criterion which was selected. This criterion, however, necessitated a decision with respect to what should constitute large differences and a method of computing these differences. The decision was made to sum each student's twelve instructor grades and twelve examination grades algebraically and then to obtain the difference between these sums. The problem with respect to how great a difference between summed grades should exist in order to warrant a student's selection for the investigation was resolved in the following manner: A decision was made to select for the extreme groups only those students whose differences between summed instructor grades and summed examination grades, in the direction of either higher instructor grades or higher examination grades, placed them at least two standard deviations beyond the mean difference between the accumulative sums of instructor grades and examination grades. Thus, all students whose grade patterns corresponded

to the above criterion were selected for the investigation.

Since the pilot study mentioned in Chapter I indicated the existence of a sex bias in this phenomenon, namely, more females than males tending consistently to receive a higher instructor grade, an effort was made to correct for this bias in the selection of the samples in order to avoid artificial loadings of members of either sex in either of the designated categories. Thus, males and females were selected on the basis of independent means and standard deviations, in a manner discussed below, prior to being jointly assigned to the higher instructor grade and higher examination grade groups.

The total population of males and females who had enrolled in 1953 and who had completed the twelve Basic courses numbered 565 males and 469 females and it was on these two populations that the computations were made.

First, the accumulative sums of instructor and examination grades were obtained for each male and each female. Then the means and standard deviations of these accumulative instructor grade sums and examination grade sums were computed separately for men and for women. From this data, the differences between the means of the accumulative sums of the instructor grades and examination grades were computed for males and females. Finally, the standard deviations of the accumulative instructor grade sums and examination grade sums and their correlations were used to compute the standard deviations of the differences between the accumulative sums of instructor grades and examination grades for males and females.

In order to determine if the traits and abilities characterizing the extreme groups lay on a continuum, a third group of students was also

selected for the investigation. This group was randomly selected from the male and female populations lying within one-third of one standard deviation on either side of the mean difference between the accumulative sums of instructor grades and the accumulative sums of the examination grades. Since the discrepancies between the sum instructor grades and sum examination grades of students in this group were slight, this group will for convenience be called the non-deviant group.

Interviews

Students in the two extreme groups who were selected in accordance with the above criterion were sent letters which briefly explained the nature of the investigation and requested their cooperation. They were asked if they would be willing to appear for an interview during certain designated hours.

Students in the non-deviant grade group were not interviewed. Since these students had not experienced the problem of consistently receiving different grades from one of the two sources, the author assumed that comments from this group would contribute little to understanding the problem.

The interview was intended to serve a dual purpose: first, it was deemed the most appropriate method of making the initial contact with the student to establish the kind of rapport necessary in order to obtain continuing cooperation; second, it was designed to obtain from the students their opinions regarding the problem.

At the outset of the interview, the nature of the problem was briefly described to the student. At this point each student was asked if he or she knew the direction of his or her deviation.

In order to avoid providing any cues which might suggest responses to the interviewee, only one question was asked, namely, "How do you account for this?" Students were permitted to elaborate at any length or to say simply, "I can't account for it". There were no specific, probing questions to "get at the answer". Beyond the initial structuring, the interview was non-directive in nature.

At the conclusion of the inverview the need for more information was explained to the students and they were asked if they would be willing to make an appointment to take a couple of tests. Students were asked to take the tests with a group at three different periods or, if the hours specified for group testing were incompatible with a student's schedule, arrangements were made for the student to take the tests at his or her convenience.

The Tests

The Taylor Anxiety Scale and the Inventory of Beliefs were selected and administered to test the hypotheses related to the effects of anxiety and the significance of inflexible, authoritarian behavior, respectively. Scores on the Michigan State University Reading Test had been obtained when this group of students enrolled as freshmen.

Although a hypothesis concerning differences between the groups with respect to intellective factors as such was not presented, the general significance of these variables to student performance indicated the advisability of considering such differences in mental aptitude as might exist among the groups. Since scores on the American Council on Education Psychological Examination were also obtained when these students enrolled as freshmen, these scores, too, were used in the study.

The Taylor Anxiety Scale:

Although there is a paucity of evidence concerning the validity of the Taylor Scale, its reliability has been shown to vary between .81 and .96.(8). The Taylor Scale consists of fifty items that were selected from two-hundred items which had been taken from the Minnesota Multi-phasic Personality Inventory and submitted to clinical staff members at the State University of Iowa with instructions to designate those items that they judged to be indicative of "manifest anxiety" according to a definition furnished them. (16)

Although one investigator has found the Taylor to be valid only as a coarse measure of manifest anxiety, it was the only such test available for ready administration by the author.

Inventory of Beliefs:

This instrument was developed to differentiate between the "mature, independent, reality-minded, flexible, adaptive, secure and comfortable individual who is seen as the potential base and the anticipated outcome of a program of general education in a free society, and the childish, self-centered, threatened, aggressive, rigid, compulsive, insecure, and uncomfortable individual whose comcomitant attitudes and values are seen as essentially antidemocratic and in opposition to th e objectives of general education."[3] (5)

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[3] Developed by the Inter-College Committee on Attitudes, Values, and Personal Adjustment: The Cooperative Study of Evaluation in General Education of the American Council on Education.

The test consists of 120 statements. The directions request the student to respond to each item in terms of the following key: (1) Strongly Agree, (2) Agree, (3) Disagree, and (4) Strongly Disagree. Since all of the statements should elicit disagreement, low scores are obtained by individuals who are characterized as being self-centered, rigid, and insecure, with the opposite being true of students obtaining high scores.

