

THE EFFECTS OF TRADITIONAL AND NONPUNITIVE
GRADING SYSTEMS UPON THE ACADEMIC PROGRESS
OF COMMUNITY COLLEGE STUDENTS

By

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Abstract of Dissertation Presented to the Graduate Council of
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This study compares two systems of community college academic regulations. Its purpose was to determine whether or not one of these systems more effectively answers the unique needs of community college students.

The subjects were selected from four Florida community colleges, chosen for their divergent academic systems. Two of these were classified as traditional and two as nonpunitive. The nonpunitive institutions had been using pass/no-fail grading systems for a number of years, which operated with neither failing grades nor academic suspension.

The academic progress of 750 incoming students was traced over a four-year period. These were all recent high school graduates who enrolled in their respective community colleges as freshmen for the 1970-71 academic year. For purposes of this study, they were further classified as high and low performing on the basis of their scores earned on the Florida Twelfth Grade Placement Test.

Academic progress of traditional and nonpunitive subjects was assessed in terms of perseverance while at the community college institution. Two hypotheses were designed and tested in a comparison of this progress.

Hypothesis 1 focused upon the different proportion of low-performing students who graduated from traditional and nonpunitive community colleges. A chi square test indicated that, under nonpunitive regulations, these students had a significantly greater chance of graduating ($P < .001$).

Hypothesis 2 was designed to compare later academic attainments of these community college graduates. Scheffé's s-method determined that neither traditional nor nonpunitive graduates earned significantly higher grades in their coursework at senior institutions.

The s-method was also used as a control for the possibility of an aptitude bias between traditional and nonpunitive subjects. These groups were found to be equivalent in aptitude level based on Florida Twelfth Grade Placement Test scores (-30.13 to 45.81).

It was concluded that nonpunitive academic systems offer important advantages to community college students. These benefits signify a need for revision of community college academic regulations in a nonpunitive direction.

CHAPTER I

INTRODUCTION

An increasingly important role of today's community college is to provide the highschool graduate with a means to higher education. A large proportion of these students are from lower socioeconomic backgrounds (Thornton, 1966), and the community college is their sole means of bypassing the stringent admission requirements of senior institutions. Thus, the community college represents one of American education's most diligent attempts at equalizing access to higher education. Unfortunately, it does not seem to be working. The high attrition of community college students enrolled in academic programs is telling evidence of needed revisions.

The nonpersisting student, or dropout, has become a popular topic for those engaged in community college research. However, these studies are inclined to use the same approaches as those designed for four year institutions and have overlooked a unique problem of community colleges which may well be fundamental to their high attrition: the conflict between a lenient admission policy and traditional academic regulations.

One trademark of the community college is their open door admissions, a policy whereby highschool graduates are granted admission, no matter what their grade point average or college aptitude scores. In this way low performing students are admitted. Once admitted, however, threat of punitive academic

procedures interferes with their performance before they can adjust and take advantage of the opportunities afforded them. The open door institutions fail to provide an adequate period of adjustment during which students can explore, mature and find themselves academically--a period in which new areas of interest can be examined in an unthreatening setting.

To be instrumental in equalizing access to higher education via open admissions, the community college must complement the practice with compatible academic regulations, allowing entering students the freedom to learn without threat of failure or dismissal. This can theoretically be achieved through pass/no-fail (nonpunitive) academic approaches. Such non-punitive systems have already been implemented in two Florida community colleges. The present study is an attempt to evaluate the effectiveness of these two programs by comparing their operation in terms of student academic progress.

Purpose of the Study

The purpose of this study was to compare students from four community colleges, two of which have punitive grading systems and two of which have nonpunitive grading systems, for (a) the proportions which graduate from each pair, and (b) their grade point averages for four or more quarters at the university, of the Florida State University System, to which they transferred.

In so doing, this study sought to determine which system of academic regulations is best serving the needs of community college students, both in terms of academic persistence and scholarship.

Definitions

Academic persistence: A term used in describing dropout propensity. The student who is academically persistent is simply one who completes the course or program in which he initially enrolls.

Florida Twelfth Grade Placement Test: Also called Florida Statewide Test, is designed to evaluate the college aptitude of highschool seniors. This instrument is administered yearly to all students in the State of Florida.

Pass/no-fail: A system of grades which is designed to minimize failure or threat of failure. This is achieved by replacing failing and/or near failing grades with some form of neutral mark such as "W". For purposes of this study, the term nonpunitive is synonymous with pass/no-fail and will be used in most instances.

Pass/fail: Evaluation on a two-step rather than on the more traditional five-step scale. It is comparable to Satisfactory/unsatisfactory, Credit/no credit, and other simple, two-step modes of evaluation.

Traditional grading system: This system is typical of academic regulations operative in most contemporary post highschool institutions. These systems depict the entire spectrum of academic performance, usually including five categories (A, B, C, D, and F) to denote achievement. The latter two marks, signifying below average work, initiate a punitive element to the system. This effect is furthered by requiring at least a "C" average for graduation or

remaining an active student. Furthermore, related academic regulations such as course withdrawal deadlines and levels of academic probations result in an emphasis upon failure. In contrast to the non-failing system, a neutral grading alternative is restricted, if available at all.

Open door admissions: The admissions policy of Florida community colleges in which highschool graduates are granted admission, regardless of college aptitude test scores. This policy obviously provides a valuable opportunity for those students interested in post highschool education who for one reason or another, did not achieve the minimum scores on the Florida Twelfth Grade Placement or Scholastic Aptitude Tests (SCAT).

Low performing student: A community college applicant whose scholastic credentials render him unacceptable for admissions to senior institutions. These students have earned a total of less than 300 for the sum of the percentile ranks on the five sub-tests of the Florida Twelfth Grade Placement Test.

High performing student: A community college applicant whose sum of percentile ranks on the five sub-tests of the Florida Twelfth Grade Placement Test is above 300.

Academic program: A community college program which academically duplicates the lower division requirements of four year institutions. It is designed for the student whose goal is transferring to a senior institution after completion of this course of study.

Need for the Study

There has been continual criticism of the traditional grading system. Yet its use continues because all parties concerned, students, parents, and educators, have failed to establish a suitable alternative. Its tenacity is not difficult to understand. The traditional marking system has proven itself to be extremely effective as an extrinsic motivator. Students can be observed giving up their time, integrity, and even money for an "A". Such powerful motivational effects, however, are common only in the top ten percent of high school achievers (Doll & Fleming, 1966). The vast majority of these are sons and daughters of the affluent and are able both financially and academically to enroll as freshmen in the college of their choice.

