

LOCUS OF CONTROL AND ACADEMIC ACHIEVEMENT
IN ASSOCIATE DEGREE NURSING STUDENTS

A THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF NURSING

BY
JENA B. HOWELL, R.N., B.S.

DENTON, TEXAS

MAY 1981

ACKNOWLEDGEMENTS

The author wishes to express heartfelt gratitude and appreciation for the support and guidance from many friends. My fellow co-workers, Jan Armstrong, Shirley Finn, and Linda Arnold have been exceptionally patient through many hectic days.

My appreciation for my parents who have always believed in my potential and given freely of their love. During the writing of this thesis, my daddy left this world for another. In his loving memory, I dedicate this thesis to James M. Stone.

Special thanks is also due to Beth Vaughan-Wrobel, chairperson, and committee members, Pat Kurtz and Margie Johnson, who made many valuable suggestions and added polish to the final product. Also to be included in this thanks are my classmates who were always overtly concerned about my welfare.

Finally, but certainly not least, my husband and three children gave their assistance, encouragement, and most of all their love. I am very proud to be wife and mother to these very special people.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
Chapter	
1. INTRODUCTION	1
Problem of Study	3
Justification of Problem	3
Theoretical Framework	6
Assumptions	9
Hypotheses	9
Definition of Terms	10
Limitations	12
Summary	12
2. REVIEW OF LITERATURE	14
Overview of Social Learning Theory	14
Internal-External Locus of Control	18
Student Characteristics and Academic Achievement in Nursing	31
Summary	38
3. PROCEDURE FOR COLLECTION AND TREATMENT OF DATA	40
Setting	40
Population and Sample	41
Protection of Human Subjects	41
Instrument	42

Chapter	Page
Validity	43
Reliability	45
Data Collection	46
Treatment of Data	46
4. ANALYSIS OF DATA	48
Description of Sample	48
Findings	48
Additional Findings	52
Summary of Findings	54
5. SUMMARY OF THE STUDY	56
Summary	56
Discussion of the Findings	60
Conclusions and Implications	63
Recommendations for Further Study	63
APPENDIX A	65
APPENDIX B	68
APPENDIX C	70
APPENDIX D	72
APPENDIX E	75
REFERENCES CITED	77

LIST OF TABLES

Table	Page
1. Students' LOC Scores in Relationship to Successful Completion of Nursing Courses in the First Year of the Nursing Program	53
2. Students' LOC Scores in Relationship to Successful Completion of Non-Nursing Courses in the First Year of the Nursing Program	54

CHAPTER 1

INTRODUCTION

The number of people entering the nursing profession has increased during the past 10 years. Greater emphasis on preventive medicine and rehabilitation, rapid advances in medicine, and the expansion of health care services have contributed to this growth. Although the number of nurses employed has moved upward, a shortage continues. The need for qualified nurses grows particularly acute in rural areas and in the inner cities according to reports presented at the National League for Nursing Convention in 1979 (Lewis, 1979).

Schools of nursing are challenged to find the most effective means of selecting and educating promising students to fill positions awaiting them upon graduation. A second challenge facing institutions that prepare nurses is the high attrition or drop-out rate. A high attrition rate poses a distinct problem as most nursing programs have more applicants than available positions. An admitted student who is unable or unwilling to complete the program occupies a position which was denied another applicant who possibly would have succeeded. Therefore, a

high attrition rate in a nursing school is both costly and wasteful for the students, the faculty, the institutions, and society. The need to determine factors capable of identifying those who will, or will not, continue in a nursing program is a crucial one. Both of these problems provide a challenge to administrators, counselors, and teachers of nursing education.

A review of the literature of the selection criteria which identifies those students that would predict academic success suggested that little attention had been given to the non-cognitive attributes which include measures of the individual's value system, social orientation, and personality. This study will investigate the personality variable, locus of control. Locus of control relates to the student's belief in his control of perceived events in his life. The student's belief in his control of perceived events in his life may be a possible factor for students' academic success or academic failure in a nursing program. Thus, it becomes important and appropriate to measure the personality variable, locus of control, and to identify its relationship and academic success in the first year of a nursing program.

Problem of Study

The problem of this study was:

Is there a significant relationship between locus of control scores of beginning associate degree nursing students and academic achievement in nursing and non-nursing courses upon successful completion of the first program year?

Justification of Problem

Administrators, counselors, and teachers in associate degree nursing education are faced with the challenge to increase the percentage of nursing students who successfully complete their training. This challenge indicates that some means of early identification of the potential dropout, or non-persister, is needed. According to Knopke (1979) in his study to predict student attrition at the University of Wisconsin, Madison School of Nursing,

little research has been conducted in nursing education or in higher education attempting to predict the probable attrition to students in undergraduate programs. (p. 226)

Numerous studies, including those reported by Bean and Covert (1973), Costello (1974), Jones (1975), and Rose (1965) have examined selection procedures which would identify those who will successfully complete an associate degree nursing program. The selection criteria

as reported by these studies focused primarily on cognitive performance such as academic ability tests, college entrance examinations, and high school grades as the most reliable predictors for academic success in higher education. Yet, Schwirian (1976) found that academic difficulty or failure accounts for less than one-half of the attrition in nursing programs. In a national survey of schools of nursing, Schwirian discovered that little attention had been given to the non-cognitive attributes of personality, attitudes, and cultural variables.

Gordon (1977) used the social learning theory as the basis for an investigation of internal-external control and self-esteem as related to academic achievement. The basic purpose of Gordon's study was to investigate the hypothesis that an internal locus of control orientation would be found more often among high-achieving children, and that these children would also have higher self-esteem than children with an external orientation. A sample of 113 fourth grade, elementary school children from the outskirts of a large metropolitan Southeastern city was used. The school from which the sample was selected served a lower-middle to upper-middle class population.

The racial composition of Gordon's (1977) sample was approximately 10% black and 90% white. The mean age of the 60 males and 53 females was 10.0 years. Self-concept was assessed by the Piers-Harris Children's Self-Concept Test. Locus of control orientation was measured by the Nowicki-Strickland Locus of Control Scale for Children. Both of these tests were administered to subjects during the school day in their classrooms in groups of 25-30. Academic measures were the Iowa Test of Basic skills, which included language, math, and composite scores. The study also considered grade point average from the previous report card period and effort ratings.

Gordon (1977) found the predicted relationships between internal locus of control and greater academic achievement and between high self-esteem and greater academic achievement. Children with an internal locus of control were likely to possess high self-esteem. Academic achievement, as measured by grades or achievement test scores, could be predicted equally well by knowing a child's self-esteem score or locus of control score. These personality variables were found to be related to achievement independently of their relationship to each other (Gordon, 1977).

The relationship between locus of control and academic achievement may be a significant factor to assist nursing educators and counselors to facilitate successful performance for nursing students. The knowledge gained from the study may assist nursing educators and counselors to understand how students' beliefs about themselves and the causes of events in their lives are reflected in successful performance and persistence during the first year of nursing in a community college associate degree nursing program. The criteria for predicting attrition can be used for future curriculum development, recruitment of students, personal and vocational counseling, and teacher-student understanding. Knowledge gained from the study could be used further in assisting students in selection of remedial or tutorial opportunities, or re-examination of career choice.

Theoretical Framework

In recent years research in a number of disciplines, including nursing, has demonstrated the importance of the concept of internal-external control. Rotter (1954) a psychologist, originally developed the social learning theory. A key concept in the social learning theory

is locus of control, which is conceptualized as the extent to which persons perceive contingency relationships between their actions and their outcomes (Rotter, 1966). People who believe they have some control over their destinies are called "internals." "Externals" on the other hand, believe that their outcomes are determined by agents or factors extrinsic to themselves, for example by fate, luck, chance, powerful others, or the unpredictable. The two review articles on internal-external control (Lefcourt, 1966; Rotter, 1966) have shown that when a person believes that reinforcements are controlled by internal rather than external forces, he is likely to make greater attempts at mastering the environment, to be more resistant to influence attempts by others, yet more effective in attempts to influence others; to prefer high probability choices in risk-taking behaviors; to be lower in anxiety and higher in achievement orientation; to act more responsively to probability changes in the situation; to place higher value on skills determined rewards; and to be more involved in social action.

In Rotter's social learning theory, the potential for any behavior to occur in a given situation is a function of the person's expectancy that the given behavior will secure the available reinforcement, and the value

of the available reinforcement for that person. In a particular situation, the individual, though desirous of an available goal, may believe that he does not have the behavior available that will allow him to be effective in securing the goal. Within this specific situation, the person may be described as anticipating no contingency between any effort on his part and the end results in the situation. This description of an external-control expectancy can be seen as applicable in many events in most person's lives. In Rotter's theory, the control construct is considered a generalized expectancy, operating across a large number of situations, which relates to whether or not the individual possesses or lacks power over what happens to him (Rotter, 1954).

