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COMPETITIVE STRATEGIES IN OBTAINING GRADES

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COMPETITIVE STRATEGIES IN OBTAINING GRADES

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COMPETITIVE STRATEGIES IN OBTAINING GRADES

CHAPTER I

INTRODUCTION

One of the paradoxes of our society is that by our democratic tradition we are committed to a concern for our fellow man, a concern which recommends a cooperative way of living. Yet the school, one of our primary means of continuing our culture, is based upon a highly competitive way of life which confines success to a limited number. Primary and Elementary teachers urge children to work "cooperatively"; in fact children are evaluated on their report cards for such behavior as, "works well with others." In the upper grades teachers form students into groups or committees to investigate jointly and report on specific topics. At the same time the teacher, by his methods of structuring the classroom situation, may limit the number of students who can achieve maximum success. Stendler (1951) points out that teachers encourage cooperative practices within the classroom while at the same time operating on a grading system which is essentially competitive in spirit.

Various attempts have been made to study the effects of cooperation vs. competition under differing circumstances. Whittemore (1924) using four Radcliffe women and eight Harvard men as his subjects, concluded that production of a semi-mechanical task (printing paragraphs from daily newspapers) is superior in competing situations as opposed to either non-competing or cooperative situations. Julian and Perry (1967) using laboratory grades to establish cooperative and competitive conditions, concluded that group members are more highly motivated and more productive under both individually and group competitive conditions. They further stated that quality of performance was also higher under competitive conditions. These results suggest that, in some circumstances at least, it behooves the teacher to encourage a competitive spirit, if quality of work is one of his criteria of good performance.

The earlier literature (Whittemore, 1924; May and Dobb, 1937; Murphy and Murphy, 1937) placed a greater stress on the positive aspects of competition. There seems to have been a shift in our attitude toward cooperation and competition with cooperation now being emphasized and competition de-emphasized. Campanelle (1965) in discussing the motivational development of adolescents stated that: "Competition is a function of scarcity and the goods of education are plentiful, making competition an inappropriate motivation for group development" (Campanelle, 1965, p. 312). He also

believed that the competitive spirit leads to the spirit of indifference, anxiety and resentment either in individuals or in groups. Weinberg (1965) reports that when students were asked to comment on their experience with competition in school or college: "less than a dozen (of 110) were not aware that they had been and still were in a battle for success, and very few were free of memories of pain, frustration and strain in their struggles to compete successfully with their peers" (Weinberg, 1965, p. 106). The area of competition that had concerned these students most was grades, followed closely by sports. Weinberg argues that competition is more dysfunctional than functional. He lists several major dysfunctional consequences: (1) general anxiety -- students who are afraid that they cannot compete successfully use the defense of reaction formation. They decide they do not care about school because it is not important; (2) lack of cultural involvement -- the feeling of joy or pleasure that accompanies one's involvement with educational materials is worthy of attainment, but enjoyment in a competitive society does not payoff in the same way performance does. Weinberg (1965) seems to view competition as a roadblock to education. He would most likely believe that one obstacle to be overcome, in considering competition in the classroom, is the idea that we would be doing our students a disservice not to ready them for a highly competitive society outside the school setting.

Jersild carries this argument further and talks of the "compulsive competitor" who: "plunges in even when he has nothing to gain -- other than to gratify his need to get attention. He tries to impress people whose opinions really do not matter" (Jersild, 1963, p. 265). Coleman (1960) expresses his concern over the outstanding academic student who has little or no way to bring recognition to his school because of the personal nature of his victories as opposed to the athletic competitor with whom students and alumni alike can easily identify.

Much of the criticism of competition is voiced in general terms and written in connotations aimed at eliciting emotional response from the reader. Empirical evidence on the negative aspects of competition is not readily available. Some critics have, however, suggested alternatives to the competitive classroom climate. Weinberg suggests the goal of the schools become one of interest: "children would not have to worry about comparable products when the goal is interest since they can be as interested as they wish without proving it" (Weinberg, 1965, p. 112). One quickly notes how this approach neatly skirts the measurement problem. Coleman (1960) suggests academic games and tournaments between schools similar to those of an athletic nature. Individual academic accomplishment could then be identified with and therefore be viewed more positively by the school population. This approach has been attempted in inter-scholastic spelling

bees and debating teams. The television program "College Bowl" is an excellent example of this sort of academic game. Generally, this kind of competition has not produced the same results as athletic competition. Being on the forensic team is just not the same as being on the football team.

It is not the purpose of this paper to decide on the relative merits of cooperation and competition. However, two conclusions do seem warranted. First is that competition most definitely does exist in the schools and secondly, it appears logical to assume that a student who is more adept at competing would more likely be successful, if we define success in the conventional manner of good grades.

The manner of obtaining grades is of particular interest to both teachers and administrators. College admissions personnel feel their burden would be lightened greatly if adequate criteria for success (as defined by grades sufficiently high enough to meet graduation requirements) could be succinctly defined. In the quest for such criteria investigators have followed various theories.

Consider the following variables that have been associated with academic success: Sims (1928) defined success as rate of reading improvement and related success to individual as opposed to group motivation. Individual motivation was shown to be superior. Chahbazi (1960) using cumulative averages as the criterion variable tried to predict success using n-Achievement scores on two projective tests. Neither of

the two was shown to be a good predictor of the cumulative average. McClelland (1963) has shown that results of achievement motive studies being related to intelligence has apparently been ruled out by the zero order correlation of score with intelligence. Slater (1960) defined success as graduation from college and assumed that college curricula differ as to the way the curricula are perceived by different groups of students. Father's occupation was compared to son's college major. Results were positive. Students who were majoring in curricula similar to their father's occupation were more likely to be successful (graduate). Gekoski and Schwartz (1961) approached the problem in the opposite manner from Slater: They studied the college drop out. Lack of success (academic mortality) was found to be related to the student's lack of involvement in campus activities, limited awareness of degree requirements, and negative attitudes toward their courses. These students felt their courses were not preparing them for their vocational objectives.

MacKay (1965) used both achievement (grades) and persistence (remaining in school) as his dual criteria of success. The student with better interpersonal relations (internal controls) was concluded to be more successful. Mayhew (1965) in an evaluation of non-test predictors of academic achievement points out relationships between success and biographical information. Anne Anastasi (1960) believes that an analysis of biographical information can

be as useful in predicting the accomplishments of college students as it has been in predicting success in such areas as life insurance selling. Finger and Schlessler (1965) studied academic motivation and its relationship to success. They proposed a domain of academic motivation which is largely unrelated to the domain of intelligence. Their results indicate that quite different academic motivation characteristics are represented at differing ages, but the relationship of academic motivation to grades is still somewhat obscure.

Personality variables were studied by Lynn and Gordon (1961) and related to educational attainment. Their results indicated a positive relationship between attainment (grades) and introversion and neuroticism. Brown (1964) has indicated that the relationship between study habits and success is minimal reporting correlation coefficients of 0.18 to 0.29. Diener (1960) and Willingham (1962) have both investigated fraternity and sorority membership and its relationship to academic success. Willingham has shown a positive relationship and Deiner a negative relationship. Stephens, in a summary of studies on specific administrative factors as they relate to academic success, disputes many fundamental beliefs commonly adhered to by most educators. Two examples: (1) "While research at the moment is not conclusive, what there is tends to refute the too common assumption that absence results in a harmful effect upon

scholarship as expressed by marks" (Stephens, 1967, p. 72); (2) "At all levels above the first few grades and in almost all subjects, the size of the class seems completely unrelated to the achievement of the pupils" (Stephens, 1967, p. 75). Stephens also points out that there is no evidence for a relationship between high school size and college achievement as well as no relationship between the academic gains of pupils and the qualities of teachers that can be observed by principals and supervisors.

This review of variables studied and their relationship to academic success is felt to be representative, but by no means exhaustive. The list could be extended. The point is that variables that constitute successful academic attainment, as measured by college grades, are obscure.

Extending the view and looking at success with another criterion presents some additional insight, but does not present a totally clear picture. Schill (1963) attempted to relate educational success to occupational success. The correlation when using over-all grade point average as a measure of educational success was 0.23. When using grade point average in an area directly related to occupation (e.g., level of mathematical attainment and success as a research and development technician) the correlation between measures increased to 0.77. Hoyt in a review of 46 studies concerning college grades and adult accomplishment concluded that: "Despite the limitations

of these studies, we can safely conclude from them that college grades have no more than a very modest correlation with adult success, no matter how defined" (Hoyt, 1966, p. 72).

If success in school does not guarantee occupational success the question arises as to how the student who has done well academically is outperformed in an occupational setting by the student who was less successful academically. It is not unreasonable to suggest that one reason is the inability of the high caliber student, who relied primarily upon his ability to earn high grades, to compete efficiently in the world of business with the student of somewhat lower ability, who has acquired an extended repertoire of strategies for obtaining his goals.

Students are often in a position to make decisions that affect their grade. It appears possible to assume that a student could receive a lower grade if he had the choice between two instructors for a given course, and chose the "wrong one." Adapting strategies appropriate to the instructor, classroom structure, testing procedures and course content could enhance academic success and have a positive effect on a student's grade point average.

Students are able to make fairly accurate predictions of their probabilities of success in college courses. Cashen (1967) reported correlation coefficients between the achieved grades of students and the predicted grades of

students, parents and counselors. The correlations of 0.54 for students, 0.60 for parents, and 0.59 for counselors are all in the basic neighborhood of correlations found in many other studies concerned with academic success. The magnitude of the student's predictive ability (0.54 correlation) is very close to the correlation (0.59) reported by Funches (1965) between a well used ability test, the American College Test, and predicted grade point average. It appears that the better measuring instruments tell little more about future academic college success than could be obtained from the student himself or his parents and counselor.

This realistic picture the student has of himself gives credence to the thought that the student must have, and must exercise, some control over his academic climate. Singer (1964) found, in an exploration of the utility and efficacy of manipulative strategies of behavior, positive relationships between Machiavellianism and students' grades with abilities held constant. This relationship held for men but not for women. Uesugi and Vinacke (1963) reported the strategies of males as being "exploitative" while the strategies of females are "accommodative." This suggests that female manipulative strategies are expressed in more socially acceptable ways, e.g., capitalizing on "good looks." In discussing the results of his research Singer states: "The results suggest that the poor college professor is a rather put-upon creature, hoodwinked by the male

students and enticed by the female students' (Singer, 1964, p. 150). The picture is probably not that bleak in that faculty members are countering with their own strategies. The main point is that students are, to varying degrees, aware of their abilities and use these positive attributes to enhance their chances of academic success.

Three theoretical approaches provide insight to an analysis of the strategies employed by students in competing for grades in the academic setting: Typologies, as a view of the functioning person; Game Theory, providing a model of competitions; and Psychometric Theory which focuses on the problem of evaluating student performance.

Typology

A number of typologies have been developed, nearly all of which have found some use in the academic world. However, none of them have focused specifically upon the problems of the student.

One of the most widely used typologies is the Authoritarian Personality, as described by Adorno and his associates (1950). The impetus for this research was the ideology espoused from Nazi Germany and Fascist Italy during World War II. Adorno (1950) suggests that the political, economic and social convictions of people form a broad pattern brought together in a "spirit" or "mentality." This pattern is an expression of trends in an individual's personality. Various scales, called F-Scales, have been

subsequently developed that classify on the basis of authoritarian or anti-democratic tendencies. These tendencies have been associated with many other variables. Rokeach (1960) extended some aspects of Adorno's work to describe the Open and Closed Mind and the Rigid Personality. He points out that beliefs always occur in systems or networks and that it is not necessary for a person to disbelieve the opposite of something he believes. The emphasis is upon structure rather than content of beliefs. Using a similar approach, Christie and associates (1958), developed a scale for identifying and describing the Machiavellian Personality. McClelland (1953) derived a typology of high and low needs for achievement and affiliation.