There is significant evidence demonstrating that the majority of students do not respond so favorably to traditional grading, where failure is customarily imposed upon those who achieve the least, where self esteem is systematically destroyed by insidious comparisons. This threatening element is especially debilitating for low performing students who make up about half of the community college student body. For these students, stripped of their confidence in a competitive high school setting, more of the same is not the answer.

It is indeed unfortunate that from the beginning, community colleges adopted the more traditional academic regulations practiced by senior institutions. This was done even though these lower division institutions were designed to serve

students whose academic aspirations and credentials are quite different. If community colleges are truly dedicated to equalizing access to higher education, as their open admission policy would seem to indicate, then they are duty bound to practice academic regulations which are more compatible with the needs of their students. It seems that it is time for community colleges to stop playing university. There is already a full complement of these. Here a competitive milieu is appropriately provided, presenting conditions under which the more confident student thrives.

Community colleges need to be more sensitive to the perceptual differences between their low performing and their more confident students, for they are in a position to profoundly affect both self image and attitude toward higher education. Whereas a competitive academic experience is challenging to the more confident student, it may well be perceived as a threat to the low performer. Hopefully, low performing students will not be threatened by their initial college experience, and will show marked academic growth. Through this stimulating experience they will acquire a new optimism, and enough momentum will be gained to allow for continued academic success.

Community colleges must be content with, and concentrate upon, what is perhaps their most important role: serving the low performing student. This is a unique and vital responsibility which they have undertaken, and its priority needs to be maintained. On community college campuses, a large portion

of our highschool graduates will be given one last opportunity to further themselves academically. It is up to the colleges themselves to maximize the extent of this opportunity.

Community college administrators are presently poorly equipped to decide which academic system is most appropriate for their institution. From a theoretical point of view, pass/no-fail academic systems are more compatible with the needs of their students. If such a system does in fact enhance the academic progress of low performing students, it is hoped that this study will provide the evidence necessary to cause community college officials to question their continued use of traditional academic regulations at their institutions.

CHAPTER II
REVIEW OF THE LITERATURE

In order to place this study in proper perspective, two major areas of research must be reviewed. The first deals with grading trends in higher education and the second with low performing students under academic threat.

Grading Trends in Higher Education

Even though committed to serve our society's needs in a unique way, community colleges initially adopted the same competitive mode of grading and academic probation used by senior institutions. It is surprising that, in view of the obvious disparities in clientele and purpose, so little effort was made to implement a more specialized system for the two year institution. This is exactly what is presently occurring. Plagued by the problems already described, individual community colleges are experimenting with less threatening academic systems.

Pass/no-fail grading is a relatively new system, the use of which is currently expanding in Florida's community colleges. Its comparative effectiveness has not been documented by empirical research. Since it is not possible to empirically evaluate its use, the focus of this review will be the conceptualization underlying the development of the basic approach.

In the recent past, American educators have been expressing more and more hostility toward the competitive (A-F) grading system. Sidney Simon's (1970) five reasons for discarding the old system are typical of the criticism levied against it:

- (1) Grades separate students and professors into two warring camps, both armed with dangerous weapons, none of which have anything to do with a notion of community of scholars.
- (2) Grades over-reward the wrong people and often punish students who need to be punished the least.
- (3) Grades tend to destroy what learning should be all about.
- (4) Grades reinforce an archaic notion of 'competition' which may well turn out to be deadly in the 1970's.
- (5) Of all the destructive things which grades do, probably the ugliest is that they contribute to debasing a student's estimation of his own worth (p. 9).

This same attitude, in somewhat different style, is reiterated more concisely in a statement of Earnest Priestly (1970), a public school teacher in Seattle:

The grading system in our schools is an anachronism which, like the concept of Social Darwinism, belongs to a bygone era. Grades divide us and make false distinctions among us. Grades give us wrong priorities and wrong motivation (p. 17).

Indulgent Grading

In higher education we find perhaps the greatest propensity, not only for criticism of grades, but also for the innovations which it spawns. It is not surprising, therefore, to find that numerous colleges and universities, often under pressures from faculty-student administrative groups (Quann, 1970), have instituted grading innovations for the purpose of lessening

academic anxiety and stress. Unfortunately, all of this sound thinking is threatened by empirical research, the results of which indicate that academic performance is lowered by the removal of grades.

In a recent study at the University of Tennessee by Hawk and DeRidder (1972), this grade-performance relationship was investigated. One hundred and eighteen undergraduates in four sections of Educational Psychology made up the sample population. The experimental group was preassigned final course grades on the basis of their cumulative grade point average, whereas controls were to earn theirs by the results of three tests and a term project. In the absence of extrinsic motivation provided by grading, the majority of students did not exert their usual degree of effort. Mean grades on all three tests were lower for the experimental group ($p < .05$). However, in a less extreme application of grading indulgence, Marshall and Christenson's (1973) findings were inconclusive. Working with a sample of 64 high school Spanish students, their strategy was to consistently adjust the marks of papers and exams up one level for the experimental group. No significant differences in motivation or achievement were noted after a six-month course of instruction. They concluded that arguments for either position are grossly overstated.

Pass/fail grading

Indirect investigations of grading leniency are numerous. They usually involve the most popular grading option, the pass/fail system, a simple grading system designed to minimize

competition between students. In Changing Education, Elaine Cotlove (1970) describes its effect:

It represents a simple kind of on/off situation in which students have no reason to compete against each other for grades and teachers have no context in which to grade 'on the curve' (p. 15).

Additional affirmative reaction to pass/fail grading was summarized by the Phi Beta Kappa pass/fail study committee (1969). The following three considerations were deduced in favor of pass/fail grading:

- (1) The pass/fail option permits the student to study or learn without being inhibited by the pressure or emotional strain connected with the traditional methods of evaluation.
- (2) Students have an opportunity to pursue courses in 'academically unfamiliar' areas without fear of poor grades.
- (3) Students following pass/fail options should display greater motivation and intellectual curiosity than those under traditional programs (p. 47).

However, as in the case of preassigned grades just described, results of pass/fail in an "academic sense" have been disappointing.

Feldmesser (1969), in a study of Dartmouth's grading system, found that pass/fail students did much less required work, attended class less often, and received a final grade one full letter lower than other students.

Wharton's (1969) investigation of Minnesota's system went into more detail, but conclusions were similar. In a comparison of pass/fail and graded students based on 53 quizzes, papers and examinations, pass/fail students failed ungraded courses two and one-half times more often than non-pass/fail students.

In another pass/fail study of the system used at Malacester College, Johansson (1971) concurred. He noted that the higher achieving students who took the ungraded option did relatively poorly. When compared to their cumulative grade point average, their performance was significantly less than that of graded students.