The goal for the nursing student is to successfully complete the nursing program. The nursing student that is described as "external" may not have the potential expectancy behavior to secure the available reinforcement, and the value of the available reinforcements to allow him to achieve academic success. Therefore, Rotter's social learning theory would indicate the higher the degree of externality, the lower the grade point average possibility will be for the nursing students.

Assumptions

Based on the theoretical framework, the following assumptions were relevant to this study.

1. The locus of control is predictive of behavior.
2. People who believe they have some control over their destinies are perceived to have a locus of control contingency toward being "internal."
3. People who believe that their outcomes are determined by agents or factors extrinsic to themselves, for example by fate, luck, chance, powerful others, or the unpredictable are perceived to have a locus of control contingency toward being "external."
4. The potential for any behavior to occur in a given situation is a function of the person's expectancy that the given behavior is to secure the available reinforcement, and the value of the available reinforcements for that person.

Hypotheses

The specific hypotheses for the present study were:

1. As locus of control (LOC) scores on the Adult Nowicki-Strickland Internal-External Opinion Survey received at the beginning of course work of associate degree

nursing students increase*, grade point average in nursing courses earned by the end of the first program year will decrease.

2. As locus of control scores received at the beginning of course work of associate degree nursing students increase, grade point average in non-nursing courses earned by the end of the first program year will decrease.

3. As locus of control scores received at the beginning of course work of associate degree nursing students decrease*, grade point average in nursing courses earned by the end of the first program year will increase.

4. As locus of control scores received at the beginning of course work of associate degree nursing students decrease, grade point average in non-nursing courses earned by the end of the first program year will increase.

Definition of Terms

The following terms were operationally defined:

1. Associate Degree Nursing (ADN) program--a two-year course which provides a general education combined

*high LOC score indicates the person's degree of externality, low LOC score indicates the person's degree of internality.

with nursing education, instruction, and coordinated clinical experience in the nursing care of patients at hospitals and community agencies.

2. Locus of control--the perceived origin of the events of one's life. Individuals with an internal locus of control perceive themselves as being responsible for those events, while those with an external locus of control see themselves as being the victims of fate and governed by circumstances beyond their control. Locus of control was measured by the score received on the Adult Nowicki-Strickland Internal-External Opinion Survey (ANS-IE) test; the higher the score the more external controlled.

3. Successful completion of the first year of the community college nursing program--the student who has been enrolled for 12 or more hours each semester for 2 consecutive semesters during the regular school year and who has maintained a cumulative grade point average of 2.0 with 4.0 being the maximum score possible.

4. Grades in nursing course--average of grades received in courses carrying a nursing number.

5. Grades in non-nursing courses--average of grades received in non-nursing courses that are required to meet the ADN degree plan.

Limitations

The limitations which might have influenced the conclusions of the study were:

1. This study was limited in that such factors as age, marital status, previous nursing experience, high school grades, college entrance test scores, family income, employment status, and/or the number of children that the student was responsible for care may have varied among the subjects.

2. The population was limited to the number of students that were admitted and enrolled in the nursing program for the 1979-1980 academic year.

Summary

Nursing programs are endeavoring to find the most effective means of selecting and educating promising students to fill positions in the health care fields. Nursing programs are faced with a high attrition rate during the first year of study. A number of studies have been reported which focus primarily on cognitive factors such as high school grades, scores on academic ability tests, and college entrance examinations to provide reliable predictors for academic success in higher education. Even with these predictors, the problem of

unsuccessful academic achievement still persists. One major area that has not been thoroughly researched concerns the noncognitive attribute of personality, locus of control. Locus of control is a key concept of Rotter's social learning theory.

Thus, the purpose of this study was to describe the relationship of locus of control and academic achievement after the first year of study in an associate degree nursing program. Locus of control was measured at the beginning of the students' first year of study by the Adult Nowicki-Strickland Internal-External Opinion Survey Test. Academic achievement was measured by the students' grade point average in nursing and non-nursing courses at the completion of the first year of the nursing program.

CHAPTER 2

REVIEW OF LITERATURE

This chapter will consist of three sections. The first section will present a review of the literature related to social learning theory. The second section will focus upon the review of the construct of internal-external locus of control. Studies pertaining to the relationship of locus of control and academic achievement will be reviewed. The last section will be a review of studies related to student characteristics and academic achievement in nursing.

Overview of Social Learning Theory

Social learning theory was introduced by Rotter (1954) as a theory of personality. It is a social learning theory because it stresses the fact that the major or basic modes of behaving are learned in social situations and are inextricably fused with needs requiring for their satisfaction the mediation of other persons (Rotter, 1954). In an attempt to develop a systematic framework, Rotter stated seven basic postulates. These postulates as given by Rotter (1954) were:

1. The unit of investigation for the study of personality is the interaction of the individual and his meaningful environment.

2. Personality constructs are not dependent for explanation upon constructs in any other field (including physiology, biology, or neurology). Scientific constructs for one mode of description should be consistent with constructs in any other field of science, but no hierarchy of dependency exists among them.

3. Behavior as described by personality constructs takes place in space and time and may be described by physical and psychological constructs.

4. Not all behavior of an organism may be usefully described with personality constructs. Behavior that may usefully be described by personality constructs appears in complexity and a particular level or stage of complexity and a particular level or stage of development.

5. A person's experiences (or his interactions with his meaningful environment) influence each other. Otherwise stated, personality has unity. New experiences are a partial function of acquired meanings, and old acquired meanings or learnings are changed by new experiences. Perfect prediction of acquired behavior would

ideally require a complete knowledge of previous experience.

6. Behavior as described by personality constructs has a directional aspect. It may be said to be goal-directed. The directional aspect of behavior is inferred from the effect of reinforcing conditions.

7. The occurrence of a behavior of a person is determined not only by the nature or importance of goals or reinforcements but also by the person's anticipation of expectancy that these goals will occur. Such expectations are determined by previous experience and can be quantified.

There are four basic concepts in the social learning theory with predicting behavior. These are behavior potential, expectancy, reinforcement value, and psychological situation. Rotter, Chance, and Phares (1972) defined these as follows:

Behavior potential--the potentiality of any behavior occurring in any given situation as calculated in relation to any single reinforcement or set of reinforcements. (p. 12)

Expectancy--the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations. (p. 12).

Reinforcements value (of external reinforcements) is the degree of the person's preference for that reinforcement to occur if the possibilities of occurrence of all alternatives were equal. Rotter et al. (1972) combined these four concepts in a formula which is designed to predict behavior. The formula states:

$$BP_{x_1s_1}, R_a = f(E_x, R_a S_1 \text{ \& } RV_{as_1})$$

The potential for behavior x to occur, in situation 1 in relation to reinforcement a, is a function of reinforcement a, following behavior x in situation 1, and the value of reinforcement a in situation 1 (Rotter et al., 1972). The formula and four concepts are seen as being interrelated. A function of expectancy and reinforcement value is the behavior potential for the individual. As expectancies and reinforcement change, behavior potential is altered. The construct is viewed as a dynamic process. The behavior potential in Social Learning Theory is a broad concept which may be directly observed or indirect and implicit (Rotter et al., 1972).

Social learning theory distinguishes between internal and external reinforcements. Internal reinforcement is defined as a "person's experience, or perception that an event has occurred which has some value for him" (Rotter

et al., 1972, p. 17). External reinforcements are "occurrences of events or outcomes known to have predictive reinforcement value for a group or culture to which the person belongs" (Rotter et al., 1972, p. 17). Reinforcement may change in different situations; however, reinforcement values frequently "have considerable stability across both situation and time" (Rotter et al., 1972, p. 18). Reinforcement may be negative or positive. According to Rotter (1975), the important or crucial determinants of behavior are determined by

the nature of the reinforcement itself, whether positive or negative; the past history, sequence, and patterning of such reinforcements; and the value attached to the reinforcement. (p. 75)

A key construct of Rotter's (1975) social learning theory is locus of control. This construct was not specifically defined in Rotter's literature of 1954, but has become increasingly important with the social learning theory (Joe, 1971; Lefcourt, 1966; Rotter, 1966).

Internal-External Locus of Control

The locus of control construct is derived from Rotter's (1954) social learning theory. The popularity of the construct has been credited to two of Rotter's students who developed scales for its measurement as an

intrapersonal variable (James, 1957; Lefcourt, 1966) and named the construct "internal-external locus of control" (James, 1957).

Rotter's concept of internal-external control of reinforcement described the degree to which an individual believes that reinforcements are contingent upon his own behavior (Joe, 1971). Depending on past reinforcement experiences, a person will have developed a consistent attitude toward either an internal or external locus as the source of reinforcement (Joe, 1971; Lefcourt, 1966; Rotter, 1966). According to the literature, external control refers to individuals who believe that reinforcements are not under their personal control but rather are under the control of powerful others, luck, chance, or fate. Internal control refers to individuals who believe that reinforcements are contingent upon their own behavior, capacities, or attributes (Joe, 1971).