Typologies have been criticized for their global nature and the inherent difficulties stemming from classifying anything so highly complex as the individual personality. Nevertheless, they are useful in their heuristic input for the study of competitive strategies. Using typologies, behavior may be viewed as being positive or negative in relationship to obtaining grades through strategies.

Game Theory

Game Theory presents an alternate view of competitive strategies for both classroom use and competitive sports. Stephen Potter (1948) in a treatment of athletic gamesmanship vividly points out how a competitor with lesser

ability can overcome his opponent through the use of subtle verbal and non-verbal communications.

In terms of theory, a game may be described by way of the final payoff. In one style of game, the payoff for several players is termed sum-zero. When one player wins the other must lose. Another style of game, non-sum zero, does not require losers in order to have winners. This type game is exemplified in the classroom by the teacher-pupil relationship. It is not necessary for the teacher to lose his knowledge in order for the student to gain knowledge (Rapoport, 1960).

The concept of a sum-zero game is introduced into the classroom through the grading system. If grading is done on a competitive basis, which is the case in most college classrooms, the sum-zero strategy becomes a useful tool for the competitive student. If a student can cause another to fail to achieve he may receive a higher grade by default. He has two strategies available to him: He can present a better product or make his opponent's product look less good. A third possible choice is a number of quasi-legal tactics in order to present to the instructor a better appearing product than his competitors.

Psychometric Theory

Psychometric Theory has not satisfactorily mastered the task of evaluation of student achievement. The problem of evaluation relates to the concept of academic competition

in that the successful payoff for the student e.g., a high grade, is commonly based upon his performance on classroom tests. A student employing effective strategies is able to sustain his functioning under adverse conditions. He may, in fact, be more efficient when the pressure is on, than he is when the competition is low. It has been shown that some students are unable to perform well under the pressure of tests (Alpert and Haber, 1960).

Psychologists relate performance to motivation. The claim is that if students are to continue to learn after leaving the classroom they must be taught to gain satisfaction from the subject matter and learning activities themselves. Extrinsic rewards, such as grades, must be de-emphasized (Jackson, 1968). In theory, at least, this claim appears to have merit. In reality, the student attains many of the goals deemed worthwhile only through the extrinsic rewards which are given in the form of grades. Our present knowledge of motivation in the learning situation is far from sufficient.

Statement of the Problem

The nature of academic grades suggests that the brilliant student will probably use a minimum of strategies, either for the purpose of learning or securing grades. A second group of students, of primary interest in this investigation, is able to obtain grades, not because they

are brilliant, but because they make efficient use of their ability to employ a variety of suitable strategies. We can expect these tactics to range from study habits through gamesmanship to actual cheating. A third group of students are those who fail to capitalize upon their abilities. They choose strategies which are not suitable, either for getting grades or for learning. In fact, they may use approaches which militate against academic success.

The identification of the student using strategies in obtaining grades has significant educational implications. Knowledge of how a student approaches learning can help eliminate the circumvention of educational goals. A knowledge of them could also lead to creation of more effective teaching techniques. Strategies themselves can be made more concise and therefore be dealt with more effectively. Implications are also apparent for test anxiety and grading techniques.

This study will attempt to identify the student using competitive strategies in obtaining grades. An attempt will also be made to explore some correlates of competitive strategies such as fraternity-sorority membership, sex-link differences, transfer students and the student's overall approach to the value of competitive strategies in an academic setting.

The Hypotheses

In the present study it is specifically hypothesized that:

Hypothesis 1: Students who make efficient use of their abilities and employ a variety of suitable strategies have a greater discrepancy between their actual and predicted grades from standard measures of achievement.

H₀1: There are no differences in preferences for competitive strategies other than those resulting from chance between students who have a positive discrepancy between their actual and predicted grades and students who have a negative discrepancy between their actual and predicted grades.

Hypothesis 2A: Fraternity and sorority members will have higher predicted GPA scores than non-fraternity and non-sorority members.

H₀2A: There are no differences other than those resulting from chance between the predicted GPA scores of fraternity and sorority members and non-fraternity and non-sorority members.

Hypothesis 2B: Fraternity and sorority members will differ in their preferences for competitive strategies from non-fraternity and non-sorority members regardless of predicted GPA.

Hypothesis 3: There are sex-link differences between males and females in preferences for competitive strategies in obtaining grades favoring females.

H₀₃: There are no differences other than those resulting from chance between males and females in preferences for competitive strategies in obtaining grades.

Hypothesis 4: Transfer students will have different mean scores than non-transfer students in preferences for competitive strategies.

H₀₄: There are no differences other than those resulting from chance between the mean scores of transfer students and non-transfer students in preferences for competitive strategies.

Hypothesis 5: Student weightings of the statements on the thirty-item questionnaire will counter balance and cause total scores to be similar.

H₀₅: There are no differences other than those resulting from chance among the weightings by the students of the statements on the thirty-item questionnaire.

Hypothesis 6: There is a general approach to the preferences Group I and Group II students exhibit for competitive strategies.

H₀₆: There are no differences other than those resulting from chance between the preferences Group I and Group II students exhibit for competitive strategies.

CHAPTER II

METHOD

Each individual student's position in the distribution of scores was located by means of a regression analysis. The position of the student's score in the distribution could be above predicted limits, below predicted limits or within predicted limits. Therefore, there will be a discrepancy between observed and predicted scores. Prediction was based on a criterion variable (ACT Scores). The factor analyzed questionnaire was to discriminate between the high and low groups that resulted from the regression analysis.

Subjects

The original group of subjects consisted of 257 University of Oklahoma students enrolled in the course Education 120, Psychology of Education, in the fall semester of 1968-69. Education 120 is a first course in educational psychology. It is required of all education majors. The course is taught by three professors who alternate in presenting weekly one hour lectures. The students spend an additional hour in small discussion sections which are led by five graduate assistants.

Materials

The American College Test (ACT) Achievement Battery Scores were obtained from the students' cumulative folder. This test is constructed not only to measure the acquisition of subject matter content per se, but it also tests the student's ability to use whatever knowledge he possesses in the solution of complex problems (Conrad, Fricke and Findley, 1965).

The ACT reports five scores: English Usage, Mathematics Usage, Social Studies Reading, Natural Sciences Reading, and Composite. The reliability coefficients are reported at .90, .89, .86, .83, and .95, respectively (Engelhart, 1965). The mean score (score for senior year unselected high schools) is 15 and the standard deviation of such scores is 5. The scores are scaled on a range from 0 to 36 on this scale (Findley, 1965).

The ACT is used to make selective college admissions, for advanced placement, scholarship awards, sectioning, and counseling (Findley, 1965). The American College Testing Program uses this instrument routinely to predict Grade Point Average (GPA) for each student to whom the test is administered (Findley, 1965). In the present study the ACT was used to predict GPA with the primary interest being placed in those students who deviated most from prediction.

Questionnaire Development

The area with which this study deals (competitive strategies) is not measured by any known paper and pencil instrument. Therefore, a questionnaire was built that would measure how the student viewed various aspects of obtaining grades. The assumption is made that the student's actual behavior is related to his verbal behavior. That is, the student will actually do the things he says are important to do in order to obtain a good grade.

In the spring semester of 1967-68, students in six undergraduate classes and one graduate class at the University of Oklahoma and one high school class from Lawton, Oklahoma were asked to list all of the ways they knew regarding the achievement of good grades in school. The efforts of these students resulted in approximately 1200 individual statements. A visual inspection of these statements indicated that they fell into four distinct categories:

1. non-volitional. This category consisted of statements about which the student had very little, if any, control at the time the course in which he enrolled began. The following are examples of statements in this category:
Having fast reading and comprehension ability;
being naturally intelligent.
2. study habits. This category consisted of those techniques often taught students to help them

learn the material studied. The emphasis was upon learning with the assumption that a good grade would, of necessity, follow. The following are examples of statements in this category: Allocating study time throughout the semester; taking clear and concise lecture notes.

3. competitive strategies. This category consisted of those techniques and strategies employed specifically to enhance the probability of a higher grade. No emphasis was placed on learning the content material but rather on getting a better grade. The following are examples of statements in this category: Making sure the instructor knows your name; picking your instructor to get the one who grades easiest.
4. illegal. This category consisted of those strategies defined as illegal by the instructor and those generally considered as such. The emphasis was upon the test situation itself. The following are examples of statements in this category: Looking at someone else's paper during the test; having someone else who has had the course take the exam for you.

A representative sample of these statements (15 in each area for a total of 60) was formed into a questionnaire (see Appendix A) and administered to 114 students at the

University of Oklahoma enrolled in the courses Psychology of Education, Psychology of Childhood and Psychology of Adolescence in the summer session of 1968. The students were asked to respond to these statements on a four point continuum ranging from strong disagreement (#1) to strong agreement (#4). The score for each statement was the weight given to it by the student.

In an attempt to determine if the four categories that resulted from the visual inspection of the statements were actually different measures of ways students obtain grades, the sixty item questionnaire was factor analyzed¹ (see Appendix B). The principal axes method of analysis was used in the interpretation of the sixty factored variables (Thurstone, 1937).

The principal concern of factor analysis is the resolution of a set of variables linearly in terms of a small number of categories or "factors." This resolution can be accomplished by the analysis of the correlations among the variables. A satisfactory solution will yield factors which convey all the essential information of the original set of variables (Harman, 1960).

In considering the two basic methods of factor analysis, the principal axes method was chosen over the

¹The computation was done on an IBM Model 360/40 computer. The procedure used can be found on page 164 of Programmer's Manual H20-0205-3 (IBM Programmer's Manual, 1966).

centroid method. The principal axes method represents the original set of variables in terms of a number of factors, determined in sequence so that at each successive stage the factor would account for a maximum of the remaining variance. The second method, centroid solution, was developed after the principal axes method as a computational expedient when it became apparent that principal axes method was too laborious (Harman, 1960). In recent years, however, this difficulty has been overcome by the use of high-speed electronic computers as was used in this study. Harman indicated preference for the principal axes solution with the statement: "All that can be said for the centroid method is that it produces without much arithmetic one of many sets of axes which account for the variance in a manner approximating the optimal situation of the principal axes" (Harman, 1960, p. 5).

The method of factor analysis involves the computation of means, standard deviations, sums of cross products of deviations, and correlation coefficients. The eigenvalues and eigenvectors of the matrix are computed as are the cumulative percentages of the eigenvalues. An orthogonal rotation is performed on the matrix in which the axes representing factors are at right angles to each other. This rotation produces factors which are uncorrelated or independent.

The computer program was written to extract seventeen factors from the 60 items analyzed. The naming of a factor cannot be made with confidence unless the weights (contributions of each variable to the factor) are as large as .40. Confidence in naming a factor is also determined by the number of variables that have significant projections of .40 or higher on any single factor and low or negative projection on other factors (Thurstone, 1937).

The analysis produced only two distinct factors among the seventeen extracted. Factor one (labeled the good student factor) had 14 variables that reached or exceeded the .40 projection (see Appendix C). Factor two (labeled the good competitor factor) had 20 variables that reached or exceeded the .40 projection (see Appendix D). The remaining variables did not reach the .40 projection on either factor one or factor two.