More th an thirty reliability studies have been made, resulting in coefficients which range from .68 to .95 with a median coefficient of .86. (5)

Michigan State University Reading Test:

The MSU Reading Test was designed by members of the Basic College Board of Examiners. It obtains three scores: a vocabulary score, a comprehension score, and a total score. The following reliability coefficients have been obtained: vocabulary .81, comprehension .80, and total .91. Although students were given a limited amount of time to complete this edition of the test, the time factor was not significant and most students were able to complete the test.

Statistical Techniques Employed in Analyzing these Data

In order to determine if significant differences existed in the mean instructor grades and mean examination grades among the three groups, tests for significant differences were made between each of the instructor grade means and each of the examination grade means.

In considering the grades of these groups, it also seemed appropriate to determine the relationship between students' mean instructor grades and mean examination grades in each group, and this

was also accomplished.

Between Sex Within Group Comparisons:

To determine if the mean test scores in each group were biased by significant differences between the scores of each sex, small sample tests for the significance of the difference between mean scores of the sexes within each group were made.

Among Group Comparisons:

In keeping with the hypotheses which were advanced, the following tests for significant differences were made:

1. A test for significant differences in mean Inventory of Beliefs scores of the three groups.

2. A test for significant differences in mean Taylor Anxiety scores of the three groups.

3. A test for significant differences in mean MSU reading scores of the three groups.

Although a hypothesis was not presented with respect to differences among the three groups on ACE scores, the same procedure as above was used to determine the significance of these scores.

Relationships Between Test Scores and Mean Grades:

To determine if differences existed among the three groups in the relationship between students' mean instructor grades and their mean examination grades and their test scores, coefficients of correlation between these variables were obtained.

Relationship Between Test Scores and Direction of Deviate Grades:

The question to be answered here was whether there were relationships between certain traits and abilities as indicated by test scores and the tendency consistently to obtain the higher grade from the

same source, i.e., relationships between test scores and the direction of the differences between examination grades and instructor grades.

The method of selection of the samples was based on the assumption that differences between students' instructor and term-end examination grades were normally distributed. The tests employed by the author are also based on the assumption that the traits which they measure are continuous and normally distributed. Thus, a serial correlation technique was indicated in order to determine the relationship between students' test scores and the direction of their grades. However, since three samples, representing three different segments of the continuum, were used in the investigation, a triserial cor relation was used.[4]

Analysis of the Interview Data:

Finally, the interview data were analyzed to determine if any particular kinds of comments or themes of responses characterized either group. Certain themes which could be identified and labeled were quantified in terms of the number of times each was repeated. These data was then considered in relation to the differences between the two extreme groups on the test score data.

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[4] See appendix for description of Jaspen's formula.

# CHAPTER IV

## PRESENTATION AND INTERPRETATION OF THE DATA

The selection of students for the higher instructor grade group, the higher examination grade group and the non-deviant group was made separately by sex and was based on the mean difference between accumulative sums of instructor grades and accumulative sums of examination grades of a group of 565 males and 469 females. Students finally selected for the two extreme groups were those whose grades deviated in either direction two standard deviations beyond the mean difference between the accumulative sums of instructor grades and the accumulative sums of examination grades. The non-deviant grade group was randomly selected by sex from populations lying within one-third of one standard deviation on either side of this mean difference.

Table I illustrates by sex the means of the accumulative sums of the students' instructor and examination grades, the mean difference of the accumulative sums of instructor and examination grades, and the standard deviation of the differences for the original groups.

Table I: Means of the accumulative sums of instructor and examination grades, mean differences between the accumulative sums, and standard deviations of the differences.

| | Mean of accum. sum of E grades | Mean of accum. sum of I grades | Mean Diff. (E - I) | S. D. of Diff's |
|---|---|---|---|---|
| Males N-565 | 104.3515 | 102.9108 | + 1.4407 | 12.0344 |
| Females N-469 | 106.8871 | 110.1898 | - 3.3027 | 12.0024 |

As the table above illustrates, females tended not only to receive higher instructor grades than males, they also tended to receive higher grades on the term-end examination. More important, however, were the differences between the mean instructor and mean examination grades for each sex. Females tended to receive higher grades from their instructors than they obtained from their term-end examinations, while males received slightly better grades on the term-end examination. This corresponds to the results of studies cited by Stephens (15) and Anastasi (2).

The criterion of selection for the extreme groups was stated to be two standard deviations beyond the mean difference between the accumulative sums of instructor grades and the accumulative sums of examination grades. On the basis of the data presented in the above table, then, the following students were selected for the higher instructor grade group and the higher examination grade group:

Higher Instructor Grade Group:

1. Males whose summed instructor grades were at least twenty-two points greater than the sum of their examination grades.

2. Females whose summed instructor grades were at least twenty-eight points greater than the sum of their examination grades.

Higher Examination Grade Group:

1. Males whose summed examination grades were at least twenty-six points greater than the sum of their instructor grades.

2. Females whose summed examination grades were at least twenty points greater than the sum of their instructor grades.

The non-deviant grade group was also selected on the basis of data presented in Table I above. Students with patterns corresponding to the following criteria were randomly selected by sex from a range within one-third of a standard deviation beyond the mean difference between the accumulative sums of instructor grades and examination grades.

1. Males whose differences between summed instructor grades and summed examination grades ranged from four points in the direction of higher examination grades to six points in the direction of higher instructor grades.