Rotter (1966) hypothesized that internals would show more overt striving for achievement than externals who feel that they have little control over their rewards and punishments. Earlier studies have shown that internals spend more time in intellectual activities, exhibited more interest in academic pursuits, and scored

higher on intelligence tests and other academic tests than did externals (Joe, 1971).

Butterfield (1964) explored the relationship between locus of control and academic aspirations and expectations of 47 college students enrolled in an introductory psychology course. Subjects were given the Liverant Locus of Control Scale, a 60-item forced-choice test consisting of an internal statement paired with an external statement. Scores from this test were compared with the item of Alpert-Haber Scale, the Child-Waterhouse Frustration Reaction Scale, and the Wechsler Adult Intelligence Scale.

With regard to academic aspirations and achievements, the findings indicated that internally controlled individuals were less willing than the externally controlled individuals to settle for lower grades and actually made higher grades. These results suggested that internals were more inner-directed and independent, studying primarily those things which they regarded as interesting and important. Externals were viewed as being more other-directed and dependent, studying mostly those things which others, e.g., teachers regarded as important.

Battle (1966) studied prediction of performance in junior high school students. The purpose of the investigation was to determine if knowledge of students' expectations, standards, and attainment values enabled one to predict individual achievement performance. The results indicated that the higher the minimal goal (grades expected) set by the student, the higher the grade he achieved.

Feather (1968) replicated two earlier studies, which investigated the effects of prior success or failure upon expectations for subsequent performance. Sixty subjects (24 males, 36 females) were ranked high in internal control (IC) or high in external control (EC), according to scores on the Rotter Internal-External (I-E) Scale. The I-E Scale is a 29-item forced-choice test. Approximately 4 weeks after completing the I-E Scale, students were given a test consisting of 15 anagrams and were asked to provide confidence ratings before completing each item. One-half of the subjects failed to answer correctly the first five times; half of the subjects succeeded at the first five items. A post-performance questionnaire was answered after completion of all 15 anagrams. Subjects were asked how anxious they felt during the task performance, the stage

of performance at which they experienced the most anxiety, and how disappointed they felt about their task performance.

Results of the study conducted by Feather (1968) supported previous findings:

1. Subjects who succeeded on the first five items of the test obtained higher subsequent performance scores ($\bar{M} = 4.57$) than subjects who failed on the first five test items ($\bar{M} = 3.47$).

2. Confidence ratings were lower when there was initial failure ($\bar{M} = .18$) than when there was initial success ($\bar{M} = .61$).

3. Internal control individuals made a greater number of changes in their confidence ratings following success or failure than did external control subjects.

4. Subjects who showed greater changes in confidence ratings following either success or failure on the first five anagrams performed better than those who showed smaller changes in confidence.

McGhee and Crandall (1968), in two separate studies, each using subjects ranging from elementary through high school grades ($n = 923$, $n = 134$), studied beliefs in internal-external control of reinforcements and academic performance. Subjects were given the Intellectual

Achievement Responsibility (IAR) questionnaire, a tool devised to assess belief in internal-external responsibility for reinforcements in intellectual-academic achievement situations. The scale gave two subscores, one for belief in internal responsibility for success (1+), the other for internal responsibility for failures (1-). The two scores may be added (1_{tot}) to indicate a general indication of internal beliefs in responsibility for intellectual-academic performance. Performance was measured by course grades and achievement tests.

The study by McGhee and Crandall (1968) indicated that children in both samples who were "highly internal on either IAR subscore or the total test score consistently attain higher academic performance scores" (p. 98). Sex-related differences in expectations were also noted. Girls' performance scores were positively related to belief in responsibility for success and failure, while boys' performance scores were positively related to belief in responsibility for failure. They suggested that a boy's belief that he is responsible for his own academic-intellectual failures may be a greater motivation for academic effort than the positive anticipation of doing well.

Lao (1970) found both internality and externality demonstrated in a study of Negro youth. The subjects consisted of 1,493 male students enrolled in 10 Negro colleges in the deep South. The study was designed as both cross-sectional and longitudinal. In the longitudinal study, freshmen students were tested at the beginning of the freshman year and again at the conclusion of the year. Data on students' college entrance examination scores and grade point averages in college were obtained from college records. Questionnaire data included information on students' backgrounds, college experience, general attitudes, motivational patterns, future life plans, and an anagrams test. Subjects were administered an extended I-E Scale, consisting of all but two items on the original Rotter I-E Scale, three times from the Personal Efficacy Scale developed at the University of Michigan, and 14 Rotter-type items which dealt specifically with the racial situation.

The results of Lao's (1970) study revealed internal belief in personal control to be positively related to general competence. Students who demonstrated higher personal control obtained higher entrance test scores than those who had lower personal control ($F = 18.87$, $df = 1/214$, $p < .01$). A similar relationship was found

between personal control and grade point averages; students with higher personal control had higher grades ($F = 4.67$, $df = 1/309$, $p < .05$). Results on the anagrams test also demonstrated the dominant effect of personal control ($F = 12.42$, $df = 1/347$, $p < .001$). A second finding indicated that with external belief that the social system was responsible for Negro disadvantages, was positively related to innovative behavior. Subjects who attributed the problems of Negroes to practices of discrimination within the system participated in more civil rights activities than subjects who blamed Negro problems on personal inadequacies ($F = 6.66$, $df = 1/422$, $p < .05$).

Nowicki and Roundtree (1971) assessed the relationship between locus of control and school achievement, popularity, involvement in extracurricular activities, family ordinal position, and intelligence quotient. The Adult Nowicki-Strickland Scale was administered to 87 twelfth graders, a measure of generalized expectancy of reinforcement.

Significant findings in the study were:

1. Internal males achieved higher scores on California Achievement Tests.

2. Internal males received more votes for class president.

3. The further one moved from the family position of firstborn, the more likely he was to be externally controlled, if male, or internally controlled, if female.

4. Internal females were involved in more extra-curricular activities.

Chance (1972) found that the motivation to do well in early grades was positively related to maternal expectancies for academic achievement. Chance (1972) described "the child with strong generalized expectancy for internal control of academic reinforcers as one who achieves well" (p. 178). These findings support Rotter's (1966) prediction that individuals who scored low on the I-E Scale (i.e., internals) would make greater efforts to achieve academic success. Rotter's hypothesis was also supported by Rotter and Mulry (1965) and by Crandall, Crandall, and Katkovsky (1965). Messer (1972), while controlling the variables of intelligence quotient and cognitive impulsivity, found that internals have higher grades and achievement test scores than externals.

Studies conducted by Eisenman and Platt (1968), Hjelle (1970), and Prociuk and Breen (1973) failed to

find a relationship between I-E scales and grades.

Eisenman and Platt (1968) studied the relationship to internal-external control to grades. The sample was 131 students at the University of Georgia. Correlation of data revealed "no relationship between the I-E Scale scores and grades" (Eisenman & Platt, 1968, p. 282). Students viewed grades as the means of obtaining achievement; recognition was more important than the grade itself.

Hjelle (1970) predicted that internally controlled students would obtain significantly higher quality point averages (QPA) than would externally controlled students. The I-E Scale was given to 438 students at Villanova University. From the total number of subjects, 41 students who scored on the external end of the scale (18-23) and 98 students who scored on the internal end (0-9) were chosen. Scores for these students were compared with their individual quality point averages. Internals and externals were assigned to one of three QPA categories 3.00 to 4.00; 2.00 to 2.99; 1.00 to 1.99. The findings of the study did not describe a significant relationship between the quality point averages and the I-E scores of the students.

Two possible explanations for the lack of relationship were given by Hjelle (1970). First, many college students who were initially highly competitive "may have arrived at an external view of the world as a defense against failure" (Hjelle, 1970, p. 326). "Second, the I-E dimension is probably not generalizable across situations" (Hjelle, 1970, p. 326). These students would be expected to maintain a high achievement motivation, but would explain failure in terms of external attitudes.

A study by Naditch (1976) confirmed the interaction between interest value and locus of control and competence. Naditch (1976) assumed that "locus of control should relate to competence only in areas that are important to that person" (p. 138). To test this assumption, Naditch (1976) used a sample of over 300 school children to obtain self-reported measures of competence in four areas, assessments of interest in each area, national battery test scores, grade point averages, and scores on the I-E Scale. The four areas of competence were school achievement, social popularity, sports achievement, and achievement at home-related tasks.

Significant correlations between locus of control and self-reported academic competence, national battery test scores, and grade point averages were found among

male students in the top one-third of interest distribution, but not for those in the lower two-thirds. In all four areas of competence, male students who valued success in individual areas, demonstrated a high degree of correlation between locus of control and competence areas. The findings with female students were not the same as those with males. Lefcourt (cited in Naditch, 1976) attributed this discrepancy to the lack of a specific locus of control measure.