Based on the projection of .40 on a single factor and low or negative projections on other factors, the original items of the first questionnaire were reduced to 30; fifteen items from factor one (good student) and fifteen items from factor two (good competitor). These thirty items constituted the questionnaire administered to the subjects of this study (see Appendix E). Factor two had five additional projections beyond the fifteen included in the final questionnaire; consequently, the five projections with the poorest factor loadings were discarded (see

Appendix D). Factor one had one less than the fifteen included; consequently, one factor that approached the .40 projection was added to the original fifteen (see Appendix C).

The sequencing of items on the questionnaire was done by using a table of random numbers (Downie and Heath, 1965, pp. 316-17).

The original visual classification of four categories actually resulted in only two factors that could be identified and labeled.

Procedure

The master file folders located in the main administrative office were used to obtain the GPA and ACT on each student to whom the questionnaire was administered.

- — The material was not available on all of the students for the following reasons: Forty transfer students did not have ACT scores on file; (University regulation permits transfer students to enroll without requiring the ACT). Twenty-seven students' cumulative records were in pending files and not complete. Twelve graduate students enrolled were not required to have ACT scores. Nine students did not have GPA's on file and three additional students (non-transfers) did not have ACT scores on file. The original group of 257 subjects resulted in 166 total students on whom all of the necessary data was available (see Appendix

F for table summary of students on whom data was not available). This study is not concerned with inference to other classes. The whole group was considered and no attempt was made to take a sample from the group. The primary purpose of this study was description. If some support was generated for the theory behind the study an attempt can then be made at inference.

The final questionnaire (see Appendix E) was administered to 257 (166 usable) University of Oklahoma students enrolled in the course Psychology of Education in the fall semester of 1968-69. Five different instructors administered the questionnaire to their respective classes on the first class meeting of the semester. Directions were read from the questionnaire (see Appendix E) to the students. To insure a standardized administration these additional instructions were read immediately following the reading of those on the questionnaire: "You are asked to answer quickly responding with your first impression. This questionnaire will be used for research purposes only and will in no way effect your grade or standing in this class. I am able to repeat the instructions to you if you wish, but cannot discuss the content or nature of the questionnaire." The instructors reported no abnormalities or difficulties in the administration.

The personnel in charge of teaching Psychology of Education administered a personal data sheet to all students

enrolled in the course. This data sheet was used to obtain information evaluated in the examination of correlates of competitive strategies (see Appendix G).

Using the ACT scores as the criterion variable a multiple regression analysis was calculated between the student's GPA and all five scores made on the ACT.² All five scores were used instead of just the composite score in an attempt to increase the efficiency of the coefficient. The multiple regression equation was used for computing, for each individual, a score on the criterion variable from his scores on each of several other variables. It is based on the correlation of each of the variables with the criterion and on their intercorrelation.

In this study a group of N individuals was drawn and each individual represented the occurrence of a joint X, Y event. The basic question asked concerned the relationship between the variables: Can Y be predicted from X or X predicted from Y using a linear rule? In application to this study, 166 students were observed and their GPA and ACTS were noted. The five ACT scores and the student's GPA were a representative of some joint event. Any possible combination may have occurred in the data. There is no implication that GPA is somehow "responsible" for ACTS or

²The computation was done on an IBM computer Model 1130. The procedure used can be found on page 26 of Programmer's Manual H20-05201 (IBM Programmer's Manual, 1966).

ACTS for GPA. The interest is only to see how well the relationship between the scores can be thought of as a linear relation: How well can GPA be predicted from ACTS.

The total group of subjects was analyzed using Kelley's (1939) upper vs. lower twenty-seven percent method. Five different methods of upper and lower group selections were considered:

- (1.) The upper vs. lower fifty percent.
- (2.) The upper vs. lower thirty-three and one third percent.
- (3.) The upper vs. lower twenty-seven percent.
- (4.) The upper vs. lower sixteen percent.
- (5.) The upper vs. lower seven percent.

Forlano and Pintner, in an evaluation of the merits of these five methods concluded, "From a practical and empirical viewpoint, it is concluded that for a simple and rapid, rough and ready method of item validation, the upper and lower twenty-seven percent method is to be preferred, even though the distributions are more or less non-normal" (Forlano and Pintner, 1941, p. 549).

The upper group (45 subjects) consisted of those subjects whose GPA was higher than predicted from their ACT scores. The lower group consisted of those subjects whose GPA was lower than predicted from their ACT scores. These two sub-groups represented the extreme of the total group. The hypothesis of no difference between mean scores

of the two groups on factors I and II was tested by a one-way analysis of variance.

The results of this study depend upon a relationship between the American College Test (a standard measure of achievement) and the Grade Point Average. GPA is the most commonly used measure of academic success by both researchers and college admissions personnel. Studies attempting to find correlates of GPA and another variable, or variables, of academic success reported coefficients in the range of .50 to .58 (see Hoyt, 1966 and Cashen, 1967). This study also used GPA as a measure of academic success.

A multiple correlation was used instead of a zero order correlation in order to increase the efficiency of the correlation. The multiple correlation is the highest possible correlation between predicted GPA and ACT when all of the ACT scores are used instead of employing only one ACT score.

The location of the student's position in the distribution of ACT vs. GPA multiple correlation was calculated from his residual score. The residual score is the difference between an observed value of GPA and a computed value of GPA based upon the regression line between GPA and ACT. The larger the residual the greater is the difference between the observed and computed value. Therefore, a student with a high positive residual would have a GPA significantly higher than predicted and a high negative

residual would indicate a GPA significantly lower than predicted from the observed value. Using Kelley's (1939) twenty-seven percent method the top and bottom groups of students' predicted GPA's were examined in relationship to the mean scores these two groups indicated for statements concerning competitive strategies on the factor analyzed questionnaire.

The model proposed is that there is a linear relationship between the student's ACT and GPA. The ACT scores would be expected to hold constant and the GPA would be expected to fluctuate. Students with similar ACT scores would have differences in their GPA's. Small degrees of difference between GPA and ACT are expected to occur by chance and the small differences are of no concern to this investigation. It is those differences that are large that are of interest. By considering those students whose predicted GPA's are high or low and looking at the performance of those students on another variable (preference for competitive strategies) that a relationship between GPA and competitive strategies is to be supported.

A correlation coefficient of .50 accounts for only 25 percent of the variance shared between two measured variables and indicates that there are other factors operating in the relationship. It is proposed in this investigation that one other important factor in obtaining grades is the use of competitive strategies on the part of the

the student. Therefore, a student who is effectively using competitive strategies in obtaining grades will have a higher GPA that would be predicted from standard measures of achievement.

In order to confirm the results of the difference between the mean scores of the two groups of subjects, sectioned by their residual scores and their mean scores on the two factors of the questionnaire, the test statistic analysis of variance was used. The confidence level chosen was the .05 using a one tailed test of significance.

Analysis of variance (F-test) is a method for determining whether the mean difference found in the student's location in the multiple correlation, when exposed to the mean difference on the factor analyzed questionnaire, exceeds what may be expected by chance. The F test is a measure of the beyond chance difference. A one tailed test of significance was used because this investigation was interested only in Group I (those achieving above predicted limits) having higher mean scores than Group II (those achieving below predicted limits). The difference was predicted to be in only one direction. The .05 confidence level was chosen because this is an initial attempt to support the proposed model. In an exploratory investigation of this nature the .05 confidence level is generally considered adequate.

CHAPTER III

RESULTS

The major hypothesis that students who employ a variety of suitable strategies will have a greater discrepancy between their actual and predicted GPA was tested first. Subsequently, various correlates of competitive strategies were evaluated. These correlated included: Fraternity-sorority membership vs. non-membership, male-female group composition, transfer students, preferences for specific statements, and general weighting of scale items.

The multiple correlation coefficient of ACT scores and GPA was .58 (see Appendix H for means, standard deviations and X [ACT] vs. Y [GPA] correlation). The correlation between the Composite Score and GPA was .54. The remaining ACT sub-test scores when correlated with GPA resulted in coefficients ranging from .43 to .51. Considering the multiple correlation coefficient of .58 and the Composite correlation coefficient of .54 it appears using all of the ACTS, raised the efficiency of the multiple correlation coefficient very little. The sub-test scores seem to be, essentially, all measuring the same thing.

All 166 subjects were ranked according to their residual scores (see Appendix I for residual scores). The top 27 percent of this ranking constituted Group I (45 subjects) and the bottom 27 percent constituted Group II (45 subjects).

Table I presents the means and standard deviations of Group I and Group II in Area I (good student factor) and Area II (good competitor factor) of the questionnaire and the corresponding GPA's and ACT's. The ACT scores were similar, as was projected from the theoretical model. The anticipated difference between the two groups in GPA (1.03, which is more than one letter grade) was also observed.

Table 2 presents the analysis of variance results for groups and scales on Area I and Area II. The analysis revealed no significant differences between means of groups and scales ($F=.0005$, $df=1/176$, $p>.05$). The mean of Group I on Area I (47.02) and Area II (35.51) was very similar to those of Group II on Area I (48.00) and Area II (36.31).

The F ratio between the scales (311.43) was very large. However, in considering the weights given to the statements it becomes understandable. There was a tendency for many of the students to view statements in different areas in a similar fashion. Therefore, many Area I statements were weighted heavily and many Area II statements were weighted lightly, causing a large significant difference between the scales.

The F ratio between the Scales x Groups (.0005) was extremely small and is beyond the realm of chance. It should not drop much below 1.00 (Guilford, 1956, p. 275). This F ratio gives indication that the similarity of ratings by both of the groups on the statements may be a beyond chance occurrence. In other words, the null hypothesis failed to be rejected in such a fashion to give evidence as to the opposite view of what was tested. Rejection of the null hypothesis cannot permit any inference that the contradictory of the null hypothesis is therefore true. However, it can suggest avenues of further exploration. The expectancy for Group I (whose GPA's were higher than predicted) to have a significantly higher mean on Area II (good competitor factor) than Group II (whose GPA's were lower than predicted) was not supported.

In the present study it was specifically hypothesized that:

Hypothesis 1: Students who make efficient use of their abilities and employ a variety of suitable strategies have a greater discrepancy between their actual and predicted grades from standard measures of achievement.

H₀1: There are no differences in preferences for competitive strategies other than those resulting from chance between students who have a positive discrepancy between their actual and predicted grades and students who have a negative discrepancy between their actual and predicted grades.

Since the Scales x Groups interaction was not significant ($F=.0005$, $df=1/176$, $p>.05$) the null hypothesis failed to be rejected.

Although the null hypothesis failed to be rejected additional correlates of competitive strategies were explored in an attempt to gain insight as to why the results were not as anticipated. Various hypotheses were explored as they were deemed relevant.

Fraternity-Sorority Membership vs. Non-Membership

It is sometimes assumed that Greek membership carries with it certain privileges helpful to obtaining grades, e.g., extensive files of old tests and fellow Greeks willing to share their previous experiences with courses and instructors. Diener (1960) found fraternity and sorority membership linked to "underachievement" and Willingham (1962) reported fraternity and sorority members to have lower attrition rates than independent students. In Diener's study Greek membership had a negative connotation in that the student's academic progress was not as good as was expected. Willingham found members to have a better chance to graduate than non-members. Although there may be no direct relationship between academic progress and graduation, the results of these studies indicate that fraternity and sorority membership may be related in some way to competitive strategies in obtaining grades.