2. Females whose differences between summed instructor and summed examination grades ranged from zero difference to eight points in the direction of higher instructor grades.

In Tables II and III below, the numbers of males and females in each of the extreme categories who were sent letters, interviewed, and tested are presented.

Table II Higher Instructor Grade Group

| | Letters | Interviews | Tested |
|---|---|---|---|
| Males | 22 | 17 | 14 |
| Females | 20 | 17 | 15 |
| Total | 42 | 34 | 29 |

Table III Higher Examination Grade Group

| | Letters | Interviews | Tested |
|---|---|---|---|
| Males | 28 | 23 | 20 |
| Females | 26 | 17 | 12 |
| Total | 54 | 40 | 32 |

In general, both males and females responded in good numbers to the letters seeking their cooperation and requesting their presence for an interview. There was practically no difference in the numbers of each sex responding in the higher instructor grade group. A few members of each sex, as Table II indicates, failed to comply with the request for an interview, and a few who were interviewed did not return to take the tests.

The picture in the higher examination grade group is somewhat different, however, For reasons which shall be left to future speculation, the females in this category appear to have been somewhat less cooperative than the males in this group, and also less cooperative than their sister counterparts in the higher instructor grade group.

Non-deviant Group:

Ninety-six letters were sent to students selected for the non-deviant grade group, forty-eight to males and forty-eight to females. Twenty of the males responded, while only twelve females seemed willing to cooperate. Several factors were probably responsible for the less cooperative behavior of the non-deviant group as a whole. Perhaps the most important factor was the fact that these students had not experienced the problem which they were called upon to help resolve and had little interest in it. Too, the students in this group had

been requested in the letter to appear to take tests and to give their opinions on the problems if they wished to do so. Students in the extreme groups, on the other hand, were requested to appear for interviews and no mention was made of the tests. This factor probably explains some of the difference in cooperation between the non-deviant group and the extreme groups. Moreover, this factor has probably biased to some extent the selection of the non-deviant group and this bias might be reflected in the test score data.

Among-Group Comparisons of Mean Instructor and Mean Examination Grades

To know that some students tend consistently to receive higher grades from their instructors while others repeatedly obtain the higher grades from the term-end examination tells nothing about the over-all level of performance and the grade-point averages which accrue to these two quite different patterns of behavior. To obtain a perspective with respect to these factors, the mean instructor grade and mean examination grade were computed for each group. Table IV below illustrates the differences in these mean grades among the three groups. The mean grades below are based on a fifteen point scale, with one corresponding to F minus and fifteen corresponding to A plus.

Table IV: Mean instructor and examination grades and standard deviations for the three groups.

| | Mean E Grade | S.D. | Mean I Grade | S.D. |
|---|---|---|---|---|
| High Exam Group | 11.63 | 1.46 | 9.06 | 1.49 |
| High Inst Group | 6.81 | 1.29 | 9.15 | 1.21 |
| Non-Dev. Group | 9.36 | 1.46 | 9.44 | 1.46 |

As the table above indicates, rather striking differences in the mean examination grades were found among the three groups. Conversely, the mean instructor grades are strikingly similar. Based on the fifteen point grading scale, the higher examination grade group has a mean examination grade of approximately B plus, while the mean examination grade of the higher instructor grade group was approximately C minus.

In finding a group with higher examination grades one might expect instructors' grades to be below average. Conversely, higher instructor grades would seem to be associated with a group having below average examination grades. Instead we find that average instructor grade to be essentially the same for the two groups.

Students who receive high grades from instructors are not likely to show up in the higher examination grade group simply because deviations between examination and instructor grades could not be large in that direction. By the same token, students who receive low grades from instructors are not likely to show up in the higher instructor grade group.

The close similarity between the mean instructor grade and the mean examination grade in the non-deviant grade group simply attests to the efficacy of the selection technique with respect to this group.

Tests to determine the significance of the difference between the mean instructor grades of the three groups demonstrated the absence of statistically significant differences, of course. Tests to determine the significance of the difference between the mean examination grades of the three groups revealed statistically significant differences

between the means of all three groups beyond the .01 level of confidence.

In considering the mean grades of these groups, it also seemed appropriate to determine the relationship between student's mean instructor grades and mean examination grades within each group. The coefficients of correlation which were obtained are presented in Table V below.

Table V: Coefficients of correlation between students' mean instructor grades and mean examination grades.

| | Mean E Grade | Mean I Grade | r. | N |
|---|---|---|---|---|
| High Exam Group | 11.63 | 9.06 | .93 | 32 |
| High Inst Group | 6.81 | 9.15 | .95 | 29 |
| Non-Dev. Group | 9.36 | 9.44 | .98 | 32 |

At first glance, the coefficients of correlation might appear to be unusually high. Although the coefficient of correlation between mean instructor grades and mean examination grades of all Basic College students is generally approximately .80, this coefficient is unrelated to the above data and a comparison cannot properly be made. When it is remembered that the students in the two extreme groups were selected on the basis of consistent deviations in a given direction while the students in the non-deviant group were selected for having only slight discrepancies between their instructor and examination grades, the magnitude of the above coefficients can be comprehended and seen to be a necessary condition for the confirmation of the efficacy of the selection criterion. The magnitude of these correlation coefficients are thus

seen to be artifacts of the selection procedure. This artifact will manifest itself each time both mean instructor and mean examination grades are compared with a third variable.