Prociuk and Breen (1973) developed and used the Academic Internal-External Control Scale for their study. They hypothesized that internals would be more successful academically than externals. Eighty-seven college students were administered the I-E Scale, Achievement Anxiety Test, and the Academic I-E Scale. The correlates obtained failed to support the hypothesis. The researchers attempted to explain this failure by speculating that the Academic I-E Scale "did not . . . adequately discriminate between internals and externals in terms of their academic performance" (Prociuk & Breen, 1973, p. 566).

Daniels and Stevens (1976) used the Rotter I-E Scale and posttests to determine the effects of two methods of instruction. The I-E Scale was used to

classify 68 students as internal or external. Half of the students (external) were given traditional teacher-controlled instruction, while the other half of the students were given a contract-for-grade plan. At the end of the 8-week program in introductory psychology class, a 75-item posttest was administered to all students. Internals were observed to perform better under a contract plan; while externals performed better under a teacher-controlled method.

Baron, Cowan, Ganz, and McDonald (1974) studied the relationship between locus of control and feedback with achievement. Two separate studies were investigated. One study used lower-class black and white students of ghetto origin, while the second study used college students from middle class backgrounds. Intrinsic feedback was directly related to superior performance of internals over externals while extrinsic feedback was related to superior performance of externals. This interaction was found to have considerable generality across (a) a variety of independent and dependent variable operations involving increasingly complex and abstract procedures, (b) wide differences in age of subjects, and (c) differences in social class.

In reviewing the research pertaining to locus of control and achievement, MacDonald (1971) pointed out that "all of the research points to the same conclusion: people are handicapped by external locus of control orientations" (p. 44). The prevailing belief is that it is desirable to change people, especially those who are not doing well in our society, in the direction of internality.

Student Characteristics and Academic Achievement in Nursing

This section of the review of literature will give a review of the student characteristics in associate degree nursing (ADN) programs. The relationship of these characteristics and successful academic achievement will be presented from the number of studies available.

Associate degree nursing programs in community colleges have opened the door to students of widely divergent backgrounds and life experiences. This is in contrast to a decade ago when the "typical" nursing student could be described with relative ease as a single female, under 21 years of age, who possessed personality characteristics quite similar to those of her classmates (Reece, 1961).

Fererichs (1972) studied selected characteristics of associate degree nursing students in 22 Illinois community college programs. The student characteristics evident were:

slightly over half of the women students were married; ages ranged from 18 to 58 years; approximately one-half were 24 years of age or older; and almost 10 percent of the students were licensed practical nurses.
(Fererichs, 1972, p. 350)

The literature indicates a paucity of studies of any segment of the mature college student group. Furthermore, personality and attitudinal variables are studied with much less frequency than those which focused on academic achievement. The evidence reported indicates conflicting results pertaining to the characteristics of the mature students. Knoell and Mesker (cited in Fererichs, 1972) reported that older undergraduate students maintained a higher degree of persistence and were more likely to graduate than their younger classmates. Supporting these findings, Atwood and Ellis (1971) found that mature students have strong personal needs which helped them return to school. This inner drive may be the factor that helps them to share greater achievement than younger students was supported by Chapman (cited in Fererichs, 1972). Zahn (cited in

Fererichs, 1972), however, found that the older students had greater difficulty in accepting new evidence that conflicted with deeply held beliefs.

In a study of 1,435 associate degree nursing students, in 22 Illinois community college programs, it was hypothesized that self-esteem and internal-external scores, respectively, would not differ among the ADN subjects on the basis of the age, marital status, or nursing experience factors (Fererichs, 1972). The instruments used were the Self-Esteem Inventory Scale, Internal versus External Control of Reinforcement Scale, and a personal data sheet. Married students were found to have higher self-esteem levels ($p < .01$) and to be more internally controlled ($p < .01$) than their unmarried classmates. Students at least 23 years of age, when compared to their younger counterparts, were also found to be more internally controlled ($p < .05$).

Moses (1977) investigated selected variables which might be used as indicators of success or failure of students in an associate degree nursing program. Indicators were identified from the California Psychological Inventory, Strong Vocational Interest Blank, Tennessee Self-Concept Scale, American College Test composite scores, grade point average, age, sex, and data from

personal interviews. The subjects were 119 entering freshman associate degree nursing students.

The conclusions resulting from the findings based on the indicators from the California Psychological Inventory, Strong Vocational Interest Blank, Tennessee Self-Concept Scale, American College Test scores, grade point average, age, sex, and data from personal interviews in Moses' (1977) study were:

1. Grade point average and American College Test composite scores can be used as predictors of success.
2. The personality scale Responsibility can identify a conscientious person, a characteristic needed for success.
3. The personality scales of Achievement via Independence and Intellectual Efficiency may well indicate the maturity, intelligence, and thinking processes necessary for success.
4. The scores of Self-Criticism and Defensive Positive scales were statistically significant. The successful group had high scores in self-criticism which indicates a normal, healthy openness, and capacity for self-criticism. The dropout group scored higher on the Defensive Positive scale which indicates a positive self-description stemming from defense distortion.

5. The basic interest scales involving biological, medical, and social sciences indicated a higher interest rate in the successful group.

6. The occupational interest scales relating to registered nursing indicates possible success for a student in the first year of a nursing program.

7. The occupational interest scales relating to occupational therapist, medical technologist, physical therapist, radiologic technologist, and elementary teacher indicate interests like those of nursing students.

8. Academic failure, lack of motivation, and family responsibilities were the major reasons cited for dropping out of an associate degree nursing program.

Wittmeyer, Comiscioni, and Purdy (1971) investigated attrition and academic performance in a collegiate nursing program. For this purpose, a longitudinal study was conducted of 119 students at Ohio State University School of Nursing. Predictor variables used were the American College Test Battery, the Myers-Briggs Type Indicator, the 16 Personality Factor Inventory, and the Pre-nursing Point-Hour Ratio. The findings indicated that inclusion of personality variables enhanced the ability to predict student performance in nursing. Of

the variables studied, Pre-nursing Point-Hour Ratio was found to be the best predictor of academic performance.

A causal model of nursing education and State Board Exam scores was developed by Wolfle and Bryant (1978). Wolfle and Bryant suggested that the link between National League for Nursing (NLN) scores and State Board Exam results was only one in a network of causal relationships. The researchers compared high school achievement test scores, college entrance examination results, NLN achievement test scores, and grade point averages ($\underline{n} = 121$). Causal models of performance in each of the five State Board Exam areas were developed and evaluated. Findings indicated

high ability and a good overall academic record were as important predictors of State Board Exam performance as was an ability to score well on the NLN. (Wolfle and Bryant, 1978, p. 315)

Reed and Feldhusen (1972) examined the value of predictors of success on State Board Exam tests. Two samples of nursing students from five associate degree programs were studied. Each sample consisted of two groups. One group was used to predict the criterion of State Board Exam completion ($\underline{n} = 367$, $\underline{n} = 155$). The other group was used to predict State Board Exam scores ($\underline{n} = 179$, $\underline{n} = 75$). A battery of 26 predictor variables

was used to determine students' potential on State Board Exams. The results supported earlier findings by Owen and Feldhusen (1970) that inclusion of grade point averages in prediction batteries resulted in higher multiple correlations, less shrinkage in cross validation, and smaller standard errors of estimate.

Malarkey (1979) cited several reasons why women over 25 years of age decide on nursing as their career choice. The reasons given for resumption of education include: the availability of college, the changing image of women in today's society, personal growth or fulfillment, the need to enter the job market in meaningful employment, preparing for life after the children are grown, and a long-standing desire "to be a nurse." As assets, the older student is highly motivated, more mature in judgment, and has already gained wisdom through life experience. The older student may also be burdened with unresolved fears, conflicts, and needs which hinder learning. Many older students are married with family responsibilities; others may be divorced and seeking means to support their children. There may be children at home of varying ages from infant to college age. There may be a need for special arrangements of preschool children while mother goes to school. The older student may also

have to juggle family responsibilities, school, and work outside of the home. Some older students may bring with her the fears, doubts, and inadequacies of earlier schooling. Some of the older students interviewed by Malarkey (1979) expressed initially fear of failure and some strong feelings of anxiety about the ability to learn. Many of the women related that they were taught to be dependent, subjugating their needs and desires to that of the family.

Malarkey (1979) suggested that for evaluating students for admission to nursing factors, other than a high school transcript is needed, such as testing in reading, mathematics, and science. Older students should have early contact with faculty and advisors for counseling to meet their academic and psychological needs. Counseling services were recommended for student and spouse to learn new ways to adjust and cope with change, to survive the college experience, and grow together rather than apart (Malarkey, 1979).

Summary

Chapter 2 has presented a review of the literature related to social learning theory. The review has focused upon the construct of internal-external locus of control.