Karlin's (1969) study at Princeton was also in agreement with these conclusions, and, in addition, noted that there were no significant differences between yearly grade point averages for pass/fail and non-pass/fail students. Thus, if enrollment in pass/fail courses allowed the pass/fail student additional time for study in other courses, results of this effort were not apparent in their overall performance.

Von Wittich (1972) studied a sample of 895 foreign language students enrolled on a pass/fail basis at Iowa State University.

GRADE	<u>Pass/Fail</u>		<u>Letter Grade</u>	
	NUMBER	PCT	NUMBER	PCT
A	18	5.9	172	29.2
B	63	20.7	207	35.1
C	153	50.1	141	23.9
D	69	22.6	37	6.3
F	2	.7	33	5.5

A multiple regression analysis was used as control for those independent variables which are assumed to contribute significantly to course grade. The resulting correlations were significant at the .01 level. These results prompted Von Wittich to reach the following conclusions:

There is a striking difference in the performance of students in foreign language courses taken under pass/fail systems and under letter grade systems of evaluation.

Any subject based on cumulative learning should not be offered under pass/fail systems with a D-passing level if good results and adequate progress are expected (p. 505).

In a correlational study, Thayer's (1973) findings not only supported the aforementioned pass/fail research, but revealed other meaningful relationships. The objective was to note changes in motivation as a consequence of early success or failure in an academic task. His subjects were 246 Long Beach State juniors, 54 of whom were enrolled on a pass/fail basis. Students were monitored over a two-semester span during which the following factors were found to be significant:

- (1) Pass/fail students earned lower scores overall than traditionally evaluated students.
- (2) Students who dropped out of the course had earned low grades on the first exam.
- (3) Students who did poorly on the first exam, but remained in the course, improved their standing on subsequent exams.
- (4) Students who earned A's on the first exam, improved their performance on subsequent exams.
- (5) Students who earned B's on the first exam, earned lower scores on subsequent exams.
- (6) Pass/fail students showed no consistent trend in performance on the basis of first exam scores (p. 72)

Unfortunately, firm conclusions as to the causal influences of low or high grades are not possible. If ethical principles permitted, it would be interesting to control the classroom setting with an experimental design in which these results could be tested.

The Concept of Mastery

Nonpunitive academic approaches are based upon Bloom's concept of mastery. As described by Bloom (1970), mastery refers to a minimum standard of acceptability that a student must attain in a course of study. It specifies a cutoff point below which the student is not considered to be competent and above which he is thought to be "master" of the material.

There are two basic assumptions to the mastery concept. The first is that it is both reasonable and acceptable that individuals differ in the rate at which they achieve mastery (Carroll, 1963). The second is that all students can achieve mastery. Bloom (1970) said that "our basic task is to determine what we mean by mastery of the subject and to search for the methods and materials which will enable the largest proportion of our students to attain such mastery (p. 43)."

It can be seen that such a system is fundamentally consistent with the community college's task of serving large numbers of students with marginal academic skills and its conviction that under suitable conditions, all men are educable. Hopefully, mastery approaches such as pass/no-fail would effectively meet community college needs.

Conclusions

Apparently, while threat of competition is effectively lessened under a pass/no-fail system, incentive for study is diminished at the same time. The reward value associated with A's and B's, although extrinsic in origin, is an effective motivator. These suppositions would lead us to devise an

academic system which incorporates the following two features:

- (1) a minimal or nonexistent threat of failure
- (2) extrinsic academic rewards commensurate with expended effort

It would appear that the above rationale is fundamental to the development and expansion of the pass/no-fail system in today's community colleges. Such a system has been implemented in several community colleges in Florida and elsewhere in the nation. Yet, for some reason, researchers have neglected its study, at least in a theoretical sense. Individual institutions, out of concern for their own success or failure, have evaluated their systems. However, their noncomparative designs belie selfish goals. These should not be construed as attempts at finding a "better" system.

The question as to whether or not pass/no-fail academic regulations are more appropriate within the community college setting remains to be seen. Review of similar systems would indicate that the approach holds sound theoretical promise.

Low Performing Students Under Academic Threat

Approximately one-half of community college entrants would fail to meet the academic standards required by senior institutions. These students are likely to bring with them a history of academic mediocrity and failure. Through past experiences they have learned certain maladaptive responses to academic tasks, especially under the threat of competition found in traditional academic settings. Although this explicit

relationship has not been studied, a considerable body of research under the general topic of achievement motivation is pertinent.

The bulk of studies related to this area has emphasized the positive, seeking, and somewhat aggressive modes of achievement motivation. The choice may well have been a consequence of its relevance within our society. Achievement in terms of competitive striving is central to American beliefs concerning success, a success based upon individual accomplishments, not family status.

So it was that most researchers focused upon this more promising vector, giving only passing reference to the negative aspect of achievement motivation, that of fearing failure. As a personality trait, fear of failure (FF) has historical roots in clinical studies which deal with guilt, shame, inferiority, and anxiety. It was not explicitly investigated until the 1930's and the early level of aspiration studies. Even then it was not valued in itself, but seemed to offer a logical explanation for the individual differences found in aspirational levels.

Level of Aspiration Studies

In similar studies, Hoppe (1930) and Dembo (1931) investigated the relationship between feelings of achievement and level of aspiration (LA). They found their subjects tended to regulate feelings of satisfaction by assigning themselves appropriate levels of aspiration. In this way, level of aspiration was being used as a device for assuaging ego needs.

The real impact of this finding, however, was left to Frank (1935), who was the first actually to identify the paradoxical motivating device, fear of failure (FF). He noted that certain subjects were predisposed to ease their feelings of failure by assuring success. This they accomplished by simply maintaining their level of aspiration at an easily attainable level. The concept of fear of failure has remained as a basic tenet of aspirational studies.

A series of studies in the 1940's and 1950's utilized an important refinement within level of aspiration research. A standard index, termed a goal discrepancy score (GDS), was developed for describing an individual's failure orientation. The GDS is simply the average difference between a subject's actual performance and his succeeding level of aspiration. A positive GDS indicates a level of aspiration above prior performance levels, and, similarly, a negative GDS represents a level of aspiration below the level of prior performance. This concept was especially useful to researchers interested in the relationship between level of aspiration and personality.

Gardner (1940) pursued this question by dividing his subjects into two groups: one with the lowest negative goal discrepancy scores and the other with the highest positive scores. By doing so, he was able to isolate distinctive personality differences between the two groups. He found the high negative group to rank lowest on realistic outlook, motivation, and sense of security while highest on fear of failure. The high positive group ranked highest in desire

for intellectual achievement and dissatisfaction with their present status.