Within-Group Between Sex Analyses of the Test Score Data

To determine if group mean test scores were biased by significant differences between the scores of each sex, tests of the significance of the difference between mean test scores of each sex within each group were made. Since no significant differences were found to exist between the sexes in their mean test scores, the tables illustrating this data were placed in the appendix.

Among-Group Analyses of Test Score Data

A word of caution needs to be mentioned here with respect to interpretations which attempt to relate test score data to the mean grades in each group, particularly where the relation involves scores on the Inventory of Beliefs and the Taylor Anxiety Scale. Almost two years had elapsed from the time that these students had completed all of their freshmen credits until these tests were taken and it is certainly conceivable that students' responses to test items might have been somewhat different two years earlier from the responses made at the time of this investigation. It seems safe to assume, however, that although intervening experiences during a two-year period might have some influence on students' responses to test items, total scores on the tests would not be so grossly different as to make their use for the investigation inappropriate.

Among-group analyses of the data were made to determine if significant differences existed among the mean test scores of the three groups. Estimates of the relationships between student's test scores and their mean instructor and examination grades were also made for each group. Finally, the relationship between test scores and the direction of deviate grades was estimated. These analyses are discussed and presented in tabular form below.

Inventory of Beliefs:

Statistically significant differences were found between the mean IB scores of the higher examination grade group and the higher instructor grade group and between the non-deviant grade group and the higher instructor grade group. The significant difference found between the higher examination grade group and the higher instructor grade group supports the author's hypothesis that a difference of this nature would be found. The mean IB score of each group, the variance, and the significance of the differences between the means are presented in Tables VI(a) and VI(b) below.

Table VI(a): Mean IB scores and variances for the three groups.

| | Means | | N |
|---|---|---|---|
| High Exam Group | 79.29 | 203.11 | 32 |
| High Inst Group | 66.17 | 304.49 | 29 |
| Non-Dev. Group | 78.34 | 116.91 | 32 |

Table IV(b): Values obtained in testing for significant differences between the mean IB scores.[5]

| | High I Group | High E Group |
|---|---|---|
| High Exam Group | -3.30 | |
| High Inst Group | | |
| Non-Dev. Group | -3.31 | .30 |

As the data in Table VI(a) above indicate, the range of IB scores was somewhat greater in the higher instructor grade group than in either of the other two groups. Two students in the higher instructor grade group made somewhat lower scores than the author would have expected. As the data in Table VI(b) above indicate, the mean IB scores of both the higher examination grade group and the non-deviant group were found to be significantly different from the mean of the higher instructor grade group beyond the .01 level of confidence. On the basis of these data, the higher instructor grade group is characterized as being more compulsive, conforming, and rigid and less democratic and flexible in their general outlook than both of the other groups. However, the size of the variance suggests that the group is not homogeneous in this regard.

In order to determine the nature of the relationship between students' mean examination grades and IB scores and between their mean instructor grades and IB scores, coefficients of correlation between these variables were obtained. This data is presented in Table VII below.

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[5] The author recognizes that the analysis of variance technique is generally the more appropriate method of evaluating the significance of data of this nature. However, the main interest here was in comparing these groups pairwise. Thus, the t technique was used.

Table VII: Coefficients of correlation between students' mean instructor grades and IB scores and between mean examination grades and IB scores.[6]

| | I Grade & IB | E Grade & IB |
|---|---|---|
| High Exam Group N-32 | .15 | .22 |
| High Inst Group N-29 | -.10 | -.15 |
| Non-Dev. Group N-32 | .00 | .05 |

The low correlation coefficients presented in the above table require little comment. The Inventory of Beliefs typically yields a rather wide range of scores, as was indicated by the within group data presented in Table VI(a).

That there is some relationship between grades and scores obtained on the Inventory of Beliefs was demonstrated by the coefficient of correlation obtained when the test scores of the three groups were correlated with the direction of deviate grades. A triserial correlation coefficient of .52 was obtained in correlating these variables, indicating that students who obtained higher scores on the IB also tended to obtain higher grades on the term-end examination than they received from their instructors.[7]

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[6] The reader is reminded that the close similarity of the coefficients within each group represents an artifact of the selection procedure. See page 31.

[7] See Appendix I for discussion of Jaspen's formula.

The Taylor Anxiety:

- Tests for significant differences between the mean Taylor Anxiety scores of the three groups revealed that the groups are not different from each other in this measure of anxiety. The mean Taylor Anxiety score of each group, the variance, and the significance of the difference between the means are presented in Tables VIII(a); and VIII(b) below.

Table VIII(a): Mean Taylor scores and variances for the three groups.

| | Mean | | N |
|---|---|---|---|
| High Exam Group | 14.03 | 57.97 | 32 |
| High Inst Group | 14.28 | 52.68 | 29 |
| Non-Dev. Group | 12.78 | 70.05 | 32 |

Table VIII(b): Values obtained in testing for significant differences between mean Taylor Anxiety scores.

| | High I Group | High E Group |
|---|---|---|
| High Exam Group | .13 | |
| High Inst Group | | |
| Non-Dev. Group | .69 | .58 |

The absence of significant differences between any of the group means on the Taylor Anxiety does not support the author's hypothesis with respect to this variable. A significantly higher Taylor score was anticipated for the group which consistently received the higher instructor grades. The interview data, as will be seen, suggested that a considerable number of students in the higher

instructor grade group believe themselves to be victims of anxiety, particularly in taking the term-end examinations.