Studies pertaining to the relationship between locus of control and academic achievement were examined. Student characteristics and methods of predicting academic achievement in nursing were discussed. The majority of the studies reviewed indicated the need to include measures of personality, such as locus of control, as well as academic ability and aptitude in the prediction battery for successful completion in nursing programs.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The design of this study is classified as descriptive correlational, a type of ex post facto research. Polit and Hungler (1978) stated that the basic purpose of ex post facto research is to determine relationships among variables. With such research there is a lack of manipulative control of the independent variables because they have already occurred. The examination of the independent variable was done retrospectively. The independent variable in this study, locus of control, was not subject to manipulation. It had already occurred. The dependent variable was academic achievement of the students in the associate degree nursing (ADN) program.

Setting

The setting for data collection was a community college located in East Texas. The population of the town is approximately 55,000 persons. The community college serves East Texas, Southeast Oklahoma, and Southwest Louisiana residents within a 100-mile radius. The enrollment for this community college during the

1979-80 year was 4,500. The enrollment in the ADN program was 91 for the first year students. The nursing program was established in 1959 and the first class to graduate was in 1962.

Population and Sample

The sample in this study was a convenience sample. The population consisted of 91 first year students of an associate degree nursing program in a community college setting. The sample was selected on the basis of the students' voluntary completion of the ANS-IE and admission to the associate degree nursing program. The number of ANS-IE tests returned to the counseling center was 45. The number of subjects for the sample was 45.

Protection of Human Subjects

Prior to the collection of data, permission to conduct this study was obtained from Texas Woman's University Human Subjects Review Committee (Appendix A) and from the graduate school of Texas Woman's University (Appendix B). Permission was also obtained from the agency where data was collected (Appendix C). The investigator obtained the secondary data from the community college counseling center. Each subject was given a letter

of explanation (Appendix D). Some of the rights and welfare of the subjects included in this letter of explanation were:

1. The student voluntarily consented to be a participant by returning the questionnaire by mail within 30 days to the counseling center.

2. The counseling center used a number code for each subject that volunteered to participate in the study.

3. The investigator did not know the names of the subjects.

4. The student had the option to withdraw from the study at any time either by verbal or written notification to the counseling center of the community college or to the investigator of the study.

5. The student had the right to request the results of their individual test and knowledge to be gained from the study from the counseling center of the community college or the investigator of the study.

Instrument

The instrument used to measure students' locus of control was the Adult Nowicki-Strickland Internal-External Scale (ANS-IE) (Appendix E). The ANS-IE

consists of 40 items answered either yes or no. The score equals the number of external items endorsed. The possible range of scores may be from 1 to 40. A higher score indicates the more external degree of the individual. Items are suitable for fifth grade reading level (Nowicki & Duke, 1973). The test is a self-report measure and can be completed in approximately 15 minutes.

Validity

The majority of locus of control research has used the Rotter I-E Scale (Rotter, 1966) and research has supported the considerable validity of the internal-external concept. In recent years, the I-E Scale has come under much criticism (Gurin, Gurin, Lao, & Beattie, 1969; Mirels, 1970; Nowicki & Duke, 1973). The I-E Scale's forced-choice format and difficult reading level make it difficult to use with non-college educated adults. This affects the generalizability.

The Nowicki-Strickland Scale for Adults was developed to overcome the forced-choice format, the difficult reading level, and the generalizability for an I-E scale for non-college educated adults (Nowicki & Duke, 1973). The ANS-IE scale was developed from the Children's Nowicki-Strickland Internal-External Scale (CNS-IE),

(Nowicki & Strickland, 1973). The ANS-IE scale has shown very acceptable psychometric characteristics. The alterations of the CNS-IE consisted mainly of changing children to people and some change of tense of some items.

Nowicki and Duke (1973) reported several studies to indicate validity. In one study the Nowicki-Strickland Scale and Rotter Scale were administered to two college samples ($n = 156$) and a community sample ($n = 33$). This was to establish convergent validity and to also establish that the ANS-IE would be accounting for a unique position of the variance. The results indicated that data for the college sample were $r = .68$, $df = 74$, $p < .01$ and data for the community sample were $r = .48$, $df = 37$, $p < .01$. Nowicki and Duke (1973) stated this indicates the scales are measuring the same construct but in a different manner. Nowicki and Duke have reported several other studies indicating validity of the ANS-IE. In one college sample of 48 subjects, the ANS-IE and Scholastic Aptitude Test scores were not significantly correlated ($r = .11$). The Adult Nowicki-Strickland Internal-External scores were not significantly correlated with the Marlowe Crown Social Desirability Scale (Crowne & Marlowe, 1964). The two sample

correlations were as follows: $\underline{n} = 48$, $\underline{r} = .10$, $\underline{df} = 47$ and $\underline{n} = 68$, $\underline{r} = .06$, $\underline{df} = 67$.

Reliability

The ANS-IE 40 scale items represented in the study of the two groups of college students and the community subjects are presented in percentages of subjects answering items in the external direction. These data indicated ANS-IE was moderately homogeneous according to Nowicki and Duke (1973). Nowicki and Duke (1973) also reported the data indicated:

Split-half reliabilities ranged from .74 to .86, indicating satisfactory internal consistency, especially since the items are not arranged according to difficulty. Thus, the split-half reliabilities are an underestimate of the true internal consistency reliability. For one group of college subjects ($\underline{n} = 48$), test-retest reliability for a six-week period was $\underline{r} = .83$, indicating good stability. (p. 153).

This scale overcomes some of the problems of the Rotter I-E Scale with social desirability, denial of psychopathology, and is a better predictor of achievement behavior. It is easier to read and understand but still compares favorably to the Rotter I-E Scale as far as validity and reliability are concerned (Nowicki & Duke, 1973).

Data Collection

The data collected by the researcher were secondary data. The existing data were collected by the counseling center of the community college. The counseling center provided the researcher with the available data. The data available for this study was a computer print-out of each student's ANS-IE test score and the student's grade point average in nursing and non-nursing courses. The researcher verified the authenticity of the data by validating students' code numbers with the ANS-IE test score and the computer printout that relates the students' grade point averages.

Treatment of Data

The two scores, locus of control and grade point average in nursing courses, were measured for Hypothesis 1 and Hypothesis 3. The two scores, locus of control and grade point average in non-nursing courses, were measured for Hypothesis 2 and Hypothesis 4. The relationship of the two variables for Hypotheses 1 through 4 was measured by the computation of the correlation index Pearson r . A correlation coefficient is an index whose values range from -1.0 for a perfect negative correlation, through 0 for no relationship, to +1.0 for a

perfect positive correlation. The most commonly used correlation index is the Pearson \underline{r} . The Pearson \underline{r} can be computed by several alternative formulas. The Pearson \underline{r} formula as described by Polit and Hungler (1978) is the following:

$$r_{xy} = \frac{\sum xy}{ns_x sy}$$

where r_{xy} = the correlation coefficient for variables X and Y.

x = deviation scores for X.

y = deviation scores for Y.

$\sum xy$ = sum of the products of each pair of deviation scores.

n = number of cases.

s_x = standard deviation of X.

s_y = standard deviation of Y. (p. 531)

The coefficient is computed when the two variables being correlated have been measured on an interval scale. An alpha level of .05 was selected for acceptance. The calculation of the \underline{r} statistic was done by the Commodore Computer (2001 series PET, 1978 model) with the data typed directly into the computer terminal.

CHAPTER 4

ANALYSIS OF DATA

The first section of this chapter will consist of a description of the sample. The next section of this chapter will report the results of the study. The final section of the chapter will present all findings of the study.

Description of Sample

The sample consisted of 45 subjects. The subjects were students that were enrolled in the first year curriculum of a 2 year associate degree nursing program. The 45 subjects were selected on the basis that they had returned the ANS-IE questionnaire to the community college counseling center. The ages of the subjects ranged from 18 to 48 years old at the beginning of the 1979-80 school year. The sample consisted of 1 male and 45 females.

Findings

Locus of control as measured by the ANS-IE scores of the nursing students at the beginning of the year ranged from a high of 21 to a low score of 1. The high score of 21 indicates the highest degree of externality for this

sample. The lowest score of 1 indicates the most internal score for the sample. The median locus of control score for the group was 11.0. The group mean locus of control score was 7.2.

The problem of this study was to answer the question: is there a significant relationship between locus of control scores of beginning associate degree nursing students and academic achievement upon successful completion of the first program year? The purpose of this study was to describe the relationship of locus of control and academic achievement after the first year of study in an associate degree program.