The nature of the present study enables fraternity-sorority membership to be viewed two ways: (1) in relationship to achievement and, (2) in relationship to preferences for competitive strategies.

The hypothesis in relationship to fraternity-sorority membership and achievement was:

Hypothesis 2A: Fraternity and sorority members will have higher predicted GPA scores than non-fraternity and non-sorority members.

H₀ 2A: There are no differences other than those resulting from chance between the predicted GPA scores of fraternity and sorority members and non-fraternity and non-sorority members.

Chi square is used as the test of significance when data are expressed in frequencies or data that are in terms of percentages or proportions that can be reduced to frequencies (Downie and Heath, 1959, p. 160). The percentages of the total sample in relationship to fraternity-sorority membership were reduced to frequencies. These frequencies were then tested against the percentages of Group I and Group II fraternity-sorority members which were also reduced to frequencies.

Of the total sample 58 (34.9%) belong to a fraternity or sorority. In Group I (those achieving above predicted limits) 17 (37.8%) were members and in Group II (those achieving below predicted limits) 16 (35.6%) were

members. The null hypothesis (H_{02A}) of no differences other than those resulting from chance between the predicted GPA scores of fraternity-sorority members vs. non-members failed to be rejected. (Total vs. Group I $X^2=.0387$, $df=1$, $>.05$. Total vs. Group II $X^2=.0009$, $df=1$, $>.05$). The percentages were almost identical; it would appear that, for this sample, fraternity-sorority membership vs. non-membership had nothing to do with achievement as measured by predicted grades. Table 3 presents this data.

An inquiry was made into the total number of fraternity and sorority members on the entire University of Oklahoma campus and related to this study sample by the following null hypothesis: H_{02A1} : There are no differences other than those resulting from chance between total number of fraternity-sorority members on the entire campus and fraternity-sorority members of the population sample. As of December, 1968 there were 3,389 (25%) undergraduates who were fraternity or sorority members, out of a total student body of 13,431. This percentage, converted to frequencies, was tested against the total number of fraternity-sorority members of the sample of this study (58 out of 166=34.9%) by means of a chi square. The null hypothesis (H_{02A1}) of no difference other than those resulting from chance between total campus fraternity-sorority membership and total sample fraternity-sorority membership was rejected at the .05 level ($X^2=3.84$, $df=1$, $<.05$). It appears possible that

the College of Education has more fraternity and sorority members than the total campus average.

The hypothesis in relationship to preferences for competitive strategies was:

Hypothesis 2B: Fraternity and sorority members will differ in their preferences for competitive strategies from non-fraternity and non-sorority members, regardless of predicted GPA.

H_{02B} : There are no differences other than those resulting from chance between fraternity and sorority members and non-fraternity and non-sorority members in their preferences for competitive strategies regardless of GPA.

A t test was used to test the significance of difference between means of members in Group I and II against the means of the total sample on Area I and Area II. Fisher's t formula for testing differences between uncorrelated means was the specific t test used (see Guilford, 1956, p. 183). When the number of cases is small (as in this case where Group I members=17 and Group II members=16) the t ratio is used. It is the ratio of a deviation from the mean in a distribution of sample statistics, to the standard error of that distribution. Small sample methods such as t apply regardless of the size of N, but they become imperative for N much below 30 (Guilford, 1956, p. 182). The t distribution becomes increasingly leptokurtic (more peaked than normal) as the number of degrees of freedom decreases. As the

degrees of freedom become very large, the distribution of t approaches the normal distribution. The t ratio takes into consideration the small sample size and in order to reject the null hypothesis, requires a larger ratio when there are a small number of degrees of freedom.

The mean of Area I scores was 48.12 and of Area II scores was 35.51. Members in Group I had a mean score of 47.17 in Area I and a mean score of 36.64 in Area II. Members in Group II had a mean score of 48.37 in Area I and 37.43 in Area II. The mean scores are almost identical; the null hypothesis (H_{02B}) that members show no differences in preferences for statements concerning competitive strategies regardless of predicted GPA failed to be rejected. (Total Group Area I vs. Group I Area I $t=61, > .05$. Total Group Area I vs. Group II Area I $t=.21, > .05$. Total Group Area II vs. Group I Area II $t=1.26, > .05$. Total Group Area II vs. Group II Area II $t=1.48, > .05$).

Male-Female Group Composition

The hypothesis in relationship to male-female group membership was:

Hypothesis 3: There are sex-link differences between males and females in preferences for competitive strategies in obtaining grades.

H_{03} : There are no differences other than those resulting from chance between males and females in preferences for competitive strategies in obtaining grades.

Uesugi and Vinacke (1963) reported sex-link differences of strategies with male strategies being "exploitative" and female strategies being "accomodative." In order to determine if there were differences in males and females in their preferences for competitive strategies in obtaining grades total Group percentages were compared by means of chi square after all percentages were reduced to frequencies. This is the same method, with the same rationale, that was used previously when comparing percentages of Groups I and II fraternity-sorority membership to total group membership.

Table 4 represents the composition of males and females in Group I and Group II. Considering the total percentage (males=26.5% and females=73.5%) the percentages of Group I and Group II male-female membership is within the range of expectancy with males composing 24.4% of Group I and 31.1% of Group II. Females composed 75.6% of Group I and 68.9% of Group II. The null hypothesis (H_0) of no differences between the sexes in total preferences for competitive strategies in obtaining grades failed to be rejected. (Total males vs. Group I males $X^2=.0154$, $df=1$, $> .05$. Total males vs. Group II males $X^2=.2066$, $df=1$, $> .05$. Total females vs. Group I females $X^2=.0055$, $df=1$, $> .05$. Total females vs. Group II females $X^2=.0745$, $df=1$, $> .05$).

Transfer students

The hypothesis in relationship to transfer students was:

Hypothesis 4: Transfer students will have higher mean scores than non-transfer students in preferences for competitive strategies.

H₀ 4: There are no differences other than those resulting from chance between the mean scores of transfer students and non-transfer students in preferences for competitive strategies.

Due to the fact that transfer students composed such a large total of the original group of subjects the data available on the transfer students were analyzed in relationship to the mean and standard deviation of the transfer students on Area I scores, Area II scores, GPA and ACT as compared to Group I and Group II. Table 5 presents this data.

A t test was used to test the significance of differences between means of Groups I and II on Areas I and II and transfer student means on Areas I and II. The statistic $\bar{z}$ was also considered for this test. The difference between $\bar{z}$ and t is one of degree of generality. Statistic $\bar{z}$ is normally distributed and is so interpreted. It applies when samples are large. Statistic t, on the other hand, applies regardless of the size of the sample (Guilford, 1956, p. 182). The two sample sizes (45 and 63) are not of sufficient magnitude to be considered extremely large samples. Of the two measures ($\bar{z}$ and t) t was used because, considering the sample size, it is the more stringent measure.

The transfer students' area scores were almost identical to the non-transfers' scores. All t tests were not significant at the .05 level. (Group I Area I vs. Transfers Area I $t=.23, > .05$. Group I Area II vs. Transfers Area II $t=.20, > .05$. Group II Area I vs. Transfers Area I $t=.64, > .05$. Group II Area II vs. Transfers Area II $t=.67, > .05$). The null hypothesis (H_0) of no differences in preferences for statements concerning academic strategies by transfer students as compared to non-transfer students failed to be rejected.

Preferences for Specific Statements

The hypothesis in relationship to preferences for specific statements was:

Hypothesis 5: Student weightings of the statements on the thirty-item questionnaire will counter balance and cause total scores to be similar.

H_0 5: There are no differences other than those resulting from chance among the weightings by the students on the thirty-item questionnaire.

Up to this point this investigation has found no differences in competitive strategies between: Group I and Group II on the Area I and Area II scores, achievement and preferences for strategies in relationship to fraternity-sorority membership, sex-link differences, and transfer students. The measuring instrument itself (the thirty-item questionnaire) was therefore re-evaluated. An item

analysis was performed on the thirty-item questionnaire (see Appendix J for percentage item analysis) to determine if weights placed on different statements were counterbalancing causing total scores to be so similar.

Computing the probability of differences between Group I percentages and Group II percentages any difference as large as 12.65% would be considered beyond chance at the .05 level of confidence.

Eleven of the items had one weight of the four possible choices that would be significantly different from chance between the groups. One item had two significantly different weightings. With 30 items, each with 4 possible weights, a total of 120 different weights (viewed in terms of percentages) were compared. Of these, a total of 12 were responded to differently by the two groups of subjects. Five of the twelve statements were weighted in the direction which would be expected. The statements were in the same area as the group who gave them the significantly higher weight. For example: Statement number 3, "Having a great deal of drive or ambition," was a factor 1 statement and was emphasized by Group I (those achieving above predicted limits). Five other statements were weighted in the opposite direction from that predicted. For example: Statement number 11, "Having a personality which enables you to get along with others," was a factor 2 statement but was emphasized by Group I. Two other statements had significantly

different weightings on one side of the scale. There was a difference between emphasis on weighting the item with a 3 or 4, but the direction was the same for both groups; both considered these two items important.

The item analysis showed that weights placed on different items were not counterbalancing, but on the contrary, the two groups gave very similar weights to the items. More differences among the statement weightings would be expected by chance alone. The null hypothesis (H_0) of no differences other than those resulting from chance among the weightings by the students on the thirty-item questionnaire failed to be rejected.

General Weighting of Items

The hypothesis in relationship to general weighting of items was:

Hypothesis 6: There is a general approach to the preferences Group I and Group II students exhibit for competitive strategies.

H_0 6: There are no differences other than those resulting from chance between the preferences Group I and Group II students exhibit for competitive strategies.

In attempting to determine if there was a "set" or general approach to the way the two Groups of students approached the weighting of the two factors a chi square was calculated between the groups. These data were expressed in frequencies and the chi square was used to determine if

the observed distribution differs significantly from a theoretical or expected distribution. One important feature of chi square is its additive property, which makes possible the combination of several statistics or other values in the same test. Thus, a hypothesis involving more than one set of data can be tested for significance (Guilford, 1959, p. 227). In this instance, each group is being examined in relationship to two other values; those students with scores above the mean and those students with scores below the mean. This mean cut-off sectioned students into a high or low score.

Tables 6 and 7 present the results of the chi square. The mean score of Area I (48.12) and Area II (35.51) was used to section Group I and Group II students into High and Low groups. No differences were observed in Group I. ($X^2=.0023$, $df=1$, $>.05$). However, Group II had a significant tendency to be extreme in their opinions about the statements in both Areas I and II. ($X^2=6.40$, $df=1$, $<.05$). The null hypothesis of no differences other than those resulting from chance between the preferences Group I and Group II students exhibit for competitive strategies was rejected at the .05 level. In other words, those students who appear to use competitive strategies the least, are the ones who would have a tendency to proclaim the value of or lack of value of competitive strategies the most.