Sears (1941) performed a similar study with the addition of a moderate (low positive) group. Her results generally substantiated those of Gardner in his findings for the two positive groups. In addition, her low positive group was characterized by high self confidence, a realistic outlook, and experienced a relatively high degree of success in whatever they attempted.

This research can be seen to influence the work of Atkinson which is dealt with later in the chapter.

Level of Aspiration and Social Class

Although not usually considered a personality variable, social class is known to be related to behavior in competitive situations. Marx and Tombaugh (1967) allude to this relationship between level of aspiration and social class.

Level of aspiration may be influenced profoundly by certain social factors. Typically, the lower the level of discrepancy scores, the higher the subject's socioeconomic standing. The discrepancy scores are considered to be an indication of stress (Gould, 1941). Members of the lower socioeconomic classes are assumed to be more susceptible to stress (p. 101).

Marx and Tombaugh's comment is especially pertinent to the problem at hand, for community college clientele average significantly lower in socioeconomic status than the clientele of colleges and universities (Thornton, 1960). This fact in itself underlines the need for a specialized system of community college academic regulations.

Effects of Self Esteem

Other researchers became interested in the related personality variable of self esteem (SE), especially in the context of success and failure. According to Cohen (1959):

A person's self-esteem affects the evaluation he places on his performance in a particular situation and the manner in which he behaves when in interaction with others It may be viewed as a function of the coincidence between an individual's aspirations and his achievement of these aspirations (p. 103).

Cohen theorizes that persons with high self esteem have learned to protect themselves from negative self evaluation. They assess an objective failure as a small failure and an objective success as a large success. Low SE persons evaluate themselves negatively, viewing failures as very poor performances and successes as only minor events. These people are apparently predisposed to react to their experiences in such a way that it is difficult to them to improve their self regard. Such reasoning serves as the basis for the hypothesis that low SE subjects are more affected by failure experiences and less by successful ones.

Stotland, Thorley, and Zander (1957) tested this proposal by studying the reactions of 175 male undergraduates to success and failure experiences. Since the self esteem of each subject had been measured prior to the experiment, it was possible to group subjects according to this criterion for comparative purposes. While participating in certain prearranged tasks, half were allowed to succeed and the other half told that they had failed. This latter group differed considerably in their

self evaluation, according to their self esteem. When other variables were held constant, the mean self evaluation for high SE subjects was 2.55; for low SE subjects it was 1.75 ($p < .05$). Additional research by Thomas and Burdick (1954), and Cohen (1956) tended to substantiate these findings. Their consensus also was that different levels of self esteem induce different patterns of protective reaction to failure experiences.

Approach-Avoidance and Achievement

Another dimension of level of aspiration research progressed as an outgrowth of Frank's (1935) fear of failure concept. As in the aforementioned level of aspiration studies, it is theoretically assumed that an individual's achievement orientation is learned in the course of past experience. The focus, however, is somewhat changed with the inclusion of a positive or approach dimension.

Kurt Lewin (1935), whose system of thought is usually labeled field theory, dealt with this approach-avoidance relationship in reference to conflict. His topological treatment of the subject enabled him to apply experimental methodology to complex behavioral problems.

Both Frank's and Lewin's influence are apparent in the work of McClelland and associates (1953), who systematically studied these two achievement orientations: (1) the approach motive, based upon hope for success and an anticipation of reward, and (2) the avoidance motive, centering around the anticipation of failure. These two components operate concurrently within each individual as achievement tasks are

encountered. Their behavioral expression varies from person to person as a function of the comparative strength of each component.

It is interesting to note that, whereas this description of these two orientations appears to be nearly in opposition to one another, the overt behavioral expression of each may be nearly identical and result in the same goal attainment. If, for example, the goal happened to be that of making an "A" in a particular course, the expressed behavior in either case may be to spend fifty hours reading the textbook. These two approaches have been extensively investigated, and there is strong evidence indicating that the former orientation, that of actively striving for goal attainment, is the more effective of the two. This difference is especially noticeable in academic settings where cognitive goals are the rule.

Atkinson's Predictive Model

Atkinson (1957) proposed a theoretical model enabling him to predict an individual's success in competitive situations. Refinements of McClelland's aforementioned achievement orientations are used as motivation variables within his technique. They are: (1) need for achievement (n_{ach}), and (2) manifest anxiety (MA). Atkinson's theory is based upon the assumption that persons high in n_{ach} and low in MA are characterized by actively seeking success, while those low in n_{ach} and high in MA would be characterized by an avoidance orientation.

Some interesting assumptions can be drawn from this tenet concerning the expected behavior of the fear of failure when

confronting an achievement situation. They begin with Snygg and Comb's (1949) assertion that we constantly strive to raise our self evaluations and avoid lowering them. We are forever seeking the maintenance and enhancement of our perceived selves. For persons lacking confidence, the most effective way to protect these self beliefs is to avoid having them tested. Indeed, the fear of failure has often been described as achievement avoidant.

There are essentially three basic strategies for the individual with the fear of failure syndrome (FF), determined to avoid evaluation. The most obvious strategy is to remain uninvolved in achievement tasks. Such behavior offers reward value to the FF by allowing for his reception of the least possible amount of information. Of course, complete avoidance of achievement confrontation is not possible. If inadvertently involved, an early withdrawal from the encounter is frequently the best available tactic (Birney, 1969).

The remaining two modes of reducing feedback information involve a choice of inappropriate tasks. The selection of an extremely easy task, the attainment of which is virtually assured, is quite uninformative. This is also true in the case of the other extreme, where a task at an impossible difficulty level is chosen (Birney, 1969). Thus, by making unexpected and seemingly irrational shifts of goal selection, it is not difficult for the FF to avoid evaluative comparisons.

These are the behavioral predictions which Atkinson makes from his theory concerning fear of failure and avoidance of

evaluation. There have been innumerable studies which have dealt with these concepts. As already indicated, early level of aspiration studies became involved with fear of failure only incidentally, as it served to explain the variance of level of aspiration. Only since Atkinson's influence during the middle 50's has it become a topic of interest in its own right. Since that time, investigations of the topic have resulted in both accordant, supportive, and discordant, non-supportive findings.

Accordant Studies

One of these earlier studies was conducted by Jucknat (1937), who investigated the relationship between past performance and level of aspiration in 500 school children. His sample was divided into three groups (good, medium, and poor) on the basis of their classroom assignments. Each subject was presented with a series of maze solving tasks ordered in difficulty from 1 to 10. They were asked to choose the one which they believed they could successfully solve. The "good" group chose a difficulty level of from 7 to 10, while the "middle" group's aspirations fell in the middle range of 5 and 6. The lower group showed marked inconsistency by choosing either easy tasks ranging from 1 to 4, or difficult ones between 7 and 10.