The findings to measure the hypotheses were as follows:

Hypothesis 1 stated: As locus of control (LOC) scores on the Adult Nowicki-Strickland Internal-External Opinion Survey received at the beginning of course work of associate degree nursing students increase*, grade point average in nursing courses earned by the end of the first program year will decrease. The computation for Pearson $r = -.54$, $df = 45$ was statistically significant at the $p < .05$ alpha level. This computation

*high LOC score indicates the person's degree of externality, low LOC score indicates the person's degree of internality.

represents an inverse relationship between the variables. The magnitude of r represents a moderate and substantial relationship, but not too high a degree of the relation between the two variables (Brase & Brase, 1978). The higher the locus of control score, the lower the grade point average score in nursing courses indicates a negative correlation. Statistically the data supports the hypothesis; thus, Hypothesis 1 was accepted.

Hypothesis 2 stated: As locus of control scores received at the beginning of course work of associate degree nursing students increase, grade point average in non-nursing courses earned by the end of the first program year will decrease. The computation of Pearson $r = -.31$, $df = 45$ was statistically significant at the $p < .05$ alpha level. This computation represents a negative correlation between the two variables. The magnitude of r represents a very small degree of relation between the two variables (Brase & Brase, 1978). According to Brase and Brase (1978), $-.90$ and -1 magnitude of r represents a high and reasonably dependable degree of relation between two variables, measuring on a scale from -1 to $-.0$. Statistically the data supports the hypothesis; thus, Hypothesis 2 was accepted.

Hypothesis 3 stated: As locus of control scores received at the beginning of course work of associate degree nursing students decrease*, grade point average in nursing courses earned by the end of the first program year will increase. The computation for Pearson $r = -.54$, $df = 45$ was statistically significant at the $p < .05$ alpha level. This computation represents an inverse relationship between the variables. The magnitude of r represents a moderate and substantial relationship, but not too high a degree of the relation between the two variables (Brase & Brase, 1978). Hypothesis 3 was supported statistically and was, therefore, accepted.

Hypothesis 4 stated: As locus of control scores received at the beginning of course work of associate degree nursing students decrease, grade point average in non-nursing courses earned by the end of the first program year will increase. The computation for Pearson $r = -.31$, $df = 45$ was statistically significant at the $p < .05$ alpha level. The computation of r represents a negative correlation between the two variables. The magnitude of r represents a very small degree of relation

*high LOC score indicates the person's degree of externality, low LOC score indicates the person's degree of internality.

between the two variables (Brase & Brase, 1978). Hypothesis 4 was supported statistically and was, therefore, accepted.

Additional Findings

Table 1 and Table 2 represent the students' locus of control scores in relation to the overall grade point average (GPA) scores. The lowest GPA score accepted for the student to persist in the nursing program was a 2 on a scale from 0 to 4. The students who had GPA scores from 2 to 4 were listed according to their LOC scores as successful in completion of the first year of the nursing program. The students that had cumulative GPA scores from 2 to 0 were listed according to their LOC scores as unsuccessful in completion of the first year of the nursing program. The subjects in the sample were divided into three groups according to their LOC scores. The students with high external scores of 21 to 11 had the lowest cumulative GPA scores in nursing courses. The higher the LOC score, the higher the externality of the subject. The lower the LOC score, the higher the degree of internality of the subject. The median scores of 10 to 7 had 14 successful students and 2 unsuccessful from the total sample number of 45 students.

The low external scores from 6 to 1 had 15 successful students and 2 unsuccessful. The highest number of successful students in nursing were the students with low external scores of 6 to 1.

The number of students with high external scores of 21 to 11 in non-nursing courses was 11 that were successful, as compared to 16 students with median scores from 10 to 7 and 16 students with high external scores from 6 to 1. The total number of first year associate degree nursing students represented in the sample was 45.

Table 1

Students' LOC Scores in Relationship to
Successful Completion of Nursing
Courses in the First Year of
the Nursing Program

LOC Score	Successful Students (GPA 2-4)	Unsuccessful Students (GPA 0-1.9)
21-11 (high external scores)	7	5
10-7 (median scores)	14	2
6-1 (low external scores)	<u>15</u>	<u>2</u>
	36	9

n = 45.

Table 2

Students' LOC Scores in Relationship to
Successful Completion of Non-Nursing
Courses in the First Year
of the Nursing Program

LOC Score	Successful Students (GPA 2-4)	Unsuccessful Students (GPA 0-1.9)
21-11 (high external scores)	11	1
10-7 (median scores)	16	0
6-1 (low external scores)	<u>16</u>	<u>1</u>
	43	2

n = 45.

Summary of Findings

Overall tabulations described the relationship of the two variables, locus of control and academic achievement by the students' cumulative grade point average in nursing and in non-nursing courses. The computation of the correlation index Pearson r was calculated. An alpha level of .05 was selected to test the hypotheses.

Hypothesis 1 and Hypothesis 3, r = -.54, df = 45, were statistically significant at the p < .05 alpha level. The two hypotheses were accepted that as locus of control scores increase, grade point average in nursing courses

decrease, or as locus of control scores decrease, grade point average in nursing courses increase.

Hypothesis 2 and Hypothesis 4, $r = -.31$, $df = 45$, were statistically significant at the $p < .05$ alpha level. The two hypotheses were accepted that as LOC scores increase, grade point average in non-nursing courses decrease, or as LOC scores decrease, grade point average in non-nursing courses increase. The findings support that there is a significant relationship between the two variables, locus of control and academic achievement in this study.

CHAPTER 5

SUMMARY OF THE STUDY

This chapter will summarize how the study was done in relation to the research question and hypotheses. The next section will discuss the findings as to the meanings extrapolated from the findings and the relationship of the findings to other research. This chapter includes the conclusions based on the findings of the study and suggestions for the appropriate use of the outcomes. The last section will include suggestions for further study from the researcher which stem from the study completed.

Summary

The problem of this study sought to answer the question: Is there a significant relationship between locus of control scores of beginning associate degree nursing students and academic achievement in nursing and non-nursing courses upon successful completion of the first program year? The purpose of this study was to describe the relationship of locus of control and academic achievement after the first year of study in an associate degree nursing program.

The theoretical framework for this study was the social learning theory. The locus of control concept was introduced by Rotter (1954) as a part of social learning theory, which investigated the interaction between the individual and his meaningful environment. Locus of control refers to the perception by an individual that he is internally controlled, events being contingent upon his own behavior, or externally controlled, events, resulting from luck, chance, or control of powerful others (Rotter et al., 1972).

The review of literature has supported the use of locus of control as a predictor of academic achievement. This study investigated the relationship between locus of control and academic achievement of associate degree nursing students.

The population for the study consisted of nursing students enrolled in an associate degree program. The population for the study was a convenient population for the investigator. The sample consisted of 45 students enrolled in the first nursing course of the program, who returned the ANS-IE tests to the counseling center. At the end of the first year of study the cumulative grade point averages in nursing and non-nursing courses earned by the nursing students were given to the researcher by

the counseling center. The locus of control scores, as measured by the ANS-IE Scale, and the cumulative grade point averages in nursing and non-nursing courses were controlled using a computer program to calculate the Pearson r statistic.

The following hypotheses were accepted:

1. As locus of control (LOC) scores on the Adult Nowicki-Strickland Internal-External Opinion Survey received at the beginning of course work of associate degree nursing students increase*, grade point average in nursing courses earned by the end of the first program year will decrease.
2. As locus of control scores received at the beginning of course work of associate degree nursing students increase, grade point average in non-nursing courses earned by the end of the first program year will decrease.
3. As locus of control scores received at the beginning of course work of associate degree nursing students decrease*, grade point average in nursing courses earned by the end of the first program year will increase.

*high LOC score indicates the person's degree of externality, low LOC score indicates the person's degree of internality.

4. As locus of control scores received at the beginning of course work of associate degree nursing students decrease, grade point average in non-nursing courses earned by the end of the first program year will increase.

Findings for the study in summary are:

1. As locus of control scores increase, the grade point average in nursing courses will decrease, computation for Pearson $r = -.54$, $df = 45$ which was statistically significant at the $p < .05$ alpha level.

2. As locus of control scores increase, the grade point average in non-nursing courses will decrease, computation for Pearson $r = -.31$, $df = 45$ which was statistically significant at the $p < .05$ alpha level.

3. As locus of control scores decrease the grade point average in nursing courses increase, computation for Pearson $r = -.54$, $df = 45$ which was statistically significant at the $p < .05$ alpha level.

4. As locus of control scores decrease the grade point average in non-nursing courses increase, computation for Pearson $r = -.31$, $df = 45$ which was statistically significant at the $p < .05$ alpha level.

Discussion of the Findings

The findings of this study were fairly consistent with data reported by Nowicki and Duke (1973) in their study of 156 college subjects. The mean score for Nowicki and Duke's study was 9.06 for the college students and 10.96 for their sample of 33 community subjects (Nowicki & Duke, 1973).

The magnitude of r for the hypotheses in the present investigation did not show a high degree of a relationship between the variables according to Brase and Brase (1978). The magnitude of r in this study indicates that variables other than locus of control may have influenced academic achievement.