These results fit well into Rokeach's (1960) theory on the system of beliefs. The lower group of students cling steadfast to the concept that these different techniques (competitive strategies) either will or will not work for them. They apparently have not been able to integrate their previous experiences with these strategies in a rational manner. The students have reached a decision and refuse to abandon it. Students with higher than predicted GPA's do not have a tendency to polarize their responses. They have apparently found some of these techniques useful and others not so useful. The techniques useful to them have been incorporated into their over-all approach to obtaining grades, but at the same time, they view these techniques in perspective.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF GROUP I AND GROUP II IN
AREA I AND AREA II AND CORRESPONDING GPA'S AND ACT'S

	Area I	Area II	GPA	ACT
Group I	47.20	35.51	3.23	21.84
N=45	4.09	3.95	.44	4.88
Group II	48.00	36.31	2.20	22.56
N=45	4.67	4.81	.22	2.66

TABLE 2
ANALYSIS OF VARIANCE SUMMARY TABLE FOR GROUPS
AND SCALES ON AREA I AND AREA II

Source	df	ss	ms	F	p
Groups	1	28.80	28.80	1.46	
Scales	1	6,148.35	6,148.35	311.43	
Scales X Groups	1	.01	.01	0.0005	*NS
Error	176	3,474.08	19.74		
Total	179	9,641.24			

*NS=not significant at the .05 level

TABLE 3

CHI SQUARE BETWEEN FRATERNITY-SORORITY MEMBERSHIP IN
GROUP I AND GROUP II AND TOTAL GROUP MEMBERSHIP

		χ^2	P
Group I Membership	17=37.8%	.0387	*NS
Group II Membership	16=35.6%	.0009	NS
Total Membership	58=34.9%		
N=45 Group Membership			
N=166 Total Membership			

*NS=not significant at the .05 level

TABLE 4

CHI SQUARE OF MALE-FEMALE COMPOSITION OF GROUP I AND
GROUP II VS. TOTAL MALE-FEMALE COMPOSITION

		X ²	P			X ²	P
Males Group I	11=24.4%	.0154	*NS	Females Group I	34=75.6%	.0055	NS
Males Group II	14=31.1%	.2066	NS	Females Group II	31=68.9%	.0745	NS
Total Males	44=26.5%			Total Females	122=73.5%		

*NS=not significant at the .05 level

TABLE 5
 MEAN, STANDARD DEVIATION, GPA AND ACT OF TRANSFER
 STUDENTS AS COMPARED TO GROUPS I AND II AND
 T TESTS BETWEEN MEANS OF GROUPS I AND II
 AND TRANSFER STUDENTS MEANS ON
 AREAS I AND II

	Area I	t	Area II	t	GPA	ACT
Group I	47.20	*.23	35.51	*.20	3.23	21.84
N=45	4.09		3.95		.44	4.88
Group II	48.00	*.64	36.31	*.67	2.20	22.56
N=45	4.81				.22	2.66
Transfers	47.40		35.68		**2.63	*** -
N=63	4.83		4.84		.48	*** -

*not significant at the .05 level

**N=28 GPA was available on only 28 transfer students

***data not available

TABLE 6
WEIGHTINGS OF ITEMS BY GROUP I

			Total
Group I	O = 11	O = 12	
	E = 11	E = 12	23
	O = 11	O = 11	
	E = 11	E = 11	22
Total	22	23	45

$$X^2 = .0023$$

$$df = 1.$$

$$p > .05$$

TABLE 7
WEIGHTINGS OF ITEMS BY GROUP II

			Total
Group II	O = 17	O = 7	
	E = 12	E = 12	24
	O = 6	O = 15	
	E = 11	E = 10	21
Total	23	22	45

$$\chi^2 = 6.40$$

$$df = 1.$$

$$p < .05$$

CHAPTER IV

DISCUSSION

In the discussion of why the null hypothesis failed to be rejected three alternatives will be considered:

(1) The theory was not accurate, (2) There was a conflict of putting the theory into practice and, (3) There were improper judgments or evaluations. In addition, implications for further research will also be discussed.

The Theory Was Not Accurate

The primary foundation for the theory proposed in this study was based upon the relationship between the student's GPA and his ACT Scores. Each individual student's position in a distribution of scores was located by means of a regression analysis. A discrepancy was expected between the student's observed and predicted scores. The discrepancy did result from the regression analysis as was expected. The second phase of the theory proposed that the students who had large discrepancies between their observed and predicted scores would perform differently when presented with another variable (statements regarding competitive strategies). It was at this point that the theory was not supported.

One alternative to consider when investigating the causes for the inability to support the theory is the nature of the GPA. Many research workers use GPA as a criterion variable when studying academic success. However, the value of GPA used as a criterion may be questionable. Consider the many variables researchers have attempted to associate with GPA as discussed in Chapter I of this study. Apparently, GPA is a combination of a great many variables, a large number of which may still be obscure. If this is the case, then it seems warranted to conclude that even though the predicted GPA vs. ACT relationship was observed, the use of GPA as a criterion variable had a debilitating effect on the theory behind this study. If a student's position in a distribution of scores is not determined by a specific cause or causes (but rather, perhaps, by chance alone) then the position in the distribution does not have direct relevance to other measures such as ratings on a questionnaire concerning competitive strategies.

Conflict of Putting Theory into Practice

An assumption was made regarding the student's actual behavior being related to his verbal behavior. A student may believe a specific competitive strategy is important and effective, but may not be able to put his feelings into actions by doing what he believes may work to his academic advantage. Getting on a personal basis with an instructor may seem to the student like a logical way to enhance his

GPA, but if the student does not have the skills it takes to establish a personal student-instructor relationship, then the belief is never effectively put into practice. If a generalization is not possible from what the student says to what he does, then the questionnaire of competitive strategies would represent only belief and not behavior.

A significant outcome of this investigation was the tendency on the part of the student with an actual GPA lower than his predicted GPA to be polar in his approach to competitive strategies. The student sees no gray; to him competitive strategies are either black or white, bad or good, useless or useful. Rokeach (1965) gives insight into this phenomenon by the principle of belief congruence which asserts that we tend to value a given belief, subsystem or system of beliefs in proportion to their degree of congruence with our own existing belief system. A student's belief system would, in all probability, be well established by the time he reached his sophomore year of college (the age of the majority of the subjects used in this study) and his reaction to the uses of competitive strategies would be therefore, somewhat predetermined. An interesting point is that this relationship does not hold for the student who is performing above predicted expectations. This student is not as dogmatic or inflexible in his beliefs and this may be a significant factor in why he is performing above what is predicted.

The inability of the student to view competitive strategies in perspective lends support to the possibility that the use of academic strategies may, in some cases, be largely an unconscious process. The student consciously "gaming" is not getting the pay-off he expects. Although the pay-off is not forthcoming he continues in his same mode of behavior with very little, if any, alteration. It may be that the competitive academic role must be played to a very large degree, in an unconscious manner.

Another alternative view of competitive strategies is that they do not really exist but are nothing more than a very believable myth created in the academic climate to satisfy the student's desire for some control over his environment. Most academic institutions work from the model of the student being a passive participant in the learning process. The student's desire for some control over his academic situation therefore leads him to fulfill this need through behaviors that might be termed competitive strategies.

Support for viewing academic strategies as a myth is obtained when considering the individual aspects of academic strategies in the instructor-student relationship. A student could learn effective achievement oriented skills that would work for him across various instructors. The skill might be a specific manner of learning the material in his text book. He may underline, summarize and re-read each

chapter several times. This approach might work effectively for each instructor a student had in any given semester. However, any single academic competitive strategy would not likely be as global in effectiveness. An attempt to get on a personal basis with an instructor could be debilitating to the student if the instructor preferred a more formal relationship. Instructors may be countering with their own strategies and preferences. A student may believe a strategy worked for him when in actuality he benefited from a chance occurrence of the compatibility of two personalities.

Improper Judgments or Evaluations

A decision reached due to a judgment based upon faulty objective measurements would be invalid. Improper judgments are often made because of poor objective measurements. The instrument used in this investigation was the thirty-item questionnaire of competitive strategies. It is felt this instrument was adequately designed, administered and interpreted. The factor analysis produced two distinct and nameable factors.

There are certain conditions to be considered in how the instrument was developed. The first group of students to whom the original sixty-item questionnaire was administered was a summer school population. The population of this study was taken from a regular school year semester. Any large difference between these two groups may have effected the

the measuring instrument. The sixty-item questionnaire was administered toward the end of the summer semester and the thirty-item questionnaire was administered on the first day of the regular semester. The summer school group had established a more definitive relationship with their instructor than did the population of this study. Any implications regarding the timing of these administrations would be nothing more than speculation. However, it is a variable to be included when evaluating the final questionnaire.

The students responded to the questionnaire on a four point scale. It is possible this four point range was too narrow. A six or eight point scale may have spread out the range of scores and had an effect on the similarity of ratings.

In considering the questionnaire as a measuring instrument the main concern is applicability. If the summer school vs. regular semester population, instructor-pupil relationship, or four point scale had any appreciable effect on the instrument then the instrument's applicability is questioned. It would be most difficult to prove the positive or negative effects of any of these variables.

Implications for Further Research

The factor loadings of the sixty-item questionnaire were not as high as would have been expected when considering the similarity of ratings given Factor I and Factor II by the two groups of students. The almost identical mean

score ratings on the factors by the groups indicates very strong agreement as to the value of these two different factors. If this similarity was also the case with the students who responded to the sixty-item questionnaire the initial factor loadings should probably have reached the .8 to .9 range. However, few of the factor loadings approached even a .6 loading.

A factor analysis of the thirty-item questionnaire at this point might shed some light on the causes for the high degree of similarity that was exhibited. If the factor loadings of the thirty-item questionnaire are significantly higher than the factor loadings of the original sixty-item questionnaire, then the possibility exists that the similarity of ratings is a function of the population of this study. If they are not significantly different the reliability of the instrument would be enhanced.

Although there was no attempt to infer from this study, observations from an inspection of the population of the study warrant comment. The population of this study contained significantly more fraternity and sorority members than the over-all campus average. This fact may be a peculiarity of the study population or indicative of the College of Education as a whole. An inspection of the sorority and fraternity rates across the various colleges of the university could possibly shed additional insight on why the members in this study had a significantly larger

number of fraternity and sorority members. Another population variable deserving of comment was the large (almost one-half) difference in variance between Groups I and II on the ACT and GPA scores (see table 1 for means and standard deviation of Groups I and II on GPA and ACT). There is a minimum GPA requirement that must be met in order for the student to be granted permission to enroll in Education 120. Group II (those achieving below predicted limits) were not as variable on these measures (GPA and ACT) because students who may have been achieving extremely far below their predicted limits were eliminated from the study population by the minimum GPA requirement that had to be met in order to gain entrance to the course. A further attempt at using a GPA vs. ACT relationship as a model for prediction would profit from the use of a population that included students with very low GPA's.

It would be interesting to see if the significant findings of Group II students' (those students achieving below predicted limits) tendency to be polar in their approach to competitive strategies was related to other variables. It is felt that this approach may be indicative of a tendency for rigidity. The specific students who were identified as polar in their approach could be given an Authoritarianism Scale to see how they would score as a group. If a relationship was found between Authoritarianism and preferences for

competitive strategies further avenues of exploration should try to establish this relationship to achievement.

An investigation of competitive strategies below the college level would support or reject the idea that the student's approach to competitive strategies is already determined by the time he reaches college. The competitive structure of the junior high and high school are different than the college level, therefore, some of the statements on the questionnaire would have to be restructured. The most interesting question to be answered revolves around when these competitive tendencies begin to appear and how they originate. The elementary school would be the most appropriate starting ground.

It would appear that a further attempt at identifying the student who uses competitive strategies effectively would have a greater possibility of success if based upon what the student actually does rather than what he says he will do. This approach would eliminate the necessity of making the assumption that there is a direct relationship between these two variables.

If students were presented with situations which they were allowed to manipulate to their academic advantage and both the degree and effectiveness of their manipulation were carefully measured, the results would then be dependent upon actual behavior. The course Psychology of Education would lend itself to an experiment of this nature very

well because of the large number of relatively small discussion sections.

