



A comparative analysis of two tutoring methods assessing student achievement and retention  
by Debra Davis Merwin

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University

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Abstract:

The purpose of this study was to compare the effectiveness of two tutoring methods with regard to achievement and retention for high-risk undergraduate students. The two tutoring methods were group tutoring (i.e., Supplemental Instruction, or SI) and individual tutoring.

The problem was investigated by: (1) examining how the tutoring methods and other independent variables affected student achievement and student retention, and (2) comparing the two tutoring methods in terms of cost effectiveness. Achievement was measured by the pretest-posttest gain score from the Tests of Adult Basic Education (TABE). Retention was measured by the ratio percentage of the number of student credit hours earned compared to the number of hours attempted for the first and second years following treatment.

The major findings were: (1) Non-traditional students had higher achievement gains than did traditional students; (2) Native American students did as well as Caucasian students on measures of achievement; (3) students in SI tutoring had higher retention rates than students receiving individual tutoring for the first and second years following treatment; (4) Caucasian students had better retention rates than Native American students for the first and second years following treatment; (5) the traditional students had better retention rates than non-traditional students, for the first year only, after treatment; (6) high school graduates had better retention rates than GED students for the first and second years following treatment; (7) the combined results of the two tutoring methods did make a significant difference in student achievement; (8) the SI tutoring method compared to the individual tutoring method was more cost effective; and (9) tutoring had a relatively short-term effect.

Recommendations for further study included: (1) examining the merits, effectiveness, and value of different tutoring methods, particularly with students who do not volunteer but who are assigned to tutoring; (2) devising and testing a diagnostic screening process to determine whether group or individual tutoring is more appropriate for students; (3) evaluating the attitudes and values of the tutors, faculty, staff, and students involved with academic assistance programs; and (4) investigating the best learning environments related to ethnicity. Additionally, SI tutoring and tutoring for subsequent academic terms were generally advised.

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METHODS ASSESSING STUDENT  
ACHIEVEMENT AND RETENTION**

by

**Debra Davis Merwin**

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

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Bozeman, Montana**

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APPROVAL

of a thesis submitted by

Debra Davis Merwin

This thesis has been read by each member of the graduate committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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## ABSTRACT

The purpose of this study was to compare the effectiveness of two tutoring methods with regard to achievement and retention for high-risk undergraduate students. The two tutoring methods were group tutoring (i.e., Supplemental Instruction, or SI) and individual tutoring.

The problem was investigated by: (1) examining how the tutoring methods and other independent variables affected student achievement and student retention, and (2) comparing the two tutoring methods in terms of cost effectiveness. Achievement was measured by the pretest-posttest gain score from the Tests of Adult Basic Education (TABE). Retention was measured by the ratio percentage of the number of student credit hours earned compared to the number of hours attempted for the first and second years following treatment.

The major findings were: (1) Non-traditional students had higher achievement gains than did traditional students; (2) Native American students did as well as Caucasian students on measures of achievement; (3) students in SI tutoring had higher retention rates than students receiving individual tutoring for the first and second years following treatment; (4) Caucasian students had better retention rates than Native American students for the first and second years following treatment; (5) the traditional students had better retention rates than non-traditional students, for the first year only, after treatment; (6) high school graduates had better retention rates than GED students for the first and second years following treatment; (7) the combined results of the two tutoring methods did make a significant difference in student achievement; (8) the SI tutoring method compared to the individual tutoring method was more cost effective; and (9) tutoring had a relatively short-term effect.

Recommendations for further study included: (1) examining the merits, effectiveness, and value of different tutoring methods, particularly with students who do not volunteer but who are assigned to tutoring; (2) devising and testing a diagnostic screening process to determine whether group or individual tutoring is more appropriate for students; (3) evaluating the attitudes and values of the tutors, faculty, staff, and students involved with academic assistance programs; and (4) investigating the best learning environments related to ethnicity. Additionally, SI tutoring and tutoring for subsequent academic terms were generally advised.