The findings in the present investigation represented statistically a relationship between locus of control and academic achievement; other variables that may be factors for attrition in nursing programs are presented in other studies. Studies of personality characteristics of successful nursing students revealed that the factors accompanying success, in addition to intellectual aptitude, were deference to authority, dominance, and nurturance (Reece, 1961; Thurston, 1968; Thurston & Brunclik, 1965).

Levitt (1971) stated that one-third of the students who enrolled in schools of nursing did not complete their training although intellectual and academic factors alone were not the apparent cause; marriage, dislike for nursing, and personal reasons were also causes for not completing a nursing program. Levitt's (1971) study concluded that the attrition of students continues to be a problem in nursing education.

Rotter (1966) and Wolk and DuCette (1973) advocated the use of motivation theory in conjunction with social learning theory as a source of additional data relating to achievement. Motivation has been considered an important factor in determining the level of academic success (Roueché & Mink, 1976); the degree of motivation was not measured in this study.

Lefcourt (cited in Naditch, 1976) suggested intelligence as a variable of the locus of control dimension. Intelligence was not considered in the present study.

Admission requirements for the selection of students in nursing programs has been suggested as a variable for attrition in nursing (Wittmeyer et al., 1971). Pre-admission Scholastic Aptitude tests appear to predict only that portion of college students' attrition associated with low college grades. Weinstein, Brown,

and Wahlstrom (1979) suggested that other tests should be used such as those of a personal nature.

Knoel (cited in Rose, 1965) stated that research with prediction and prevention of freshman attrition has too seldom used a psychological approach; that is, focusing on the students' personality characteristics and the effect they may have on his persistence or withdrawal from college. Furthermore, it was stated that research has neglected to establish a method of preventing dropout, assuming that prospective dropouts could be identified in time to be offered some preventive attention.

Reece (1961), Mueller and Lyman (1969), and Wolfle and Bryant (1978) advocated the inclusion of a number of personality and achievement variables when developing methods of predicting academic success. Wittmeyer et al. (1971) found pre-nursing point-hour ratio to be the best indicator of academic performance among the numerous variables studied. Findings by Wolfle and Bryant (1978) indicated that academic success prior to entering nursing school had a positive effect upon grades throughout the nursing program. Lefcourt (cited in Naditch, 1976) stressed the importance of considering, in addition to

locus of control, "the host of other variables associated with achievement" (p. 147).

Conclusions and Implications

The study resulted in the following conclusions:

1. Externally oriented students make lower grade scores and higher attrition occurs in this group.
2. Locus of control scores are important as an indicator of academic achievement.

The following implications were drawn from the conclusions of the study:

1. Locus of control testing on admission could identify the externally oriented student. Remedial counseling should be implemented for this student before attrition occurs. Admission criteria to schools of nursing could reflect this idea.
2. Counselors and nurse educators should provide counseling for the externally oriented student upon admission into a nursing program.

Recommendations for Further Study

The following recommendations for further study were made:

1. A tool, specifically related to internal-external locus of control in the academic situation, should be constructed and used in a similar study.

2. A study should be designed to include personality variables in addition to locus of control, for the purpose of predicting academic achievement.

3. A study should be designed for the purpose of studying the relationship of demographic variables to academic achievement.

4. The present study should be replicated to control socio demographic variables.

5. The present study should be replicated with a larger sample of different nursing student population.

APPENDIX A

TEXAS WOMAN'S UNIVERSITY
Box 23717, TWU Station
Denton, Texas 76204

1810 Inwood Road
Dallas Inwood Campus

HUMAN SUBJECTS REVIEW COMMITTEE

Name of Investigator: Jena Bea Howell Center: Dallas
Address: Route 2, Box 140 Date: 9/11/80
Fouke, Arkansas 71837

Dear Ms. Howell:

Your study entitled Locus of Control and Academic Achievement in
Associate Degree Nursing Students

has been reviewed by a committee of the Human Subjects Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education, and Welfare regulations typically require that signatures indicating informed consent be obtained from all human subjects in your studies. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. Furthermore, according to DHEW regulations, another review by the Committee is required if your project changes.

Any special provisions pertaining to your study are noted below:

Add to informed consent form: No medical service or com-
pensation is provided to subjects by the University as a
result of injury from participation in research.

Add to informed consent form: I UNDERSTAND THAT THE RETURN
OF MY QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT
AS A SUBJECT IN THIS RESEARCH.

The filing of signatures of subjects with the Human Subjects
Review Committee is not required.

 Other:

 X No special provisions apply.

Sincerely,

Estelle D. Kurtz
Chairman, Human Subjects
Review Committee

at Dallas

PK/sml/3/7/80

APPENDIX B

TEXAS WOMAN'S UNIVERSITY

DENTON, TEXAS 76204

THE GRADUATE SCHOOL

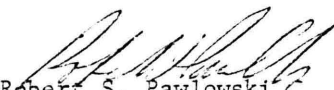
October 30, 1980

Ms. Jena Bea Howell
Rt. 2, Box 140
Fouke, Arkansas 71837

Dear Ms. Howell:

I have received and approved the Prospectus for your research project. Best wishes to you in the research and writing of your project.

Sincerely yours,


Robert S. Pawlowski
Provost

RP:d1

cc Dr. Beth C. Vaughn-Wrobel
Dr. Anne Gudmundsen
Graduate Office

APPENDIX C

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE Texarkana Community College

GRANTS TO Jena B. Howell

a student enrolled in a program of nursing leading to a Master's Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem.

The problem of this study seeks to answer this question:

is there a significant relationship between locus of control scores of beginning associate degree nursing students and academic achievement in nursing and non-nursing courses upon successful completion of the first program year?

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: 9-1-68

[Signature]
Signature of Student

Signature of Agency Personnel
Director of Admissions

[Signature]
Signature of Faculty Advisor

*Fill out & sign three copies to be distributed as follows:
Original - Student; First copy - Agency; Second copy - TWU College of Nursing.

APPENDIX D

Letter of Explanation to Subjects for
Participation in the Research Study

Dear Student:

This letter is to welcome you as a student in the 1979-80 nursing class. We would appreciate your participation in a study that may enable us to assist future students with academic achievement.

The information received from this survey will be used for educational purposes, for us, and by a graduate student of Texas Woman's University for a research study requirement toward a Master's degree. The graduate student and our office will be available to share with you knowledge gained from the study at the end of your first year of the program. If you wish to withdraw at any-time during this year you have the right to do so by verbal or written notification. The questionnaire enclosed is number coded. Your name will not be used in the study and confidentiality will be maintained. The graduate student will contact you at the end of this academic year for further data necessary for her study.

If you should have any questions or comments, please feel free to call the counseling center. An

appointment can be arranged if you would like to discuss this with us or the graduate student.

If you wish to participate, please answer the enclosed questionnaire. The questionnaire will take approximately 15 minutes to answer. The questions should be answered with either a yes or no response. The return of the questionnaire indicates your consent to participate in the study. The self-addressed, stamped envelope is provided for your use.

Sincerely,

The Counseling Center Staff

APPENDIX E

The Adult Nowicki-Strickland Internal-External Scale (ANS-IE) was copyrighted in 1973.

A copy of the ANS-IE may be obtained from:

Sterling Swift Publishing Co.
P. O. Box 188
Manchaca, Texas 78652

REFERENCES CITED

- Atwood, H. M., & Ellis, J. The concept of need: An analysis for adult education. Adult Leadership, 1971, 19, 219-221.
- Baron, R. M., Cowan, G., Ganz, R. L., & McDonald, M. Interaction of locus of control and type of performance feedback considerations of external validity. Journal of Personality, 1974, 30, 285-292.
- Battle, E. S. Motivational determinants of academic competence. Journal of Personality and Social Psychology, 1966, 4, 634-642.
- Bean, A. G., & Covert, R. W. Prediction of college persistence, withdrawal, and academic dismissal: A discriminant analysis. Educational Psychological Measurement, 1973, 33, 407-411.
- Brase, C. H., & Brase, C. P. Understandable statistics. Lexington, Massachusetts: D. C. Heath Co., 1978.
- Butterfield, E. C. Locus of control, test anxiety, reactions to frustration and achievement attitudes. Journal of Personality, 1964, 32, 298-311.
- Chance, J. E. Internal control of reinforcement and the school learning process. A paper presented at Child Research and Child Development, Minneapolis, Minnesota, 1965.
- Chance, J. E. Academic correlates and maternal antecedents of children's belief in external or internal control of reinforcement. In J. Rotter, J. Chance, & J. E. Phares (Eds.), Application of a social learning theory of personality. New York: Holt, Rinehart, and Winston, Inc., 1972.
- Costello, D. E. A study of student withdrawal in an associate degree nursing program. (Doctoral dissertation, Pennsylvania Lehigh University, 1973). Dissertation Abstracts International, 1974, 34, 6893A.