In a more recent study, Clark, Teevan, and Ricciuti (1956) observed similar avoidance patterns in FF subjects. In three classes of Swarthmore freshmen, a questionnaire was administered

just prior to the final exam. Subjects were asked to predict how they would fare on the forthcoming exam. FF subjects were willing to accept a score below their estimate in return for an opportunity to be excused from taking the exam. All correlations were positive and significant at the .01 level of confidence.

Moulton (1965) worked with a sample of 93 male high school students. He presented them with tasks of three difficulties ($p=.25$, $p=.50$, $p=.75$). Each subject was well informed as to the varying difficulty levels before being instructed to begin work on the intermediate task ($p=.50$). The objective was to note the difficulty of the next task chosen after initially succeeding or failing on the intermediate task. FF subjects were expected to make more atypical shifts, i.e., after succeeding at $p=.50$, selecting the easy task, or after failing at $p=.50$, selecting the more difficult task. The FF group was found to make significantly more atypical shifts as predicted.

Apparently, fear of failure avoidance behavior is not limited to academic endeavors. Hancock and Teevan (1964) conducted a study of risk taking involving monetary rewards. Sixty male high school students were tested and divided at the median in fear of failure and hope of success groups. Each subject operated an apparatus at which he first chose odds, then pushed a button to receive a monetary payoff. Of course, the higher the odds, the greater the payoff (high

risk). Initially, FF subjects selected more difficult odds and throughout the session, continued to make significantly more irrational choices.

Logically, it would seem that these predicted behavioral patterns would have a corresponding effect upon occupational aspirations. Burnstein (1963) was able to isolate such relationships in a group of 67 male undergraduates. He found that as fear of failure increased, (a) the prestige of aspired-to occupations decreased, (b) willingness to settle for less satisfying and less prestigious occupations increased, and (c) the person began to perceive that occupations with extremely low probabilities of attainment were within his reach. These relationships were all significant at the .01 level of confidence.

These various findings strongly concur with Atkinson's predictions. Each study has reflected a general tendency for the FF to avoid possibilities of psychologically meaningful failures. Unfortunately, other research on this topic has yielded conflicting results.

Discordant Studies

Two studies by Feather (1965, 1966) directly investigate the relationship between expectation of success and achievement orientation. The first used a sample of 168 male undergraduates who were first tested for n ach and MA. Two sets of instructions designed to manipulate expectations of success were used. The first set described the forthcoming anagrams task as moderately difficult (low initial expectancy), while the

other set gave the initial impression of easiness and simplicity (high initial expectancy). Results showed the high n ach/low MA, low initial expectancy group to have a significantly higher initial estimate for their success. All other groups failed to perform as expected. FF subjects gave no evidence of atypical success predictions or other tactics for avoiding evaluation.

A year later Feather (1966) studied a sample of 98 female undergraduates in a similar experiment using the same anagram tasks. Results again failed to show the expected avoidance behavior in FF subjects. Feather accounts for these inconsistent findings by hypothesizing that expected success predictions will be forthcoming only when motives to achieve and avoid achievement are highly aroused. This would necessitate a task of intermediate difficulty ($p=.50$).

Birney, however, is skeptical of this explanation. He prefers to attribute such findings to ineffective measures used when differentiating between failure and success groups. The charge is not unreasonable in view of the low reliability which is characteristic of such personality measures.

In another study which yielded unexpected results, Atkinson and Litwin (1960) investigated risk taking in FF subjects. The task was one of tossing rings over a stationary peg. Subjects were allowed to select their own difficulty level by varying their distance from the peg. Surprisingly, subjects of both achievement orientations preferred tossing rings from an intermediate range. The authors accounted for the FF's

unexpected mid-range preference by the fact that these subjects must not be true FF's. Their contention is that the majority of persons with significant avoidance motives are eliminated long before they reach college. This same criticism would, of course, apply to most studies which deal with avoidance motivation.

Conclusions

It is obvious that the findings of achievement motivation research have not always been consistent with one another. The rationale of Birney, Feather, and Atkinson in attempting to explain these exceptions, has already been offered. However, it may well be that the confusion is due to erroneous assumptions as to the pervasiveness of fear of failure. "Could the fear of failure motive have more than one dimension?" It seems plausible that as a consequence of past experience, a person may exude confidence in one situation or at one point in time and yet react as an FF in other. Surely, every adult has been successful at some activity to which he reacts with certainty and confidence.

On the other hand, the results of this research are not totally inconsistent. A cluster of agreement as to the avoidant behavior of FF individuals is easily discernable. In the author's opinion, the reported findings have a direct bearing upon the problem at hand: the low performing student's non-persistence in the face of academic competition. Birney's statement, which follows, reiterates this contention.

The problem with instructional techniques which use punishment as a motive source is that the individual's chief concern is with the avoidance of the punishment and only secondarily with the escape route that the punisher might have in mind The individual motivated by a fear of failure is going to select the strategy that gets him away from the failure experience (p. 206).

With this in mind, it is not easy to overlook the coincidence of several factors within the community college setting. Fear of failure is a phenomenon not uncommon to the community college population. Its high incidence is paralleled by their nonpersistence, especially within the competitive setting of the more traditional institutions.

It is entirely possible that this relationship is coincidental. However, through the empirical evidence brought to light in the aforementioned studies, the author is convinced that the explanation offered by these motivational effects offers a sound rationale which cannot be overlooked.

CHAPTER III

DESIGN OF THE STUDY

Overall Design of the Study

This study longitudinally compared the academic progress of two groups of community college students over a four year period. The criterion used to divide the groups was that of two divergent systems of academic rules and regulations imposed by the institutions themselves. These academic systems had the effect of imposing a specific "treatment" upon each of the two groups, a treatment which was expected to have differential effects upon the academic persistence of low performing students. Persistence was assessed through a comparison of the proportion of students who achieved graduation from each of these community college academic systems. To analyze the ultimate merit of each system, a further comparison was made of the ensuing academic performance in upper division coursework.

Hypotheses

It was hypothesized that there would be no difference between the proportion of low performing students who graduate from community colleges which practice traditional academic regulations, and those which practice pass/no-fail (nonpunitive) academic regulations. The first hypothesis was tested by comparing the proportions of low performing students who achieve graduation from traditional and from nonpunitive institutions. It was designed to answer the following question: Are low performing

community college students more successful academically within the less threatening setting provided by an institution which practices nonpunitive academic regulations?