## CHAPTER 1

### INTRODUCTION

Due to a variety of social and economic factors, retention of students in higher education has become a frequent area for study over the past 60 years. Robert Cope, in the forward of *What Works in Student Retention*, provided an historical perspective on student retention research in higher education:

Early studies on retention (before World War II) were largely descriptive. We learned, among other things, that commuter students with lower aptitudes and students from small towns tended not to complete college. Then, after World War II, the emphasis in retention research shifted to prediction. Given commuting, certain scholastic test scores, and town size, what was the likelihood of completion? In the late 1950s, attention shifted to typologies of student dropouts and to the experiences students were having while in attendance. It was not until the 1970s that serious consideration was given to the institutions themselves. But now studies have begun to focus on the quality of faculty-student interaction, the types of degree programs available, the adequacy of student residences, the mix of financial aid, and so on. The emphasis has clearly shifted in improving the quality of higher education in order to retain the confidence of students. (Beal & Noel, 1980, p. v)

Cope's contention was that sufficient student retention research data have been generated by using primarily fixed variables such as family size,

social status, high school grade point average, intelligence quotients, sibling order, and gender. Nevertheless, the demographic decline of the traditional 18-year-old high school graduate, coupled with an increase in the institutional cost of higher education and enrollment-based funding formulae, have all been factors promoting considerable research interest in student retention. Various researchers (Astin, 1975, 1985; Noel, Levitz, Suluri, & Associates, 1985; Ramist, 1981; Sexton, 1965; Snow, 1977; Tinto, 1975, 1987; Wilder, 1983) have indicated that the need for additional data in student retention is clearly evident. A viable alternative to using solely the fixed variables of earlier studies would be to concentrate on proactive variables such as freshman orientation, counseling, academic assistance, and advising programs. Noel et al. (1985) found that successful institutions know that ultimately student retention is a by-product of meeting student needs through the quality of campus programs and services.

Therefore, the focus of this study was to examine the effectiveness of one representation of an academic assistance program. Academic assistance programs have historically been used with high-risk students who lack the basic skills needed to complete their course of study. Special programs that offer academic assistance to students at institutions of higher education were initiated over 90 years ago (Cross, 1979). In 1894, Wellesley College developed what may have been the first remedial course for college students. The explosion of special programs and remedial courses aimed at helping

high-risk students became most apparent during the Civil Rights Movement of the 1960s. The Civil Rights Movement encouraged the expansion of open-admission colleges to provide access for those who had previously been denied an opportunity for higher education.

According to Martin, Blanc, and DeBuhr (1983), special programs have tended to serve small numbers of students at a high cost per student. Some of these special programs have been funded federally by grants known as Special Services, Talent Search, and Upward Bound. There is a paucity of empirical data focused upon special program effectiveness (Tinto & Sherman, 1974). The investigator found, in an extensive review of the literature, that this scarcity still appears to exist. "Despite the great wealth of information on retention programs, that body of accumulated experience and research has yet to be synthesized in a form readily translatable into action by individual institutions of higher education" (Tinto, 1987, p. 215). Furthermore, the student attrition rate among high-risk groups continues to be a concern for administrators because declining attendance impacts enrollment-driven budgets.

This study examined an academic assistance program that was implemented at Northern Montana College (NMC). NMC is one of the six units of the State University System of Montana, and is located in Havre. NMC serves the needs of many placebound students in north central Montana who have attended small rural high schools. A student profile at NMC, according to an American College Entrance Test (ACT) entering student survey, disclosed that there was a significant non-traditional student population; a 14% minority

population that was Native American; approximately a 60% male and a 40% female student population; 90% of all entering students came from within the state of Montana; 63% of all entering students and 94% of Native American students received some type of financial aid and one-third worked while attending school (Fossen, 1985).