CHAPTER V

SUMMARY

This study attempted to identify the student who effectively uses competitive strategies in an academic setting to enhance his grade point average. The results were based upon a theoretical model of the relationship between the student's American College Test scores (ACT) and his Grade Point Average (GPA). The model proposed that there was a linear relationship between the student's ACT and GPA. The ACT scores would be expected to hold constant and the GPA would be expected to fluctuate when these two variables are exposed to a multiple correlation. The degree of fluctuation was determined by the student's residual score which is the difference between an observed (GPA) and computed (GPA) value. Dependent upon the magnitude of the residual the students were sectioned into high and low groups and viewed in relationship to another variable; uses of competitive strategies.

The subjects consisted of 166 University of Oklahoma students enrolled in the course Education 120, Psychology of Education in the fall semester of 1968-69. The American College Test (ACT) Achievement Battery scores were obtained

from the students' cumulative folder. The ACT was used to predict GPA with the primary interest being placed in those students who deviated most from prediction.

A questionnaire was build that would measure how the student viewed various aspects of obtaining grades. The assumption was made that the student's actual behavior is related to his verbal behavior.

In the spring semester of 1967-68 six undergraduate classes, one graduate class and one high school class were asked to list all of the ways they knew regarding the achievement of good grades in school. The efforts of these students resulted in approximately 1200 individual statements. A thorough visual inspection of these statements indicated they fell into four distinct categories: (1) non-volitional, statements about which the student had little control at the time the course in which he enrolled began, (2) study habits, statements about techniques often taught students to help them learn the material studied, (3) competitive strategies, statements of those techniques employed specifically to enhance the probability of a higher grade, and (4) illegal, statements about strategies defined as illegal by the instructor and those generally considered as such.

A representative sample (60) of these statements was formed into a questionnaire and administered to 114 students enrolled in Education courses at the University of Oklahoma

in the summer of 1968. This sixty-item questionnaire was then factor analyzed by computer program. The computer program was written to extract seventeen factors from the sixty items analyzed. Most of the commonality resulted in two factors: Factor one (labeled the good student factor) and factor two (labeled the good competitor factor). Fifteen statements from each of these factors were formed into a second questionnaire. This thirty-item questionnaire was then administered to the subjects of this study.

Using the ACT scores as the criterion variable a multiple regression analysis was calculated between the student's GPA and all five scores made on the ACT. The total group of subjects was analyzed using Kelley's (1939) upper vs. lower twenty-seven percent method. The upper group (45 subjects selected on the basis of their residual scores from a multiple regression) consisted of those subjects whose GPA was higher than predicted from their ACT scores. The lower group (45 subjects selected on the basis of their residual scores from a multiple regression) consisted of those subjects whose GPA was lower than predicted from their ACT scores. The hypothesis of no difference between mean scores of the two groups on factors I and II was tested by a one-way analysis of variance. A one tailed test of significance was used and the confidence level was chosen at the .05 level.

The major null hypothesis of no differences in preferences for competitive strategies other than those resulting from chance between students who have a greater discrepancy between their actual and predicted grades failed to be rejected. Various correlates of competitive strategies were also examined: No differences were found between fraternity and sorority members vs. non-fraternity and non-sorority members in relationship to, (1) achievement and (2) preferences for competitive strategies; male-female group composition; transfer students vs. non-transfer students; and preferences for specific statements. A significant difference was found in the general weighting of items. There was a significant tendency for Group II students (students achieving below predicted limits) to be polar in their preferences for competitive strategies. These students thought competitive strategies were either useful or useless; there was little middle ground.

The causes for being unable to reject the null hypothesis were discussed in relationship to: (1) the possibility of the theory being inaccurate, (2) a conflict of putting the theory into practice, and (3) improper judgments or evaluations. The possible alternatives to the inability to reject the null hypothesis included the nature or composition of the GPA causing GPA to be a poor criterion; the assumption that a student's actual behavior will be related to his verbal behavior; the firm establishment

of belief systems by the time a person reaches college age; the possibility of competitive strategies being an unconscious process or a myth, and the applicability of the factor analyzed questionnaire. Some implications for further research were also noted.

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APPENDIX A

Sixty Item Factor Analyzed Questionnaire

Directions: Please read carefully.

1. Complete the following information on the IBM answer form that has been distributed to you:
 - a. print your name, last name first
 - b. in the space labeled date state your class
 - c. in the space labeled school state your major
 - d. in the space labeled city estimate your total grade point average
 - e. Also fill in the spaces requesting your date of birth, age and sex.
2. As a college student you are aware of the importance of, and the struggle for grades. The following pages contain statements other students, similar to you, have felt are important in obtaining good grades. You are asked to state your feelings regarding how effective you believe each of these statements to be in obtaining good grades.
3. The statement numbers correspond to the numbers on the IBM answer form. You are to respond on a four point continuum ranging from STRONG DISAGREEMENT TO STRONG AGREEMENT. You are to use only the numbers 1 to 4 on the answer form. This is what the numbers mean:
 - 1 means "very strong disagreement"
 - 2 means "disagreement"
 - 3 means "agreement"
 - 4 means "very strong agreement"

THE BASIC QUESTION IS HOW MUCH YOU DISAGREE OR AGREE WITH THE VALUE OF EACH STATEMENT IN OBTAINING GOOD GRADES. ANSWER EVERY ITEM.

REMEMBER: #1 means "very strong disagreement"
#2 means "disagreement"
#3 means "agreement"
#4 means "very strong agreement"

1. Having a great deal of drive or ambition.
2. Allocating study time throughout the semester.
3. Acting like you know what you are doing and are not afraid of the course or the instructor.
4. Buying or stealing copies of the test.
5. Making sure you do not make an issue of questioning the instructor.
6. Having someone else better equipped write your reports.
7. Never showing a superior knowledge of the material than that of the instructor.
8. Trying to take a test last if it is given at different times and getting a friend who took it earlier to tell you the questions.
9. Having the prerequisites for sequential courses.
10. Studying hand-out material the instructor gives to the class.
11. Picking your instructor to get the one who grades easiest.
12. Having someone else sign the roll sheet for you when you are absent so your attendance will look good.
13. Reading the text before going to class.
14. Making sure the instructor knows you.
15. Being in good health.
16. Having parents who have a high educational level.
17. Setting a regimen for studying and following it.
18. Having the ability to conceptualize and see relationships.

19. Using context clues on the test. If you do not know the answer, try to figure out what the question might be referring to.
20. Telling the instructor you left your assignment home, when actually you have not yet finished it.
21. Being compatible for a given subject.
22. Outlining important concepts in each chapter.
23. Finding out the basis for grading and concentrating on the most important areas.
24. Asking someone the answers during the test.
25. Being naturally intelligent.
26. Bluffing the answers on an essay test if you do not know them.
27. Underline important material as you read the text.
28. Changing papers with your neighbor before the test if two forms are given so people sitting together will have the same test form.
29. Taking clear and concise lecture notes.
30. Having the ability to speak well.
31. Looking at someone else's paper during the test.
32. Getting on a personal basis with the instructor.
33. Comparing lecture notes with someone else in class.
34. Being a good guesser.
35. Referring to your book during the test.
36. Talking to the instructor about what can be done about your grade.
37. Studying as soon as possible after class.
38. Having fast reading and good comprehension ability.
39. Using external aids on which to write answers and referring to them during the test.

40. Answering study questions in the text.
41. Having someone else who has had the course take the exam for you.
42. Being interested in the subject matter.
43. Trying to out-guess the instructor's test questions.
44. Having traveled extensively.
45. Copying other people's term papers.
46. Cramming at the last moment.
47. Establishing a reputation for making good grades.
48. Having the will power to persist in studying.
49. Bring blue books to the exam with the answers already written in them.
50. Using flash cards to study.
51. Changing answers after the test has been returned.
52. Having a personality which enables you to get along with others.
53. Avoiding the instructor if your personality clashes with his.
54. Making practical application of the subject matter or skill attained in class.
55. Switching tests in class and having the other person fill in your answers.
56. Coming from an affluent home which includes many educational exposures.
57. Trying to understand and not just memorize the theories upon which the course is based.
58. Attending lectures or organizations given outside by the instructor or those which you feel the instructor might attend.
59. Studying in a place conducive to learning.
60. Talking to people who know what the instructor wants from his students.

APPENDIX B

Sixty Factor Analyzed Statements and Factor Loadings of the Sixty Statements

Statement

1. Having a great deal of drive or ambition.
2. Having the prerequisites for sequential courses.
3. Being in good health.
4. Having parents who have a high educational level.
5. Having the ability to conceptualize and see relationships.
6. Being compatable for a given subject.
7. Being naturally intelligent.
8. Having the ability to speak well.
9. Being a good guesser.
10. Having fast reading and good comprehension ability.
11. Being interested in the subject matter.
12. Having traveled extensively.
13. Having the will power to persist in studying.
14. Having a personality which enables you to get along with others. .
15. Coming from an affluent home which includes many educational exposures.
16. Allocating study time throughout the semester.
17. Studying hand-out material the instructor gives to the class.
18. Reading the text before going to class.
19. Setting a regimen for studying and following it.
20. Outlining important concepts in each chapter.
21. Underlining important material as you read the text.
22. Taking clear and concise lecture notes.
23. Comparing lecture notes with someone else in class.

24. Studying as soon as possible after class.
25. Answering study questions in the text.
26. Cramming at the last moment.
27. Using flash cards to study.
28. Making practical application of the subject matter or skill obtained in class.
29. Trying to understand and not just memorize the theories upon which the course is based.
30. Studying in a place conducive to learning.
31. Acting like you know what you are doing and are not afraid of the course or the instructor.
32. Making sure you do not make an issue of questioning the instructor.
33. Never showing a superior knowledge of the material than that of the instructor.
34. Picking your instructor to get the one who grades easiest.
35. Making sure the instructor knows you.
36. Using context clues on the test. If you do not know the answer, try to figure out what it might be referring to.
37. Finding out the basis for grading and concentrating on the most important areas.
38. Bluffing the answers on an essay test if you do not know them.
39. Getting on a personal basis with the instructor.
40. Talking to the instructor about what can be done about your grade.
41. Trying to out-guess the instructor's test questions.
42. Establishing a reputation for making good grades.
43. Avoiding the instructor if your personality clashes with his.

44. Attending lectures or organizations given outside by the instructor or those which you feel he might attend.
45. Talking to people who know what the instructor wants from his students.
46. Buying or otherwise acquiring copies of the test.
47. Trying to take a test last if it is given at different times and getting a friend who took it earlier to tell you the questions.
49. Having someone else sign the roll sheet for you when you are absent so your attendance will look good.
50. Telling the instructor you left your assignment home, when actually you have not yet finished it.
51. Asking someone the answers during the test.
52. Changing papers with your neighbor before the test if two forms are given so people sitting together have the same form.
53. Looking at someone else's paper during the test.
54. Referring to your book during the test.
55. Using external aids on which to write answers and referring to them during the test.
56. Having someone else who has had the course take the exam for you.
57. Copying other people's term papers.
58. Bringing blue books to the exam with the answers already in them.
59. Changing answers after the test has been returned.
60. Switching tests in class and having the other person fill in your answers.