It was also hypothesized that there would be no difference between the grade point averages earned at senior institutions by low performing students who transfer from traditional community colleges and from community colleges which employ nonpunitive academic practices. The second hypothesis was tested by a comparison of mean grade point averages earned at senior institutions by low performing students who have graduated from traditional and from nonpunitive community colleges. It was designed to answer the following question: Are low performing students who have attended a community college which practices nonpunitive academic regulations as well prepared for upper division course work as those who are products of more traditional community colleges?

It was finally hypothesized that there would be no difference between the grade point averages earned at senior institutions by those students who graduated from nonpunitive community colleges and those who attended traditional community colleges. This hypothesis was tested with a comparison of mean grade point averages earned at senior institutions by those students who transferred from nonpunitive and those from traditional community colleges. It was designed to answer the following question: Are those student transfers from pass/no-fail community colleges as well prepared for upper division course work as those from more traditional community colleges?

Sample

The sample was made up of first year students who initially enrolled in community college for the 1970-71 academic year. None of the institutions from which the subjects were drawn provide housing facilities, hence the vast majority of these students reside at home in the vicinity of the community college. Generally speaking, this sample characterized the overall community college student population, their socioeconomic status and academic credentials averaging somewhat less than their peers who attend a more selective college or university. There was, however, a significant difference in the homogeneity of this and other community college student groups. This was a contrived difference resulting from the following three selection factors:

- (1) The Florida Statewide Test was administered during their senior year in high school (Fall, 1969).
- (2) In a Board of Regents survey, each of these students registered their intent for an extended college career beyond the A.A. degree offered by the community college.
- (3) These students all enrolled as full time students (12 or more credit hours).

The first of the above factors was necessary in order to categorize students as either high or low performing on the basis of a uniform standard. The latter factors were enacted to provide the intended focus for the study, a focus which deals with only full time students whose academic ambitions

are beyond the associate degree offered by the community college.

These constraints eliminated a large portion of community college entrants and served to greatly narrow the limits of the sample as to age and college program. As a consequence, all subjects graduated from high school in 1970, their ages ranging from 18 to 21. Upon entering the community college, due to academic plans for a baccalaureate degree, each enrolled in an A.A. degree program. This and other pertinent information was retrieved from a statewide survey of community college freshmen conducted by the Board of Regents (BOR).

Selection Procedures

Early in the 1970-71 academic year the Board of Regents conducted a survey of all new community college students in the state of Florida. This instrument, entitled "Characteristics of College Students," consisted of 22 questions designed to establish the normative characteristics of Florida's community college population. The sample for this study was drawn from that population.

Four of these schools were selected, and the list of incoming students as surveyed by the BOR was obtained. At this point, the sample looked as follows:

	<u>School Code</u>	<u>School</u>	<u>Location</u>	<u>N</u>
Traditional	332	Lake City	Lake City	160
	410	St. Johns	Palatka	600
<hr/>				
Nonpunitive	386	Polk	Winter Haven	500
	414	Santa Fe	Gainesville	380

Next it was necessary to merge the BOR data with an additional data source in order to add names and Florida Statewide Test scores, two essential items of data which were missing from the BOR file. This new file was made available by the testing division of the University of Florida's office of instructional resources. Through the services of the regional data center, a computer program written in COBOL combined these two files by matching like social security numbers, the only field common to both data sources.

A considerable reduction of N was again anticipated and realized due to the large number of students in the BOR survey file who, for one reason or another, did not take the Florida Statewide Test in the Fall of 1969. In these instances, there would be no record to match up with in the testing divisions file, automatically eliminating these students from further consideration. The final screening yielded the following sample as studied:

<u>School</u>	<u>Location</u>	<u>N</u>
Lake City	Lake City	100
St. Johns	Palatka	325
Santa Fe	Gainesville	100
Polk	Winter Haven	225

This step yielded a report which made it possible to determine for each student, the institution, and hence the academic regulations he will experience in community college. It is also possible to formulate an estimate of his academic skills,

socioeconomic status and future educational plans. Armed with this data it remained only to visit each of the four schools to assess dependent variables, the proportion of students who graduate, and their academic success at their respective senior institutions to which they transferred.

Before the above mentioned visits were made, individual student names were replaced by numeric codes. This step was necessary as a precautionary measure for guaranteeing anonymity and confidentiality of individual subjects. From this point on in the study, a direct use of student names was avoided. After some practice, it was possible to mentally translate back into alphabetic symbols when the need arose.

Data Analysis

Two distinct phases of data analysis were undertaken. The first was designed to compare the proportion of low performing students who achieved graduation from traditional and from nonpunitive community colleges. To do so, contingency tables of traditional and nonpunitive graduates were set up for observed and expected frequencies. The first hypothesis was then subjected to a chi square analysis, based upon these tables.

Chi square was also used to compare mean aptitude as a preliminary to a test of Hypothesis 2. It is used as a control for unexpected differences in the college aptitude of either traditional or nonpunitive samples, a condition which would allow for the occurrence of this misleading bias. Thus, mean Florida Statewide Test scores for these two groups were compared in the event that such meaningful differences were present.

The second phase was concerned with a follow-up analysis of these graduates as they pursued upper division course work at senior institutions. This process began by calculating mean grade point averages of students from traditional and nonpunitive community colleges. The second and third hypotheses were then tested by subjecting these means to Sheffé's method of comparisons, the s-method (Scheffé, 1959).

CHAPTER IV

RESULTS OF ANALYSIS

Chapter IV presents the results of this study. It is divided into a report of the hypotheses investigated, and additional findings. An interpretation and discussion of these findings will be presented in Chapter V.

The Hypotheses Investigated

Hypothesis 1, as stated in null form, predicted that no significant differences would exist between traditional and nonpunitive academic systems in terms of the proportion of low performing students who graduated from them. A chi square analysis rejected this hypothesis. Totals displayed in Table 1 show that nonpunitive institutions graduate a significantly greater proportion of low performing students ($P < .001$). The contingency table used in the calculation of this statistic is found in Appendix A.

Hypothesis 2 is concerned with a follow-up analysis of low performing graduates as to their grade point averages at senior institutions while pursuing upper division course work. A presentation of mean grade point average by institution is found in Table 2.