Little retention data had been systematically documented at NMC prior to this time. However, the registrar's office had begun to monitor figures regarding retention and estimated that the attrition rate from fall of 1985 to fall of 1986 was between 53% and 60%. Unfortunately, this suggests that only 40% to 47% of the students enrolled in fall quarter of 1985 returned in the fall of 1986. In addition to the high dropout rate, mean scores for entering freshmen on the ACT were also a concern at NMC. A study conducted by the NMC college Learning Center in 1985 found the mean composite score on the ACT was 15 for entering freshmen; according to ACT's national norms, these scores, coupled with various other factors such as high school grade point averages (GPAs), placed approximately 78% of these students in the scholastically underprepared category.

#### Need for the Study

The study's need has been determined through practical as well as theoretical considerations. The practical considerations focused on the need for an effective and economical strategy to enhance student achievement and subsequent retention. The theoretical considerations were cited by other retention research efforts in similar and related settings.

Confronted with enrollment-driven funding formulae and declining numbers of high school graduates, college administrators during the past 25 years have initiated a wide variety of student achievement/retention strategies. Typically, academic assistance programs have been established to provide developmental instruction for high-risk students. Perhaps the most commonly used instructional method in the developmental setting is tutoring. However, because of the one-to-one tutor-to-student ratio, the cost is often prohibitive. The group tutoring method employed in the Supplemental Instruction (SI) model appears to offer a less expensive alternative to the traditional one-to-one tutoring. While SI may be less costly, there were unanswered questions regarding its efficacy with student achievement and retention among those classified as high-risk as defined by this study's population.

A consensus exists among retention researchers that more research in the field is warranted (Astin, 1975, 1985; Noel et al., 1985; Ramist, 1981; Sexton, 1965; Snow, 1977; Tinto, 1975, 1987; Wilder, 1983). More specifically, there is a paucity of retention research conducted in a local college setting (Astin, 1975; Ramist, 1981; Terenzini, 1980). Sexton (1965) stated that local studies are important since developing universally applicable methods of prevention and cure are impossible. Astin (1985) indicated further need for more retention research focusing on academic achievement among high-risk groups. Further, the academic assistance research literature abounds with discrepant findings. Tinto and Sherman (1974) concluded that little is known

about the long-term effects of academic assistance programs that profess to assist in student retention. More specifically, the researchers suggested that longitudinal studies be conducted employing statistical analyses that would reveal data on the multiple factors contributing to observed effects of the program.

The population for this study served a distinctive investigative interest because of the relatively high enrollment of Native American and vocationally oriented students. NMC has a student enrollment of Native Americans that is approximately 14%. This is the highest percentage of Native American students enrolled in any unit of the Montana University System. NMC also has a large percentage of students enrolled in vocational-technical majors or minors. Therefore, the findings from this study may best be generalized to open-admission institutions such as vocational-technical schools and even community colleges.

Finally, Tinto and Sherman (1974) have been critical of research about academic assistance programs because program participants take part voluntarily, thus building in a bias for program evaluation. This study, however, looked at a program where participation was not voluntary, but rather a course requirement as stipulated by the English department faculty and the administration. This requirement was considered an anomaly for academic assistance programs. Consequently, this study is thought to have

a need well-founded by other documented retention research efforts as well as local practice.

### Statement of the Problem

The problem of this study was to compare the effectiveness of two tutoring methods (group tutoring and one-to-one tutoring) with regard to achievement and retention for high-risk undergraduate students at Northern Montana College.

### General Questions to Be Answered

- (1) To what extent did the two tutoring methods (group tutoring and one-to-one tutoring) affect student achievement?
- (2) To what extent did the two tutoring methods (group tutoring and one-to-one tutoring) affect student retention?
- (3) How did the methods of tutoring compare in terms of cost effectiveness?