A possible, though admittedly speculative, explanation for the absence of a significantly higher Taylor scores among students in the higher instructor grade group is that the anxiety responses elicited by the term-end examination are rather specific, associated particularly with examination situations of this nature, and not amenable to detection and measurement by a test such as the Taylor Anxiety Scale. It is possible, too, as another investigator has suggested, that the Taylor is too coarse a measure to reveal differences which might exist among these three groups.

Within Group Relationships Between Grades and Taylor Scores:

The coefficients obtained in correlating Taylor Anxiety scores with students' mean instructor and mean examination grades in each group disclosed no important relationships. These coefficients of correlation are presented in Table IX below.

Table IX: Coefficients of correlation between students' mean instructor and mean examination grades and Taylor Anxiety scores.

| | I Grade & Taylor | E Grade & Taylor |
|---|---|---|
| High Exam Group N-32 | .12 | -.05 |
| High Inst Group N-29 | .09 | -.14 |
| Non-Dev. Group N-32 | .20 | .29 |

Similarly, no relationship was found between Taylor scores of the three groups and the differences between instructor and examination grades. A triserial coefficient of only .07 was obtained in correlating these variables.

The ACE Test:

Tests for significant differences between the mean ACE scores of the three groups revealed statistically significant differences between the mean scores of the higher examination grade group and the higher instructor grade group and between the latter group and the non-deviant group. The mean ACE scores of both the higher examination grade group and the non-deviant group were found to be significantly higher than the mean ACE score of the higher instructor grade group beyond the .01 level of confidence, while the difference between the means of the higher examination grade group and the non-deviant group was found not to be statistically significant.

The mean ACE scores, the variances, and the significance of the differences are presented in Tables X(a) and X(b) below.

Table X(a): Mean ACE scores and variances for the three groups.

| | Mean | | N |
|---|---|---|---|
| High Exam Group | 114.06 | 302.06 | 32 |
| High Inst Group | 92.96 | 346.17 | 29 |
| Non-Dev. Group | 108.18 | 447.40 | 32 |

Table X(b): Values obtained in testing for significant differences between mean ACE scores.

| | High I Group | High E Group |
|---|---|---|
| High Exam Group | -4.54 | |
| High Inst Group | | |
| Non-Dev. Group | -2.97 | 1.20 |

As the tables above illustrate, considerable differences were found to exist between the mean ACE scores of the higher examination grade group and the higher instructor grade group and also between the latter group and the non-deviant group. This becomes particularly important in recalling the fact that no significant differences were found to exist between the mean instructor grades of the three groups, these means being 9.06, 9.15, and 9.44 respectively for the higher examination grade group, the higher instructor grade group, and the non-deviant group. Mean examination grades reflect the differences in ability, while the mean instructor grades do not.

Within Group Relationships Between Mean Grades and ACE Scores:

Correlation coefficients obtained in estimating the relationship between students' ACE scores and their mean instructor and mean examination grades, as illustrated in Table XI below, present a puzzling picture.

Table XI: Coefficients of Correlation between ACE scores and mean instructor and mean examination grades.

| | I Grade & ACE | E Grade & ACE |
|---|---|---|
| High Exam Group N-32 | .33 | .37 |
| High Inst Group N-29 | .77 | .86 |
| Non-Dev. Group N-32 | .25 | .27 |

The most striking feature of the data presented in the above Table is the great difference between the coefficients of correlation obtained for the higher instructor grade group and those obtained for the other two groups. Within this group apparently both the examination

and the instructor rank the students quite consistently in relation to ability, but there are personal qualities at work which commend the students to the instructor, resulting in higher grades from the instructors.

For the higher examination grade group the correlation is lower than we find on an over-all basis, but not a great deal lower, considering the restricted range due to selection.

A triserial correlation coefficient of .45 was obtained in estimating the relationship of ACE scores to differences between examination and instructor grades, indicating that students who obtained the higher scores on the ACE also tended to obtain higher grades on the term-end examination than they received from their instructors.

Table XII(a): Mean reading scores and variance for the three groups.

| | Mean | | N |
|---|---|---|---|
| High Exam Group | 57.97 | 154.10 | 32 |
| High Inst Group | 36.93 | 59.37 | 29 |
| Non-Dev. Group | 47.81 | 144.34 | 32 |

Table XII(b): Values obtained in testing for significant differences between mean reading scores.

| | High I Group | High E Group |
|---|---|---|
| High Exam Group | -7.82 | |
| High Inst Group | | |
| Non-Dev. Group | -4.15 | 3.30 |

As the data in the above Tables indicate, the higher examination grade group is superior to both of the other groups in reading ability

as measure by the MSU Reading Test, which yields a vocabulary score, a comprehension score, and a total score. The variance of reading scores of the higher instructor grade group commands attention. Apparently the reading scores of almost all of the students in this group were near the mean, and as a group they are all poor readers.

The differences between the mean scores of the three groups were found to be significant beyond the .01 level of confidence. This data supports the author's hypothesis that a difference of this nature would be found between the higher examination grade group and the higher instructor grade group. The significant difference which was found between the higher examination grade group and the non-deviant group was not anticipated, however. Since this was the only variable in which differences were found to exist between these two groups, the importance of reading ability to general performance, particularly to performance on the term-end examinations, appears to become even more prominent.

Within Group Relationships Between Grades and Reading Scores:

The coefficients obtained in correlating reading scores with students' mean instructor grades and mean examination grades suggested that the reading test had somewhat more predictive value than the ACE. The coefficients of correlation obtained in estimating the relationship between students' reading scores and their mean instructor and mean examination grades are presented in Table XIII below.