As stated in null form, Hypothesis 2 predicted that there would be no significant difference between grade point average of low performing students from traditional, and low performing students from nonpunitive, community colleges. The s-method

Table 1
 Frequencies of Low Performing Graduates and Nongraduates

	Traditional		Nonpunitive	
	Grads	Nongrads	Grads	Nongrads
St. Johns	30	111	37	19
Lake City	19	35	54	66
Totals	49	146	91	85
Graduates as percents		25%	52%	

Table 2

Grade Point Averages by Type, School and Level

	Source	Ability Level	Means		Institution Type
			Ability Level	School	
Traditional	St. Johns	High	2.49	2.41	2.45
		Low	2.32		
	Lake City	High	2.82	2.54	
		Low	2.26		
Nonpunitive	Santa Fe	High	2.50	2.55	2.64
		Low	2.58		
	Polk	High	2.84	2.67	
		Low	2.53		

(Scheffé, 1959) was used for making this test by comparing the mean difference in grade point average between the graduates from these two types of institutions. The s-method led to the acceptance of the null hypothesis.

Low performing students from nonpunitive community colleges earned grades equivalent to those of their traditional counterparts. This contrast, based upon the 95 percent confidence interval $-.27$ to $.77$ was found to be not significant. These intervals are considered acceptable for this statistical technique according to Glass and Stanley (1970).

To control for a possible bias in aptitude between these two groups, the s-method was used to compare their mean Florida Twelfth Grade Placement Test scores. This comparison, based upon the 95 percent confidence interval -50.23 to 97.47 (Glass & Stanley, 1970), was also nonsignificant.

Additional Findings

As presented in Table 2, the data allows for two additional comparisons:

(1) The effects of institutional type (traditional/non-punitive) upon the sample as a whole, including students of both aptitude levels. This grouping amounts to a representative cross section of community college students enrolled in college parallel programs.

The s-method was used to test mean grade point averages earned by traditional and nonpunitive graduates in upper division course work. It yielded the 95 percent confidence

interval $-.03$ to $.50$ (Glass & Stanley, 1970), indicative of nonsignificant differences between school types.

The same statistical procedure was used to control for the possibility of an aptitude bias in favor of either traditional or nonpunitive groups. On the basis of Florida Twelfth Grade Placement Test scores, a 95 percent confidence interval of -30.13 to 45.81 was calculated, attributing non-significance to this difference.

(2) The relationship of college aptitude, as measured by the Florida Twelfth Grade Placement Test, to mean grade point average earned for upper division course work. This comparison was made as a check on the validity of the Florida Twelfth Grade Placement Test which was the sole criterion used to classify students as high or low performing, a classification essential to the analysis of Hypothesis 1.

The s-method was again used in making the comparison of mean grade point average between high and low performing students. The 95 percent confidence interval $.06$ to $.51$ indicates a significant difference in grades between these two aptitude classifications. This finding confirmed that the aptitude test had validly predicted the future academic performance of students within the sample.

Further use of the s-method to control for aptitude bias, as in the previous comparisons, yielded the confidence interval 110.63 to 186.54 (Glass & Stanley, 1970) showing anticipated differences in aptitude.

A discussion of the significance and interpretation of these results is presented in the final chapter of the study.

CHAPTER V
DISCUSSION AND INTERPRETATION OF RESULTS

Primary Results

The primary findings reported in Chapter IV bear a certain urgency which cannot be overlooked. As shown in Table 1, traditional community colleges were found to graduate only 25 percent of their low performing students. Apparently, these community colleges, representing a major and growing educational influence, practice academic regulations which are not in the best interest of their students. Theoretically speaking, less punitive academic systems are more compatible with the needs of community college clientele. The significantly greater academic persistence shown in Table 1, by those students studying under nonpunitive academic regulations, lends empirical support to these contentions. Why, then, do these institutions proceed with an academic system suspected of impairing their college transfer programs?

In this author's opinion, it has much to do with the prevalent notion in higher education that a primary task of community colleges is to screen students as "college material," a function of separating the wheat from the chaff. This notion is used to justify both the institution's adherence to academic regulations and the rampant attrition of its students. The problem lies not with the notion itself, but in the strategem for its attainment--the traditional academic system. Use of

this system can be defended only if it works; only if those it graduates are a more select group who excel academically in upper division course work.

The findings of this study clearly threaten such conjecture. In Table 2 a comparison of grade point average by type of institution illustrates that the nonpunitive graduates of this study compare favorably with traditional graduates. The equivalent academic success of these two groups, after transferring to senior institutions, suggests that in the community college setting, punitive academic measures and their resulting selectivity are unnecessary. Evidently, punitive practices discourage large number of students while doing little else.

The foregoing criticism, while of no small consequence, considers only the most tangible injustice of needless punishment. It is far more difficult to estimate the additional grievous effects upon the students' attitudes toward education and their own self worth. These values are likely to accompany the unsuccessful student for a lifetime. Even worse, there is no assurance that such negative feelings will end here, all too often being transmitted to their children. These widespread effects are too high a price to pay, unless profound advantages in traditional community college academic systems can be demonstrated.

Additional Discussion

As shown in Table 1, a significantly greater proportion of low performing students were found to graduate from

nonpunitive than from traditional community colleges. This finding comes as no surprise when considering the probationary regulations as practiced by traditional institutions.

A student attends for a term on probationary status, after which he is denied admission the following term unless his grade point average is raised to this minimum standard. During the period of "forced retirement," students are all too often sidetracked by distracting experiences. In addition, it comes as no surprise that, faced with the decision of returning to school, they experience a propensity for its avoidance as a consequence of past academic disappointments. Thus, even if the option of readmission is made available, a nonacademic alternative too often becomes a forced choice.

Findings as related to grade point average are more difficult to explain. Differences in rate of attrition between nonpunitive and traditional community colleges indicate that the latter graduate more selectively. It follows that those individuals selected, if chosen for their academic prowess, would tally superior academic records after graduation. This anticipated advantage, however, was not to be found. Evidently there are other important factors which contribute to future academic success, e.g., cooperation, inquisitiveness, and motivational qualities which may be inhibited by the threat of punitive measures. Perhaps the selectivity of the more punitive system is too narrow, failing to recognize the value of other worthwhile qualities. The system's misdirected practices result in the discouragement and eventual withdrawal of many competent students.

It is impossible to determine with any conclusiveness the actual reasons for the students' behavior from a study of this type. However, the findings, as presented, are an indication that the academic future of many community college students is being curtailed unnecessarily by the effects of traditional academic regulations.

Suggestions for Further Research

The findings of this study question the efficacy of using traditional academic regulations within the community college setting and suggest a need to refine research. The following modifications in sampling and data gathering techniques are recommended for any further research in this area:

(1) An effort must be made to either control or allow for the occurrence of a grading bias in favor of a particular group within a sample. As a threat to validity, this bias is especially realistic in view of the known aspirational differences between groups with different aptitude levels. In this way, low performing students may be predisposed to select "easier" programs.