### General Procedures

This study investigated the effectiveness of an academic assistance program that was implemented at Northern Montana College. It utilized a quasi-experimental design that is *ex-post facto*. The population consisted of students who enrolled in English 150 at Northern Montana College during the 1986-87 academic school year, which included the quarters of fall, winter, and

spring. English 150 was an introductory course that was considered developmental in content. Therefore, admission to this course was determined by the Freshman English Placement Examination administered by the English department faculty. These faculty strived to standardize English 150 by employing systematic grading formats and allotted time-frames for work on sentence structure, parts of speech, grammar, usage, punctuation, and paragraph development.

In implementing this academic assistance program, English 150 students were required to take treatment; that is, they received traditional one-to-one tutoring or group tutoring, which is termed Supplemental Instruction (SI). Six sections of English 150 were offered during fall quarter, three sections during winter, and two sections during spring. Enrollments, for the most part, were held to a maximum of 25 students per section. Random assignment of students to sections was not possible; however, the determination of which section received which treatment was accomplished by randomly picking section numbers "out of a hat." Six sections of English 150 were taught by four different instructors fall quarter, three sections were taught by two different instructors winter quarter, and two sections were taught by two different instructors spring quarter.

The treatment, either SI (group tutoring) or traditional one-to-one tutoring, was a mandatory course requirement for English 150. This means that two, 50-minute tutoring sessions were required of students each week.

The scheduling of tutoring sessions was determined by a questionnaire administered at the beginning of the quarter that denoted convenient times for students (see Appendix A).

Pretests and posttests were given respectively at the beginning and end of each quarter for students enrolled in English 150. This exam is known as the Tests of Adult Basic Education (TABE). The TABE test for English measured students' competency in capitalization, punctuation, expression, and spelling. Initial group equivalence on the pretest for the study was analyzed by using a t-test to determine the significance of the difference between the means; if the means were not equivalent, an analysis of covariance would have been used. Data on the posttest were analyzed with a series of two-way analyses of variance (ANOVA). ANOVAs were used to determine if there was a significant difference in achievement in relation to the independent variable. A Chi-Square Test of Independence was used to examine the difference between expected and observed rates of retention. Retention was measured by the number of successfully completed student credits after one year, and again after two years following the time students completed the Supplemental Instruction or one-to-one tutoring. The cost effectiveness of both tutoring methods was compared by determining the cost of one grade level of improvement.

A grant to fund this academic assistance program was written by the investigator and generously funded by the First Bank System. The program

was implemented under the auspices of the Northern Montana College Learning Center, a division within the Student Services Department. The Learning Center (LC) had the designated administrative role and responsibility for all academic assistance programs.

#### Limitations of the Study

The following were assumptions that limited the study:

- (1) No one instructor taught all sections of English 150. Therefore, it was not possible to control specifically for individual instructor effectiveness by having one faculty member teach all sections of English 150. However, all English faculty who taught English 150 were trained specifically concerning the teaching techniques used in both of the tutoring methods; this tended to promote similar background knowledge.
- (2) A control group receiving no treatment was not possible for this study. Faculty and administrators agreed at the time of program implementation that mandatory tutoring could not be required of some and not of others. Also, to discriminate relative to which individuals received tutorial assistance posed a serious ethical concern.
- (3) Since the study was conducted under the auspices of the Learning Center (LC) and the Special Services program, adherence to departmental procedures was incorporated into the study. For example, the TABE test was used to provide a consistent measure since that test was

prescribed by the LC staff for any student who received tutoring. Ideally, perhaps a different basic skills test might have been used, such as the Tests of Achievement and Proficiency used in conjunction with the Iowa Tests of Basic Skills, when a student scores below a ninth-grade equivalency.

### Delimitations of the Study

The following were delimiting factors pertinent to this study:

- (1) The established population was confined to students enrolled in English 150 at Northern Montana College for the 1986-87 academic school year.
- (2) The study confined retention variables to those defined in the problem statement. Intervening variables may have a greater effect on retention than the academic assistance methods. Examples of possible intervening variables that could affect retention are campus policy and regulations, campus image and reputation, location, programs or majors offered, or students' personal or emotional circumstances and financial aid.