Table XIII: Coefficients of correlation between students' reading scores and their mean instructor and mean examination grades.

| | I Grade & Reading | E Grade & Reading |
|---|---|---|
| High Exam Group N-32 | .55 | .55 |
| High Inst Group N-29 | .57 | .61 |
| Non-Dev. Group N-32 | .43 | .45 |

The triserial coefficient of correlation obtained when the reading scores of the three groups were correlated with differences between examination and instructor grades in the three groups revealed a positive relationship between reading scores and the tendency to obtain higher grades on their term-end examinations. A triserial coefficient of .68 was obtained in correlating these variables.

The Interview Data

After a brief explanation of the nature of the problem and the reasons for soliciting the cooperation of the students, the author asked each interviewee if he or she was aware of the direction of his or her grades, that is, consistently higher instructor grades or consistently higher examination grades. Only one interviewee was unaware of the direction of her grades. All of the other students who were interviewed had been aware of this problem.

The question "How do you account for this problem?" elicited a variety of responses, though, as might be expected, there were great differences in ability, need, and willingness to verbalize the

problem.

Although there were differences among the responses of students within each group, the differences of the responses between the groups were so great as to leave little doubt that these students represented very different groups. On the other hand, the responses of students within each group were sufficiently similar in many instances to warrant a thematic analysis of the interviews. The fact that these responses were made in a non-directive interview attests to the homogeneity of the problems and attitudes which characterized the students in each group.

The greatest single difference in the character of the responses between the two groups was that many of the responses of the higher instructor grade group were characterized by an underlying need to explain what the students in this group appeared to perceive as failure. The responses of the students in the higher examination grade group, on the other hand, indicated that these students did not perceive the consistently lower instructor grades as evidence of any kind of failure.

Fifteen of the twenty-nine students comprising the higher instructor grade group expressed fear of the term-end examinations, complaining that the examinations caused them considerable anxiety, tension, and "nervousness". Eleven of the students in this group expressed the opinion that too often the information required for the term-end examination did not correspond to material or work covered in class. Several students in this group labeled the term-end examinations as "too ambiguous", and some complained that

both the tests and the individual items were too long, requiring too much reading in the time allotted for the test. By contrast, only one student in the higher examination grade group saw the instructors' tests as having any relationship to his consistently lower instructor grades.

By contrast, again, the comments of twenty-five of the thirty-two students in the higher examination grade group were interpreted to indicate a lack of motivation for and indifference toward the Basic College courses. This interpretation is based on the number of students in this group who at some time during the interview specifically stated that they were not interested in the Basics or indicated that they did not study during the term, studying only for the term-end examinations. Several of the students in this group compared the level of difficulty of the Basics to their high school curriculum. In general, the comments of the students in this group indicated confidence in being able to perform well on the term-end examinations and thereby obtain good grades.

It seems reasonable to conclude that students in the higher examination grade group generally perceived the disparity in their grades as a phenomenon of their own making, while their much more insecure opposites saw their circumstance as a rather threatening problem which eluded remedy.

Analysis of the Relationships Among the Data

Abilities and Grades:

The significant differences in the mean ACE scores and the mean reading scores between the two extreme groups were accompanied by similar differences between the mean examination grades of the two

groups. However, these differences in ability were not reflected in the mean instructor grades, which were practically the same for all three groups. The mean ACE score and the mean reading score of the higher examination grade group were significantly higher than those of the higher instructor grade group. Considered from the point of view of ability to achieve, the evidence suggests that the higher instructor grade group received higher instructor grades than they should have, while the higher examination grade group received lower instructor grades than they should have.

Personality Traits and Grades:

A significant difference separated the mean IB scores of the two extreme groups. This difference, considered in conjunction with the absence of a difference in mean instructor grades corresponding to differences in abilities, suggests that the grades which these students obtained from their instructors were to a considerable extent a function of personality traits, or affective factors. The mean IB score of the higher examination grade group was significantly higher than that of the higher instructor grade group appears to correspond to the interview data, which showed many students in the higher instructor grade group to be threatened, anxious, and insecure.

The IB scores of the higher examination grade group also appears to have some relation to the interview data compiled for this group, which in general showed the students in this group to be quite confident, flexible, and so secure in their convictions about the courses and their background in them that they often did little work in the courses.

# CHAPTER V

## SUMMARY AND CONCLUSIONS

### The Problem

The purpose of the investigation was defined as an attempt to discover how those Basic College students who consistently received a higher grade on their term-end examinations differed from those students who consistently received the higher grades from their instructors.

Two groups of students, called the higher instructor grade group and the higher examination grade group, were selected on the basis of consistent deviations between instructor and term-end examination grades. The higher instructor grade group consistently received the higher grade from their instructors, while the higher examination grade group repeatedly received the higher grade on their term-end examinations.

A third group of students, called the non-deviant group, was selected on the basis of having only slight discrepancies between instructor and examination grades to determine if the variables investigated lay on a continuum.

There were twenty-nine students in the higher instructor grade group, thirty-two in the higher examination grade group, and thirty-two in the non-deviant group. These students were juniors and almost all of them had completed all of the Basic College courses.

The author hypothesized that the consistent differences between instructor and examination grades among students in the two extreme groups were non-random phenomena related to specific, measurable variables.