- Crandall, V. C., Crandall, V. J., & Katkovsky, W. Children's beliefs in their control of reinforcements in intellectual-academic achievement situations. Child Development, 1965, 36, 91-109.
- Crowne, D. P., & Marlowe, D. The approval motive. New York: John Wiley & Sons, 1964.
- Daniels, R., & Stevens, J. P. The interaction between the internal-external locus of control and two methods of college instruction. American Educational Research Journal, 1976, 13, 103-113.
- Dies, R. R. Development of a projective measure of perceived locus of control. Journal of Projective Techniques and Personality Assessment, 1968, 32, 487-490.
- Dubs, R. Comparison of student achievement with performance ratings of graduates and state board examination scores. Nursing Research, 1975, 24, 59-64.
- Eisenman, R., & Platt, J. J. Birth order and sex differences in academic achievement and internal-external control. Journal of General Psychology, 1968, 78, 279-285.
- Feather, N. T. Effects of prior success and failure on expectations of success and subsequent performance. Journal of Personality and Social Psychology, 1966, 3, 287-298.
- Feather, N. T. Violence of outcome and expectation of success in relation to task difficulty and perceived locus of control. Journal of Personality and Social Psychology, 1967, 7, 372-386.
- Feather, N. T. Change in confidence following success or failure as a predictor of subsequent performance. Journal of Personality and Social Psychology, 1968, 9, 38-46.
- Fergerichs, M. Relationship of self-esteem and internal-external control to selected characteristics of associate degree nursing students. Nursing Research, 1972, 22, 350-352.

- Gordon, D. A. Children's beliefs in internal-external control and self-esteem as related to academic achievement. Journal of Personality Assessment, 1977, 41, 644-649.
- Gozali, H., Cleary, T. A., Walster, G. W., & Gozali, J. Relationship between the internal-external control construct and achievement. Journal of Educational Psychology, 1973, 64, 9-14.
- Gurin, P., Gurin, G., Lao, R. C., & Beattie, M. Internal-external control in the motivational dynamics of Negro youth. Journal of Social Issues, 1969, 25, 29-53.
- Hemley, M. W. Locus of control, self-concept, and the academic behavior of open admissions freshmen. Dissertation Abstracts International, 1977, 38, 2365-2366B.
- Hjelle, L. Internal-external control as a determinant of academic achievement. Psychological Reports, 1970, 26, 326.
- James, W. Internal vs. external control of reinforcement as a basic variable in learning theory. Unpublished doctoral dissertation, Ohio State University, 1957.
- Joe, V. C. Review of the I-E control construct as a personality variable. Psychological Reports, 1971, 28, 619-640.
- Jones, C. W. Why associate degree nursing students persist. Nursing Research, 1975, 24, 57-59.
- Knopke, H. J. Predicting student attrition in a baccalaureate curriculum. Nursing Research, 1979, 28, 224-227.
- Lao, R. C. Internal-external control and competent and innovative behavior among Negro college students. Journal of Personality and Social Psychology, 1970, 14, 263-270.
- Lefcourt, H. M. Internal versus external control of reinforcement: A review. Psychological Bulletin, 1966, 65, 206-207.

- Levitt, E. E. An attempt to develop an objective test battery for selection of nursing students. Nursing Research, 1971, 20, 225-258.
- Lewis, E. P. NLN convention: 1979. Nursing Outlook, 1979, 27, 398-405.
- Malarkey, L. The older student: Stress or success on campus. Journal of Nursing Education, 1979, 18, 15-19.
- MacDonald, A. P. Internal-external locus of control: Parental antecedents. Journal of Consulting and Clinical Psychology, 1971, 37, 141-147.
- MacDonald, A. P. Internal-external LOC change technique. Rehabilitation Literature, 1972, 33, 44-47.
- McGhee, P. E., & Crandall, V. C. Belief in internal-external control of reinforcement and academic performance. Child Development, 1968, 39, 91-102.
- Messer, S. B. The relationship of internal-external control to academic performance. Child Development, 1972, 43, 1456-1462.
- Mirels, H. L. Dimensions of internal versus external control. Journal of Consulting and Clinical Psychology, 1970, 34, 226-228.
- Moses, M. L. Predictors of success or failure of a selected group of freshman associate degree nursing students. Dissertation Abstracts International, 1977, 38, 3871-3872B.
- Mueller, E. J., & Lyman, H. B. Prediction of scores on the State Board Test Pool Examination. Nursing Research, 1969, 18, 263-267.
- Naditch, M. Putting the value back into expectancy value theory. In H. M. Lefcourt (Ed.), Locus of control current trends in theory and research. Hillsdale, N. J.: Erlbaum Association, 1976.
- National League for Nursing Statistics, 1978. New York: The National League for Nursing, 1978.

- Nowicki, S., Jr. Predicting academic achievement of females from locus of control orientation: Some problems and some solutions. In H. M. Lefcourt (Ed.), Locus of control current trends in theory and research. Hillsdale, N. J.: Erlbaum Association, 1976.
- Nowicki, S., Jr., & Duke, M. P. A locus of control scale for non-college as well as college adults. Journal of Personality Assessment, 1973, 34, 150-157.
- Nowicki, S., Jr., & Rountree, J. Correlates of locus of control in a secondary school population. Developmental Psychology, 1971, 3, 477-478.
- Nowicki, S., Jr., & Strickland, B. R. A locus of control scale for children. Journal of Consulting and Clinical Psychology, 1973, 1, 148-154.
- Nowicki, S., Jr., & Walker, C. Achievement in relation to locus of control: Identification of a new source of variance. Journal of Genetic Psychology, 1973, 123, 63-67.
- Owen, S. V., & Feldhusen, J. F. Effectiveness of three models of multivariate prediction of academic success in nursing education. Nursing Research, 1970, 19, 517-525.
- Phares, J. E. Changes in expectancy in skill and chance situations. Unpublished doctoral dissertation, Ohio State University, 1955.
- Polit, D. F., & Hungler, B. P. Nursing research: Principles and methods. New York: Lippincott Co., 1978.
- Prociuk, T. J., & Breen, L. J.. Internal-external control, test anxiety and academic achievement: Additional data. Psychological Reports, 1973, 33, 563-566.
- Reece, M. M. Personality characteristics and success in a nursing program. Nursing Research, 1961, 3, 172-173.
- Reed, C. L., & Feldhusen, J. F. State board examination score prediction for associate degree nursing program graduates. Nursing Research, 1972, 21, 139-143.

- Rose, H. Prediction and prevention of freshman attrition. Journal of Counseling Psychology, 1965, 12, 399-403.
- Rotter, J. Social learning and clinical psychology. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1954.
- Rotter, J. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80(whole no. 609).
- Rotter, J. Some problems and misconceptions related to the construct of internal versus external control of reinforcement. Journal of Consulting and Clinical Psychology, 1975, 43, 56-57.
- Rotter, J., & Mulry, R. C. Internal versus external control of reinforcement and decision time. Journal of Personality and Social Psychology, 1965, 2, 598-604.
- Rotter, J., Chance, J. E., & Phares, E. J. Application of a social learning theory of personality. New York: Holt, Rinehart, & Winston, 1972.
- Roueche, J. E., & Mink, O. Improving student motivation. Austin, Texas: College Associates, Inc., 1976.
- Schwirian, P. M. Prediction of successful nursing performance: Parts I and II. Washington, D.C.: Department of Health, Education, and Welfare, 1976.
- Stein, R. F. The student nurse, a study of needs, roles, and conflicts: Part I. Nursing Research, 1969, 18, 308-315.
- Stronck, D. R. Predicting student performance from college admission criteria. Nursing Outlook, 1979, 27, 604-614.
- Thurston, J. R. Relationship of personality to achievement in nursing education. Nursing Research, 1968, 17, 265-268.
- Thurston, J. R., & Brunclik, H. L. Relationship of personality to achievement in nursing education. Nursing Research, 1965, 14, 203-209.

- Weinstein, E. L., Brown, L., & Wahlstrom, N. W. Selection procedures and attrition. Journal of Nursing Education, 1979, 18, 38-46.
- Wittmeyer, A. L., Comiscioni, J. S., & Purdy, P. A. Longitudinal study of attrition and academic performance in a collegiate nursing program. Nursing Research, 1971, 20, 339-347.
- Wolfgang, A., & Potrin, R. Internality as a determinant of classroom participation and academic performance among elementary students. In H. M. Lefcourt (Ed.), Locus of control current trends in theory and research. Hillsdale, N. J.: Erlbaum Association, 1976.
- Wolfe, L. M., & Bryant, I. W. A causal model of nursing education and state board examinations. Nursing Research, 1978, 5, 311-315.
- Wolk, S., & DuCette, J. The moderating effect of locus of control in relation to achievement motivation variables. Journal of Personality, 1973, 41, 59-70.