### Definition and Discussion of Terms

- (1) **Effectiveness**: A tutoring method was considered effective if there was a significant difference in the gain score as measured by the pretest-posttest.

- (2) **Achievement**: Achievement was defined by the amount of improvement measured by the pretest-posttest gain score.
- (3) **Retention**: Retention was defined by the number of student credits successfully completed with a minimum grade of "C" (i.e., 2.0 or better on a 4.0 scale).
- (4) **Cost effectiveness**: Cost effectiveness was defined by comparing the cost of one grade level of improvement measured by the pretest-posttest gain score for both groups who received tutoring.
- (5) **High-risk students**: High-risk students were defined according to one or more of the following factors: (a) students who did not formally graduate from high school (for example, those who took the Tests of General Educational Development, or GED, to determine high school grade equivalency certification); (b) students who scored 16 or below on the composite of the American College Entrance Test (ACT); (c) NMC English placement scores for students that indicated their English skills underprepared them for college-level work; (d) Tests of Adult Basic Education (TABE) that indicated deficiencies in English competencies; (e) first generation students (that is, students who were the first in their family to attend an institution of higher learning); and (f) students who qualified as economically disadvantaged according to federal guidelines (see Appendices B and C).

- (6) Supplemental Instruction (SI) tutoring method: The SI tutoring method was devised in 1975 by Deanna Martin, Robert Blanc, and Larry DeBuhr in the student learning center at the University of Missouri-Kansas City. In 1983, SI was marketed by the American College Testing Program's National Center for the Advancement of Educational Practices. Approximately 400 institutions of higher education have received training in the SI method. SI has also been validated for dissemination by the U.S. Department of Education through the Joint Dissemination Review Panel, which was the first such validation in the field of academic assistance for postsecondary students (Martin et al., 1983).

SI is a group tutoring method that utilizes tutors to assist students in mastering course concepts while simultaneously increasing their competence in reading, reasoning, and study skills. Trained peer tutors in the SI methodology attend their students' course lectures where they take notes, complete assignments, and take exams. These trained tutors are called SI leaders and act as student role models; they have also individually taken English 150 (or its equivalent) for credit.

In the actual tutoring sessions, the SI leader directs the group discussion and encourages students to answer questions. The SI leader answers questions only when no one in the group knows the correct answer. Therefore, these group sessions encourage an

interactive approach to processing information and understanding concepts.

SI has a broad pedagogical theory base which constitutes an integral part of the SI method. SI's theoretical base has adapted learning strategies from theorists Jean Piaget, Benjamin Bloom, and Edgar Dale. In addition to utilizing the learning strategies of Piaget, Bloom, and Dale, the SI method employs specific study skills such as note-taking, reading for comprehension, test-taking, and time management. In conclusion, Martin et al. (1983) stated that "SI assists the student in content review by identifying important relationships, clarifying facts, understanding charts, diagrams and formulae, establishing a meaningful frame of reference, clarifying assignments and predicting test questions" (p. 4). SI accomplishes the former by procedures such as "informal quizzes, reciprocal questioning, learning cycles, and processing notes" (p. 4).

- (7) Traditional tutoring method: The traditional tutoring method is one-to-one, meaning that a student receives tutoring from a single tutor. In this method, the tutor does not attend the student's class, so the tutoring process relies heavily on the student to prioritize what is important to emphasize during the tutoring sessions. This method also relies on the student to verbalize what s/he does not understand and to identify areas perceived as problematic.

Unlike the SI method, the one-to-one tutoring method does not formally subscribe to any specific learning theory and related pedagogical practice, although it may be surmised that the more talented tutors intuitively employ a random array of learning strategies.