The following sub-hypotheses were presented:

1. Students in the higher instructor grade group are more compulsive, rigid, conforming, and authoritarian, or, stated otherwise, less democratic in their attitudes, than students who comprised the higher examination grade group, as indicated by a test designed to measure such characteristics.

2. Students in the higher instructor grade group are characterized by greater feelings of anxiety than students in the higher examination grade group.

3. The higher examination grade group have higher reading scores, i.e., scores based on vocabulary and reading comprehension, than the higher instructor grade group.

Findings

Significant differences between the three groups were found on the following variables:

1. Between the higher examination grade group and the higher instructor grade group on mean Inventory of Beliefs scores beyond the .01 level of confidence.

2. Between the non-deviant group and the higher instructor grade group on mean Inventory of Beliefs scores beyond the .01 level of confidence.

3. Between the higher examination grade group and the higher instructor grade group on mean ACE scores beyond the .01 level of

confidence.

4. Between the non-deviant group and the higher instructor grade group on mean ACE scores beyond the .01 level of confidence.

5. Between all three of the groups on mean reading scores beyond the .01 level of confidence.

6. Between all three of the groups on mean term-end examination grades beyond the .01 level of confidence.

Grades and Abilities:

The mean instructor grades of the three groups were strikingly similar. The significant difference between the mean ACE scores of the higher examination grade group and the higher instructor grade group was reflected by a similar difference between their mean examination grades, but not between their mean instructor grades. Significant differences in mean reading scores also appeared to be reflected by differences in mean examination scores.

Both the higher examination grade group and the non-deviant grade group had significantly higher mean ACE scores than the higher instructor grade group. A triserial coefficient of .45 was obtained in estimating the relation of ACE scores to differences between examination and instructor grades, indicating a positive relationship between ACE scores and obtaining the higher of the two grades on the term-end examination.

Both the higher examination grade group and the non-deviant grade group also had significantly higher mean reading scores than the higher instructor grade group, and the mean reading score of the higher examination grade group was also significantly higher than

that of the non-deviant group. A triserial coefficient of .68 was obtained in correlating reading scores with differences between examination and instructor grades, indicating a positive relationship between reading scores and obtaining the higher of the two grades on the term-end examination.

Differences in Personality Traits:

The mean Inventory of Beliefs scores of both the higher examination and the non-deviant grade groups were significantly higher than the mean Inventory of Beliefs score of the higher instructor grade group. Thus, the latter group was characterized as being more conforming, compulsive, rigid, and insecure than the other two groups. A triserial coefficient of .52 was obtained in correlating Inventory of Beliefs scores with differences between examination and instructor grades, indicating a positive relationship between IB scores and obtaining the higher of the two grades on the term-end examination.

Interview Data:

The interview data characterized the higher instructor grade group as being anxious, threatened, and insecure. In general, the higher examination grade group appeared to be quite confident about their ability to perform and unalarmed about their consistently lower instructor grades. Indifference toward and a lack of interest in the Basic College courses characterized the attitude of a large number of students in this group.

Conclusion

On the basis of the evidence obtained, the following conclusion

is presented: Consistent deviations in the direction of either higher instructor grades or higher term-end examination grades were to a considerable extent a function of personality traits, or affective factors. This is to say that the group of students who were characterized as being more conforming, compulsive, rigid, and insecure received higher grades from their instructors than would be expected of them on the basis of ability alone, while the higher examination grade group was capable of receiving higher grades from their instructors than they did.

Implications and Recommendations

The results of this study parallel to some extent related studies of under- and over-achievement. In some of these related studies, the over-achievers were found to be overconforming, rigid, insecure, and immature. In general, these are the traits which also characterize the higher instructor grade group of this study. This study also adds to the literature in that it provided a further important control, namely, the term-end examination grades.

The data obtained in this study leave some important questions unanswered, however. The results of the study were limited to a certain extent by the limitations of the testing instruments which were used. For example, no differences were found among the groups on the measure of anxiety which was used, though there is considerable intuitive evidence to suggest that the higher instructor grade group was the more threatened and anxious group. A more thorough and definitive study of this factor is certainly indicated.

While the evidence indicates that the consistent deviations between instructor and examination grades were to a considerable extent a function of affective factors, the findings are not sufficiently definitive. The amount of variance in the IB scores of the higher instructor grade group indicated that this group was not as homogeneous as the higher examination grade group with respect to this variable. On the other hand, this group (the higher instructor grade group) was shown to be very homogeneous with respect to reading ability, i.e., as a group they were all very poor readers. Moreover, in estimating the relationship of reading ability to differences between instructor and examination grades a high positive relationship was found between reading scores and the tendency to obtain the higher grade on the term-end examination. A triserial coefficient of .68 was obtained in estimating the relationship between these two variables. The lack of homogeneity among students in the higher instructor grade group on IB scores contrasted with the considerable homogeneity in reading ability raises two important and closely related questions, namely, to what extent was the tendency to consistently receive higher instructor grades a function of personality factors and/or to what extent was the consistently lower term-end examination grade a function of reading ability.

In contrasting the factors involved in the instructor-examination grade discrepancies in each of the two groups, the consistent deviations of the higher instructor grade group appear to be a function of

both ability and personality factors, while, in general, personality factors seem to explain the consistently lower instructor grades obtained by students in the higher examination grade group.