FACTORS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	37	90	-31	-02	16	19	24	02	-12	01	-30	-19	-09	02	20	11	18
2.	08	04	-44	-10	19	18	34	-28	-03	29	-13	00	-05	-16	11	-30	08
3.	44	12	-13	-08	-06	-17	-10	-20	06	00	-15	15	25	15	28	-23	-28
4.	-06	45	-32	33	-19	-17	-02	09	-07	02	-31	11	06	-32	10	-15	-05
5.	35	19	10	04	31	-28	06	09	-08	28	-18	23	-04	23	-34	-07	06
6.	21	33	-03	-37	00	-13	-00	-60	10	-12	-06	12	00	03	-15	14	07
7.	-06	35	-12	27	-33	-23	-21	-29	-05	09	-13	-17	-40	09	07	07	-04
8.	10	41	-23	25	-06	10	21	14	16	01	28	34	04	02	-10	02	-24
9.	10	51	41	15	-12	21	-19	10	05	20	-06	-10	01	-12	-14	-05	07
10.	29	44	07	-04	-28	-23	19	-24	03	10	-13	-24	29	13	-09	03	07
11.	31	40	29	-22	-24	-15	07	-12	18	04	-16	15	26	-05	05	02	08
12.	21	32	-40	28	-32	06	-21	-17	14	-04	-05	-06	14	06	01	09	-16
13.	50	32	10	-22	-05	-11	07	33	10	01	-21	-13	02	27	20	16	-01
14.	24	57	-03	15	-02	20	26	00	-17	14	20	20	07	-29	-91	-02	-15
15.	39	54	-34	34	-17	03	-05	-16	-16	08	-13	-15	18	-09	05	-02	06
16.	39	14	-42	-32	04	-01	17	34	04	06	12	00	-10	-09	-08	17	02
17.	40	09	01	-27	30	10	09	-05	08	34	07	-10	08	-22	04	-10	18
18.	53	15	-33	05	05	16	-08	01	-43	-01	-01	-09	02	13	-16	-09	00
19.	15	22	-30	-34	-03	-12	07	41	-11	19	-14	-07	09	-17	12	-11	05
20.	35	08	-21	-29	19	-35	-26	-09	-08	-02	26	15	18	-24	-12	-02	-08
21.	35	10	04	-24	03	-10	-51	14	06	07	06	08	-06	03	42	-12	01
22.	61	17	04	-07	08	-30	-04	17	04	04	16	-04	-15	23	18	-15	-17
23.	37	53	11	-23	-18	16	19	-02	13	-05	16	-22	11	24	-01	-08	-04
24.	39	16	-12	-05	03	-10	-07	22	-19	-32	-02	-36	-14	-13	-38	-02	-01
25.	30	11	-39	01	-14	-11	-14	08	-14	-27	01	26	10	22	03	-10	42
26.	-15	27	48	15	-27	-10	25	-07	-14	18	07	-09	-05	10	-20	-12	18
27.	04	12	-48	-20	17	07	-29	00	01	-22	-18	02	17	-03	-34	-01	-05
28.	43	39	-05	08	-07	-27	05	07	38	-01	19	05	-31	02	-15	-17	-03
29.	51	26	04	22	17	-26	09	-17	28	-02	06	-15	-10	05	02	-09	18
30.	61	29	-01	-08	-04	-23	-14	17	22	03	00	-25	-09	-07	-03	25	-07

FACTORS--Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
31.	09	16	-13	27	15	13	08	11	39	-22	-38	30	-07	06	09	29	13
32.	-33	02	-37	-19	-16	08	-03	-30	20	20	-03	06	-40	05	-13	10	03
33.	-21	02	-49	-21	-05	39	05	-07	04	13	21	00	-03	39	-03	-01	-15
34.	-22	41	06	-40	-12	-05	-13	-21	-30	03	11	21	-12	-18	03	01	02
35.	25	46	02	20	29	30	-00	12	-20	21	16	-09	21	27	00	07	11
36.	39	28	15	06	39	01	21	01	06	02	-27	35	-14	13	-17	-14	-01
37.	02	64	05	-17	34	04	01	-06	-03	-06	-01	05	-13	-20	14	24	08
38.	14	32	30	11	-28	28	-38	12	08	10	03	17	-16	-16	-04	-31	21
39.	09	47	08	41	32	03	-04	06	-20	08	05	-04	06	-10	-08	03	-26
40.	25	43	24	09	31	06	01	-20	05	-44	21	-10	-06	-03	16	-13	-08
41.	16	25	21	-05	07	18	-44	-07	-09	42	-07	13	03	07	-08	36	-13
42.	11	39	-17	-18	-41	36	24	12	12	04	14	-05	07	-11	-03	-04	-13
43.	-15	22	14	-45	-05	30	-07	01	-01	-26	-32	-13	-11	08	-17	-22	-12
44.	02	39	-34	18	13	31	-24	-06	-13	-17	00	-09	-20	15	05	-08	07
45.	25	60	29	-15	24	26	-07	-17	01	-08	14	-09	-01	-07	09	14	06
46.	-34	47	02	03	-11	-33	19	04	-29	-07	15	08	-12	-02	09	24	-01
47.	-50	35	-07	-13	-18	-07	24	14	-30	03	08	29	-12	12	05	02	02
48.	-50	46	05	-04	-02	-06	18	-06	-30	-13	-05	-05	-23	04	20	08	-05
49.	-18	36	47	-12	-05	16	01	04	-21	-18	-28	14	15	14	01	-05	-14
50.	-49	35	09	-17	-09	10	-04	27	18	04	-22	-02	-06	-17	-07	-00	-08
51.	-70	22	-12	-07	09	01	-18	02	16	-09	11	-02	09	-00	-03	-04	24
52.	-76	25	-07	-00	01	-03	-04	11	15	-16	03	-10	16	07	01	02	12
53.	-54	46	-22	16	09	04	10	04	12	17	21	01	09	10	02	00	20
54.	-67	27	02	-00	27	-21	09	-03	08	-08	05	-13	18	-07	03	-08	02
55.	-79	28	-01	-01	10	-09	03	10	16	-01	01	-11	09	00	04	-02	08
56.	-77	19	-03	-05	13	-22	-06	-04	14	05	-06	-04	02	18	-05	-06	-17
57.	-60	46	09	-15	-09	-08	-10	14	-01	-15	11	07	-08	12	-01	-13	08
58.	-80	19	-11	-06	09	-17	04	-03	10	13	-05	-11	12	-00	-09	09	-05
59.	-57	12	-04	-01	32	01	-00	-06	02	20	-15	-20	-19	01	11	-23	-22
60.	-82	20	-11	03	14	-15	-12	08	08	05	**	**	**	**	**	**	**

APPENDIX C

Factor I Good Student Factor
Statements and Loadings

Statement	Factor Loading	
	Factor I	Factor II
1. Underlining important material as you read the text.	.61	.17
2. Studying in a place conducive to learning.	.61	.29
3. Studying handout material the instructor gives to the class.	.53	.15
4. Trying to understand and not just memorize the theories upon which the course is based.	.51	.26
5. Having traveled extensively.	.50	.32
6. Being in good health.	.44	.12
7. Allocating study time throughout the semester.	.40	.09
8. Using context clues on the test. If you do not know the answer try to figure out what it may be referring to.	.39	.28
9. Coming from an affluent home which includes many educational exposures.	.39	.14
10. Studying as soon as possible after class.	.39	.16
11. Having a great deal of drive or ambition.	.37	.09
12. Outlining important concepts in each chapter.	.35	.10
13. Having the ability to conceptualize and see relationships.	.35	.19
14. Setting a regimen for studying and following it.	.35	.08
*15. Answering study questions in the text.	.30	.11

*added factor

APPENDIX D

Factor II Good Competitor Factor Statements and Loadings

Statement	Factor Loading	
	Factor I	Factor II
1. Finding out the basis for grading and concentrating on the most important areas.	.02	.64
2. Talking to people who know what the instructor wants from his students.	.25	.60
3. Having a personality which enables you to get along with others.	.07	.59
*4. Having the will power to persist in studying.	.24	.57
*5. Taking clear and concise lecture notes.	.37	.53
*6. Comparing lecture notes with some one else in class.	.37	.53
7. Getting on a personal basis with the instructor.	.09	.47
8. Buying or otherwise acquiring copies of the test.	-.34	.47
9. Trying to take a test last if it is given at different times and getting a friend who took it earlier to tell you the questions.	-.50	.46
10. Making sure the instructor knows you.	.25	.46
11. Looking at someone else's paper during the test.	-.54	.46
12. Copying other people's term papers.	-.60	.46
13. Having parents who have a high educational level.	-.06	.45
*14. Having fast reading and good comprehension ability.	.29	.44
*15. Talking to the instructor about what can be done about your grade.	.25	.43

Statement	Factor Loading	
	Factor I	Factor II
*16. Picking your instructor to get the one who grades easiest.	-.22	.41
17. Having the ability to speak well.	.10	.41
18. Establishing a reputation for making good grades.	.11	.39
19. Attending lectures or organizations given outside by the instructor or those which you feel the instructor might attend.	.02	.39
20. Being naturally intelligent	.06	.35
*statements not included		

APPENDIX E

Thirty-item Factor Analyzed Questionnaire

DIRECTIONS: PLEASE READ CAREFULLY

1. Complete the following information on the IBM Answer Form that has been distributed to you:
 - a. Print your name, last name first.
 - b. In the space labeled "School," state your ID Number.
2. As a college student, you are aware of the importance of, and the struggle for, grades. The following pages contain statements other students, similar to you, have felt are important in obtaining good grades. You are asked to state your feelings regarding how effective you believe each of these statements to be in obtaining good grades.
3. The statement numbers correspond to the numbers on the IBM Answer Form. You are to respond on a four point continuum ranging from STRONG DISAGREEMENT TO STRONG AGREEMENT. You are to use only the numbers 1 to 4 on the Answer Form. This is what the numbers mean:
 - 1 means "very strong disagreement"
 - 2 means "disagreement"
 - 3 means "agreement"
 - 4 means "very strong agreement"

THE BASIC QUESTION IS HOW MUCH YOU DISAGREE OR AGREE WITH THE VALUE OF EACH STATEMENT IN OBTAINING GRADES. ANSWER EVERY ITEM.

REMEMBER: #1 means "very strong disagreement"
#2 means "disagreement"
#3 means "agreement"
#4 means "very strong agreement"

1. Underlining important material as you read the text.
2. Having the ability to speak well.
3. Having a great deal of drive or ambition.
4. Getting on a personal basis with the instructor.
5. Outlining important concepts in each chapter of the text.
6. Trying to take a test last if it is given at different times and getting a friend who took it earlier to tell you the questions.
7. Finding out the basis for grading and concentrating on the most important areas.
8. Being in good health.
9. Studying as soon as possible after class.
10. Having traveled extensively.
11. Having a personality which enables you to get along with others.
12. Allocating study time throughout the semester.
13. Making sure the instructor knows you.
14. Trying to understand and not just memorize the theories upon which the course is based.
15. Coming from an affluent home which includes many educational exposures.
16. Buying or otherwise acquiring copies of the test.
17. Establishing a reputation for making good grades.
18. Copying other people's term papers.
19. Having the ability to conceptualize and see relationships.
20. Being naturally intelligent.

21. Picking your instructor to get the one who grades easiest.
22. Attending lectures given to outside organizations by the instructor or those which you feel the instructor might attend.
23. Using context clues on the test. If you do not know the answer try to figure out what the question may be referring to.
24. Setting a regimen for studying and following it.
25. Talking to people who know what the instructor wants from his students.
26. Looking at someone else's paper during the test.
27. Studying handout material the instructor gives to the class.
28. Answering study questions in the text.
29. Studying in a place conducive to learning.
30. Having parents who have a high educational level.