The most straightforward technique for controlling the eventuality of a grade bias is that of matching groups for equivalent difficulty, accomplished simply by eliminating students where an imbalance occurs.

(2) All community colleges within this study are under state support and direction, which amounts to a fundamental control of material assets, such as equipment, facilities, and faculty qualifications. In future studies it would be

advantageous to improve control for the equality of such factors which can profoundly effect student persistence.

Unfortunately, there are less tangible factors which are more difficult to control and which may also have a significant effect upon student persistence. In the present study, Santa Fe Community College and the untold effects of its proximity to the University of Florida, are a good case in point. The University of Florida may subtly effect student attitudes at Santa Fe by adding a certain inspiration and challenge. Until these and similar qualities can be examined experimentally, attributing Santa Fe's success with low performing students to its academic system is highly questionable.

(3) In subsequent studies, improved generalizability of findings may be achieved through the inclusion of additional community colleges within a sample. A minimum of four traditional and four nonpunitive institutions should be included. Such an expansion would lend assurance of better representation of each type of institution. It would afford the researcher the opportunity to better identify the uniqueness of each institution with inter-institutional comparisons.

(4) A matched sampling technique is recommended for improving balance within the sample. For example, Santa Fe, the most nonpunitive institution in this study, creates a particular need for such a procedure. To balance the effect of a college like Santa Fe, an institution like Tallahassee Community College, a highly traditional school, is needed.

Also, it is a traditional institution which has a close proximity to a major university as Santa Fe has to the University of Florida.

(5) It is further recommended that consideration of community colleges for future study be expanded to include institutions from various regions of the country. Such an approach would offer two important advantages: (a) due to greater choice, it would be possible to be more selective in choosing institutions for study. The increased standardization as to institutional type, i.e. traditional and nonpunitive, would lend greater assurance that students are exposed to equivalent systems of academic affairs, and (b) choice of institutions from different geographical areas would help to account for the presence of unexpected endemic qualities within the sample.

(6) Finally, in classifying students as high or low performing, it would be preferable to base the decisions upon more than a single index of performance. For example, it would be ideal to consider two or more aptitude measures, as well as grade point average. Such a procedure allows for both different types of aptitude and their day-to-day variance, resulting in a more reliable estimate of student aptitude.

Conclusions

Many educators appear convinced that only a few students can learn what we have to teach, that individual differences totally justify the fact that many do not learn. Their feelings are the antithesis of the community college philosophy based upon the notion that nearly all people are educable, that if given the proper opportunity nearly all can succeed. This community college position is exemplified by their open admission policy and ambition to extend democracy by lengthening equal educational opportunity, a noble quest for any American educational institution. However, both the theoretical and the empirical evidence depicted in this study suggest that the predominant system of academic regulations within these institutions is incompatible with this goal.

Their traditional academic system is fundamentally competitive. Degradation and failure are imposed upon those who achieve the least. These factors have been found especially debilitating to low performing students, a large and important faction within the community college student population.

The adoption of pass/no-fail academic regulations appears to circumvent these problems. As competition and threat of failure are diminished, academic persistence can be seen to increase. While this in itself is commendable, the merit of an academic system cannot be assessed merely in terms of the proportion of students who are able to complete its program of study. It must also be established that these graduates

have benefited from the program and are able to succeed in more advanced academic programs for which they were preparing.

A follow up comparison of mean grade point averages was quite revealing. Transfers from less academically threatening community colleges equalled the grade point averages earned by their contemporaries from traditional institutions. Evidently, academic progress of community college students in academic programs is enhanced by nonthreatening academic regulations, both in terms of persistence and scholarship.

Thus, it is determined that nonthreatening community colleges not only graduate a larger proportion of their entrants, but also do a commendable job in preparing them for future academic endeavors. When inductively combined, these facts tell us that the community college which minimizes academic threat is a greater asset to both its students and the community which it serves. These findings convey the need for revising traditional community college academic regulations. It is the author's hope that the urgency of this message will at least promote additional interest and research, if not actual reform.

Appendix A

Observed and Expected Frequencies
of Low Performing Graduates and Nongraduates

Academic Regulations	<u>Observed</u>		Totals	<u>Expected</u>		Totals
	Grads	Nongrads		Grads	Nongrads	
Traditional	49	146	195	73.6	121.4	195
Pass/No-fail	91	85	176	66.4	109.6	176
Totals	140	231	371	140.0	231.0	371

$\chi^2 = 17.92$
df = 1; $p < .001$

Appendix B

Contrasted Differences Among
Means by Type and Level

Source	traditional high performing 2.89	non punitive high performing 2.60	non punitive low performing 2.55	traditional low performing 2.30
traditional high performing 2.89	-----	.29	.34	.59
non punitive high performing 2.60		-----	.05	.30
non punitive low performing 2.55			-----	.25
traditional low performing 2.30				-----

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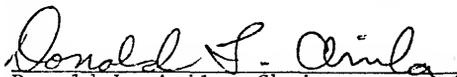
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BIOGRAPHICAL SKETCH

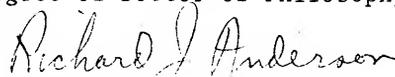
Hugh Alan Johnston was born March 28, 1939, in Cincinnati, Ohio. At three years of age, he moved with his parents to northern Virginia, where he attended Fairfax County public schools. After graduation from high school in 1956, he served in the U. S. Navy for two years before enrolling as an undergraduate biology student at Trinity University, San Antonio, Texas. Receiving his Bachelor of Science degree in 1964, he spent the next three years programming computers as a civilian employee of the Army and for General Electric. In January, 1967, he returned to school at the University of Virginia in Charlottesville. There, he completed the M.Ed. degree in Educational Psychology in June, 1969. At that time, he assumed a position at Indian River Community College in Fort Pierce, Florida, where he taught computer science and psychology. Then, in 1972, he enrolled at the University of Florida as a doctoral student in Foundations of Education. There he worked as a graduate assistant while working towards a Ph.D. in Educational Psychology.

In 1965 he married the former Janis Neville. They have three children, Todd, Amy and Jill.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Donald L. Avila, Chairman
Professor of Education

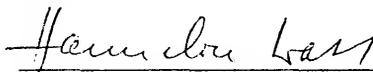
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Richard J. Anderson
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

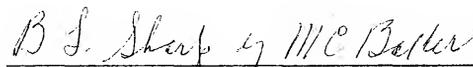

Vynce A. Hines
Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Hannelore L. Wass
Professor of Education

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1975


Dean, College of Education

Dean, Graduate School