The author recommends that any future research on this problem be designed to clarify the relative importance of ability and personality factors with respect to the performance of students in the higher instructor grade group. The very poor reading ability of students in this group obviously affects their performance on the term-end examination. The mean ACE score of this group was also very low, and performance on the ACE is probably also adversely affected by poor reading ability. Therefore, the author recommends the use of another measure of intelligence for this group, i.e., an instrument in which performance would not be affected by reading ability. The adult form of the Wechsler-Bellevue would serve this purpose. The author suspects that the relationship of ACE scores to reading scores would be significantly higher than the relationship of Wechsler scores to reading scores.

The question of why the instructor grades obtained by students in the higher examination grade group were not commensurate with their ability migh t not be easy to answer.

The evidence obtained in this study indicates that the consistently higher examination grades obtained by students in the higher examination grade group were a function of personality factors. However, an IB score represents a measure of a syndrome of traits and categorical statements about students certainly should not be made on the basis of such scores. The author suspects, for

example, that some students in the higher examination grade group who obtained high IB scores are equally as authoritarian and dogmatic as students in the higher instructor grade group who received low IB scores. Some of the interview data suggests that this might be the case.

Much of the interview data suggests that the nature of the student-teacher relationship among students in this group should be investigated. Many of the students in this group appeared to be unmotivated to perform on the regular class assignments. It is certainly conceivable tha t many of these students discovered long ago that they had the ability to get good grades on examinations without working very hard during the term and that they acquired the habit of not working during the term. It would be interesting to know these students' perceptions of instructors and classroom activities. This might be accomplished by means of structured interviews or attitude scales designed to obtain this type of information. That the attitudes of students in this group differ from those of students in the higher instructor grade group was demonstrated by the interview data, and more specific information about these attitudes is needed to better understand their behavior.

In general, a more thorough study of the personality factors related to this problem might be made. A paper and pencil instrument such as the Minnesota Multiphasic Personality Inventory or a projective instrument such as the Rorschach might be used. A sub-scale analysis of the MMPI responses might be made to determine which scales clearly differentiate between the two

extreme groups..

In summary, then, the author recommends that the relative importance of the ability and personality factors be clarified with reference to the higher instructor grade group and that a more thorough and definitive approach be made to investigating the personality factors involved in the problem with respect to both grou ps.

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# APPENDIX I

## JASPEN'S (7) FORMULA FOR TRISERIAL CORRELATION

The purpose of Jaspen's paper was to present a development of formulas of serial correlation for any number of categories, more specifically, formulas for biserial correlation, triserial correlation, quadriserial correlation, and so on. "The effect of serial correlation is to normalize the segmented distribution at the time that the correlation coefficient is obtained. If the number of segments is large and the segmented variable is already normally distributed, the resulting correlation will be the same as a Pearson product-moment correlation."

The method of selection of the samples for this study was based on the assumption that differences between students' instructor and term-end examination grades were normally distributed. The tests employed are also based on the assumption that the traits which they measure are continuous and normally distributed. Since three samples, representing <u>three</u> different segments of the continuum, were used in the investigation, a triserial correlation technique was indicated in order to determine the relationship of differences between examination and instructor grades to scores on the test instruments. Jaspen's formula for triserial correlation is presented below.

$$r_{tri} = \frac{ZaYa + (Zb - Za)\,Yb - ZbYc}{\left[\frac{Za^2}{a} + \frac{(Zb - Za)^2}{b} + \frac{Zb^2}{c}\right]}$$

Wherein:

y = a continuous variable

x = a continuous segmented variable, normally distributed

r = the coefficient of correlation (linear) between x and y

a = proportion of cases in top (right most) segment of x distribution

b = proportion of cases in second highest segment

qa = a

qb = a + b

qc = a + b + c

Za = ordinate of normal curve, assuming a unit normal distribution, at qa

Zb = the ordinate of the unit normal curve at qb, etc.

Ya = mean of the Y's in top (right most) segment of the x distribution

Yc = mean of the Y's in the third highest segment of the distribution

# APPENDIX II

## SMALL SAMPLE TESTS FOR SIGNIFICANT DIFFERENCES BETWEEN SEXES WITHIN GROUPS ON INVENTORY OF BELIEFS, TAYLOR ANXIETY SCALE, ACE, AND MSU READING TEST

### INVENTORY OF BELIEFS

| | High Exam Group | | High Instructor Group | | Non-deviant Group | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| N | 20 | 12 | 14 | 15 | 20 | 12 |
| $\bar{X}$ | 78.42 | 80.67 | 65.93 | 66.40 | 77.05 | 80.50 |
| t | -.41 | | -.07 | | -.85 | |

### TAYLOR ANXIETY SCALE

| | High Exam Group | | High Instructor Group | | Non-deviant Group | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| N | 20 | 12 | 14 | 15 | 20 | 12 |
| $\bar{X}$ | 11.95 | 16.91 | 14.21 | 14.23 | 12.70 | 12.91 |
| t | -1.81 | | -.04 | | -.06 | |

### ACE

| | High Exam Group | | High Instructor Group | | Non-deviant Group | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| N | 20 | 12 | 14 | 15 | 20 | 12 |
| $\bar{X}$ | 113.57 | 114.83 | 98.93 | 87.40 | 109.10 | 106.67 |
| t | -.19 | | 1.85 | | .30 | |

### MSU READING TEST

| | High Exam Group | | High Instructor Group | | Non-deviant Group | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| N | 20 | 12 | 14 | 15 | 20 | 12 |
| $\bar{X}$ | 58.10 | 59.50 | 37.21 | 36.66 | 48.35 | 46.91 |
| t | -.31 | | .18 | | .31 | |

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