APPENDIX F

Table Summary of Students on Whom
Data Was Not Available

Total Questionnaires Administered		257
Completed.	166	
Transfer students:	40	
ACT not on file.		
Cumulative records in	27	
pending files: not		
completed		
Graduate students:	12	
ACT not on file		
GPA not on file	9	
Non-transfer students:		
ACT not on file	3	
TOTAL		257

APPENDIX G

**Personal Data Sheet Administered in the
Course Psychology of Education**

EDUCATION 120

NOTE: DO NOT ANSWER QUESTIONS NUMBER 2 OR 4

Name _____
Last First Middle

Advisor _____

-
- | | |
|--|---|
| 1. Student ID Number _____ | 9. Previous school attended (High School) |
| 2. ACT Scores | _____ 1. Public |
| English _____ | _____ 2. Private |
| Math _____ | _____ 3. Parochial |
| Social Studies _____ | _____ 4. Others |
| Natural Sciences _____ | |
| Composite Score _____ | 10. Housing Status |
| 3. High school grade point average _____. ____ | _____ 1. Live in dorms |
| 4. College grade point average _____. ____ | _____ 2. Fraternity or Sorority |
| 5. Birth date ____/____/____ | _____ 3. Private housing |
| mo. day yr. | _____ 4. Live at home in Norman |
| 6. Current hours enrolled _____ | _____ 5. Commute |
| 7. Major (check one) | 11. Resident Status |
| _____ 1. Elementary | _____ 1. In-state student |
| _____ 2. Social Studies | _____ 2. Out of state student |
| _____ 3. Language Arts | _____ 3. Foreign student |
| _____ 4. Foreign Language | 12. Marital Status |
| _____ 5. Science Education | _____ 1. Single |
| _____ 6. Math Education | _____ 2. Married |
| _____ 7. Physical Education | _____ 3. Divorced |
| _____ 8. Special Education | _____ 4. Widowed |
| _____ 9. Others | _____ 5. Legally separated |
| 8. Military Status | _____ 6. Others |
| _____ 0. No military status | 13. High School Class size |
| _____ 1. Veteran | _____ 1. 10 to 50 |
| _____ 2. Reservist | _____ 2. 50 to 100 |
| _____ 3. Draft eligible | _____ 3. 100 to 300 |
| _____ 4. 4-F | _____ 4. 300 to 500 |
| _____ 5. Deferred | _____ 5. 500 to 1000 |
| | _____ 6. 1000 to 2000 |
| | _____ 7. 2000 and above |

14. Approximate Size of Hometown

- ☐ 1. 500 or below
☐ 2. 500 to 1000
☐ 3. 1000 to 3000
☐ 4. 3000 to 5000
☐ 5. 5000 to 10,000
☐ 6. 10,000 to 50,000
☐ 7. 50,000 to 100,000
☐ 8. 100,000 to 300,000
☐ 9. 300,000 and above

15. Approximate Size of Graduation Class

- ☐ 1. 10 to 50
☐ 2. 50 to 100
☐ 3. 100 to 200
☐ 4. 200 to 300
☐ 5. 300 to 500
☐ 6. 500 and above

16. Geographical Location of Hometown

- ☐ 1. West coast
☐ 2. East coast
☐ 3. Midwest
☐ 4. Southwest
☐ 5. Northwest
☐ 6. North
☐ 7. South
☐ 8. Others

17. What Quarter of Your Graduating Class Were You In?

- ☐ 1. Top 25%
☐ 2. Top 50%
☐ 3. Top 75%
☐ 4. Other

18. What Degree Are You Currently Seeking?

- ☐ 1. BS
☐ 2. BA
☐ 3. Other

19. What Is the Highest Level of Education Completed by Your Father?

- ☐ 0-5
☐ 6-9
☐ 10-12
☐ 13-16
☐ 16+

20. What Was the Highest Level of Education Completed by your Mother?

- ☐ 0-5
☐ 6-9
☐ 10-12
☐ 13-16
☐ 16+

21. How Many Brothers and Sisters Do You Have?

- ☐ 0. None
☐ 1. One
☐ 2. Two
☐ 3. Three
☐ 4. Four
☐ 5. Five
☐ 6. Six or More

(Check: Yes No)

Yes No

22. Are you directly out of high school?

☐ ☐

23. Are you a transfer student?

☐ ☐

24. Do you have a scholarship (academic)?

☐ ☐

25. Do you have a loan?

☐ ☐

26. Are you currently employed?

☐ ☐

27. Do you have a car on campus?

☐ ☐

28. Do you belong to a Fraternity or a Sorority?

☐ ☐

(Check: Yes No)

Yes No

29. Was OU your first
choice in colleges?

30. Was education your
first choice in
majors?

31. What is your sex

M F

APPENDIX H

**Means, Standard Deviations
and X(ACT) vs. Y(GPA)
Correlations**

Variables, Mean, Standard Deviation
and X(ACT) vs. Y(GPA) Correlation

Variable	Mean	Standard Deviation	Correlation With Y(GPA)
Composite	22.20	4.31	.54
English Usage	21.84	4.61	.51
Mathematics Usage	21.42	5.32	.43
Social Science Reading	22.93	5.42	.44
Natural Science Reading	22.25	5.19	.48
GPA	2.70	.54	
Multiple Correlation			0.58

APPENDIX I

Multiple Regression Residual

Ranking of ACT - GPA

TABLE OF RESIDUALS

<u>Case No.</u>	<u>Residual</u>	<u>Case No.</u>	<u>Residual</u>
1	.5903	43	.1117
2	- .1830	44	- .3636
3	.6815	45	- .0989
4	.8923	46	- .6676
5	- .4337	47	- .7046
6	.0941	48	- .0807
7	- .0016	49	.1839
8	- .2677	50	.3006
9	- .4015	51	- .5650
10	- .2349	52	.3217
11	- .4763	53	- .2092
12	- .8206	54	.0267
13	- .0033	55	.9245
14	- .7034	56	- .5762
15	- .3808	57	.5884
16	.0912	58	.0637
17	- .1264	59	- .0710
18	- .0534	60	- .3387
19	.4750	61	.7718
20	- .6544	62	- .4909
21	.5164	63	- .0219
22	- .0956	64	.0077
23	.7839	65	- .0165
24	.2879	66	.1792
25	- .2747	67	.2222
26	.1241	68	- .4614
27	.7983	69	- .2530
28	- .0616	70	.4167
29	- .0151	71	- .1440
30	- .5204	72	- .4655
31	- .0702	73	- .0511
32	.1332	74	- .3097
33	- .4453	75	.4972
34	.6193	76	.1294
35	.9630	77	- .0026
36	- .1362	78	.1987
37	- .2625	79	- .6970
38	.4766	80	- .2138
39	- .4929	81	.7757
40	.3586	82	- .4810
41	.6626	83	.3030
42	- .3905	84	.3483

TABLE OF RESIDUALS--Continued

<u>Case No.</u>	<u>Residual</u>	<u>Case No.</u>	<u>Residual</u>
85	- .0882	126	- .1886
86	- .1704	127	- .0081
87	- .3802	128	.3015
88	.0235	129	.4309
89	.3188	130	.1144
90	.1246	131	.2840
91	.2808	132	.8381
92	- .4532	133	- .7069
93	- .1703	134	- .3194
94	- .1215	135	.7128
95	- .2860	136	- .7940
96	.0098	137	- .0394
97	- .0877	138	- .0972
98	.2683	139	.3546
99	.8146	140	.3004
100	- .2215	141	- .2672
101	- .3974	142	.6075
102	.4152	143	.5437
103	- .6202	144	- .8582
104	.4449	145	- .5817
105	- .8814	146	.0262
106	.2325	147	- .3474
107	.8246	148	- .0477
108	1.1565	149	- .6875
109	.0530	150	.3890
110	.5163	151	- .1346
111	.3285	152	- .5526
112	- .1021	153	- .4778
113	.5702	154	.0566
114	- .0313	155	.1695
115	- .2358	156	.4428
116	.1369	157	.1102
117	.5513	158	- .0642
118	.5102	159	- .3773
119	.3737	160	- .3162
120	- .0997	161	- .9614
121	.2026	162	- .3020
122	- .3484	163	.6622
123	- .3667	164	- .5640
124	.0666	165	- .1418
125	- .4208	166	- .3774

APPENDIX J

Item Analysis of Thirty-Item Questionnaire

TOTALS

		TOTALS																			
		1				2				3				4				5			
Group I	Totals:	0	3	24	18	1	8	22	14	0	0	15	30	3	18	18	6	2	8	19	16
	Percentages:	0	7	53	40	2	18	49	31	0	0	33	67	7	40	40	13	4	18	42	36
Group II	Totals:	0	4	19	22	0	8	24	13	0	2	19	24	4	11	24	6	0	8	21	16
	Percentages:	0	9	42	49	0	18	31	29	0	4	42	53	9	24	53	13	0	18	47	36
		6				7				8				9				10			
Group I	Totals:	23	16	5	1	1	8	19	17	1	0	18	26	3	8	25	9	5	27	12	1
	Percentages:	51	36	11	2	2	18	42	38	2	0	40	58	7	18	56	20	11	60	27	2
Group II	Totals:	22	17	5	1	1	3	25	16	0	3	19	23	1	7	27	10	6	24	11	4
	Percentages:	49	38	11	2	2	7	56	36	0	7	42	51	2	16	60	22	13	53	24	9
		11				12				13				14				15			
Group I	Totals:	1	14	25	5	1	0	19	25	0	17	21	7	0	1	10	34	1	9	32	3
	Percentages:	2	31	56	11	2	0	42	56	0	38	47	16	0	2	22	76	2	20	71	7
Group II	Totals:	2	7	26	10	0	2	14	30	1	16	23	5	1	1	9	34	4	10	24	7
	Percentages:	4	16	58	22	0	4	31	67	2	36	51	11	2	2	20	76	9	22	53	16

TOTALS--Continued

	Items:	16					17					18					19					20				
Group I	Totals:	18	18	8	1	7	20	16	2	27	15	3	0	0	0	0	19	26	0	9	28	8				
	Percentages:	40	40	18	2	16	44	36	4	60	33	7	0	0	0	0	42	58	0	20	62	18				
Group II	Totals:	19	13	6	7	1	20	19	5	27	13	4	1	1	0	17	27	0	11	32	2					
	Percentages:	42	29	13	16	2	44	42	11	60	29	9	2	2	0	38	60	0	24	71	4					
	Items:	21					22					23					24					25				
Group I	Totals:	9	18	15	3	4	25	12	4	0	2	33	10	1	1	24	19	0	4	30	11					
	Percentages:	20	40	33	7	9	56	27	9	0	4	73	22	2	2	53	42	0	9	67	24					
Group II	Totals:	9	26	10	9	3	30	10	2	0	1	33	11	0	6	23	16	0	4	33	8					
	Percentages:	20	58	22	0	7	67	22	4	0	2	73	24	0	13	51	36	0	9	73	18					
	Items:	26					27					28					29					30				
Group I	Totals:	33	11	1	0	0	1	31	13	1	7	30	7	0	0	19	26	1	18	21	5					
	Percentages:	73	24	2	0	0	2	69	29	2	16	67	16	0	0	42	58	2	40	47	11					
Group II	Totals:	28	17	0	0	0	1	25	19	0	4	35	6	0	0	13	32	4	18	19	4					
	Percentages:	62	38	0	0	0	2	56	42	0	9	78	13	0	0	29	71	9	40	42	9					