- (8) Tutors: This term refers to those individuals who provided tutoring (either SI or one-to-one) to students enrolled in English 150 classes. Tutors for both the SI and the one-to-one methods were selected based on proven competency in the course, by the grade they received when they took this course, by interviewing with the LC staff, and/or by faculty recommendation.
- (9) Academic Assistance Survey: The Academic Assistance Survey refers to a questionnaire which was administered at the beginning of each quarter to assess student interest in the course, motivation for enrolling in the course, year of high school graduation, number of credits they were attempting, hours they expected to work each week if employed, expectations of success in English 150, classification level, ethnic origin, future plans regarding college, and hours available for tutoring (see Appendix A).
- (10) Independent variables: The independent variables of this study were the treatment or academic assistance method (either Supplemental Instruction, which was a group tutoring method, or traditional one-to-one tutoring); student ethnicity (i.e., Caucasian, Native American, or

Oriental); student type (i.e., non-traditional or traditional); gender; prior educational attainment before attending college (i.e., high school graduate, GED status, or adult special); and college major (i.e., vocational major or non-vocational major).

- (11) Dependent variables: The dependent variables of this study were student achievement and retention.
- (12) Student ethnicity: This term refers to the student's race or ethnic background. Native Americans were identified as those students who qualified for the Indian fee waiver, tribal enrollment, and Native American designation under the federal financial aid requirements. Caucasians and Orientals were identified by self-identification on the Special Services application form (see Appendix B) and by computer data base information obtained from the NMC registrar's office.
- (13) Student type: Student type refers to non-traditional and traditional student groups, which were differentiated by using the Montana University System's admission policy that defined traditional students as 21 years of age and younger who enrolled in the college for the first time. Therefore, students who were enrolling in college for the first time at age 22 and older were considered to be non-traditional students for purposes of this study.
- (14) Vocational major: A vocational major was defined as any student majoring in various vocational and technical areas (i.e., agricultural

technology, auto body, automotive technology, business technology, computer technology, construction technology, diesel technology, drafting technology, electrical technology, electronics technology, farm mechanics, industrial technology, mechanical technology, secretarial technology, metals technology, and nursing technology).

- (15) Prior educational attainment: Prior educational attainment was defined by making a differentiation between students' education before attending college. There were three categories of prior educational attainment used for the purpose of this study: high school graduate, GED status, and adult special. College transcripts were collected from the registrar's office to make the necessary designations. Adult specials were those students with neither a high school diploma nor a GED but who, under Northern Montana College's open-admission policy, were admitted under special provisions.
- (16) English 150: English 150 was a three-credit course offered each quarter at NMC. The course was considered to be developmental in content since it encompassed the basic skills areas. The 1984-86 NMC catalog description titled this course "Introduction to Communication." The course concentrated on sentence structure, parts of speech, grammar, usage, punctuation, and paragraph development. The course required daily workbook assignments and 8-10 tests. Course admission

was determined by scores attained on the Freshman English Placement Exam.

- (17) Freshman English Placement Exam: This test was written, scored, and administered by the faculty of the English department at NMC. The test was a requirement for all freshmen and some transfer students to ensure that students were placed in an English course that was consistent with their competency level.
- (18) Longitudinal tracking: Longitudinal tracking consisted of a follow-up on subsequent re-enrollment of students involved in the academic assistance program implemented at NMC. Retention was measured by the number of student credits successfully completed at one-year and two-year intervals following the original tutoring treatment.
- (19) Pretest: This term refers to the pretest administered to survey participants, which was Form 3, Level D of the language test component from the Tests of Adult Basic Education (TABE). Students were tested in four areas: capitalization, punctuation, expression, and spelling. Competencies were measured by grade equivalencies that ranged from a fifth-grade level (5.0) to a twelfth-grade/point nine level (12.9).
- (20) Posttest: This term refers to the posttest administered to survey participants, which was Form 4, Level D of the language test component from the Tests of Adult Basic Education (TABE). (The posttest

Form 4 and the pretest Form 3 measured identical content areas and competencies.)

- (21) Tests of Adult Basic Education (TABE): The TABE were the 1976 edition of achievement tests in reading, mathematics, and language. The TABE tests those basic skills required to function in a society. This test series was adapted from the 1970 edition of the California Achievement Tests (CAT-70). The tests reflect:

... language and content appropriate for adults and measure the understanding and application of conventions and principles; they were not intended to measure specific knowledge or recall of facts. The tests are designed to provide pre-instructional information about a student's level of achievement in the basic skills; to identify areas of weakness in these skills; to measure growth in the skills after instruction; to involve the student in appraisal of his or her learning difficulties; and to assist the teacher in preparing an instructional program to meet the student's individual needs. (Streetman, 1976, p. 1)

Also, as part of the development of TABE, the tests were reviewed by members of minority groups knowledgeable about the ways students learn and perform in test situations. This reviewing procedure conforms to CTB/McGraw-Hill's continuing policy to identify and eliminate ethnic and sex bias in its products (Streetman, 1976).

- (22) Special Services Report: The Special Services Report is an application form filed by students at NMC which was required by the Special Services department to determine which students were eligible for services funded by the federal grant (see Appendix B).

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### Introduction

Enrollment-driven funding formulae, coupled with a growing influx of high-risk students, have prompted higher education administrators to explore techniques and methods that enhance student achievement and consequent retention. Thus, academic assistance programs have emerged employing a plethora of techniques and methods all thought to contribute to achievement and retention. Many of the academic assistance programs subscribe to the traditional one-to-one tutoring method or tutorial assistance in content fields (Lauridsen, 1980). There are, however, variations of traditional tutoring that appear to be equally effective with measures of achievement and retention and more cost effective. The primary purpose of this study was to determine whether there was a significant difference between the effectiveness of a group tutoring method known as Supplemental Instruction (SI) and the traditional one-to-one tutoring method on measures of student achievement and retention. Thus, the following review of the research literature is focused on the salient emphases of this study.

The first section of this review of the literature focuses on retention research. Historically, retention research has explored reasons why students in higher education have dropped out and what methods and academic assistance programs have been used to retain them. The objectives of reviewing the retention research were two-fold: first, to foster an awareness of the broad field of literature concerning retention in higher education, and second, to provide an understanding of how the need for retaining students affects academic assistance programs.

The second section of this review focuses primarily on the development of academic assistance programs in higher education. Basic skills programs, transition or developmental skills, and various methods of assistance are explored. While the retention studies are comprehensive and abundant, the literature on academic assistance programs is still fairly limited. This may be due in part to the fact that retention efforts prior to the 1970s converged more on descriptive factors rather than student learning outcomes.

### Retention Review

Retention has been a multi-dimensional topic in higher education since the 1950s. Retention remains multi-dimensional because there is no single cause for student dropout, but rather many different reasons, as suggested by Astin (1975), Ramist (1981), Sexton (1965), and Tinto (1975).

A broad range of retention studies and strategies abound at individual institutions of higher education across the nation. Not only do a massive number of programs and models appear in the literature, but an equally large number of retention research experts have emerged during the past two decades such as Astin, Maxwell, Pascarella, Ramist, Roueche, Sexton, Snow, and Terenzini. In spite of the volume of information generated, student retention remains somewhat enigmatic. Overall cohesion, congruency, and transferability of successful programs from one institution to another remain in question. The need for research at the local level remains a pivotal concern for each institution (Astin, 1975; Ramist, 1981; Terenzini, 1980).

Historically, the emphasis on retention has been largely descriptive (Astin, 1975; Beal & Noel, 1980; Pascarella, 1982). Descriptive studies have been limited to statements on how various individuals and/or institutional characteristics relate to dropout in education (Tinto, 1975).

Regardless of the limitations, conflicts, complexity, and difficulty in determining what factors contribute to student attrition, researchers agree that more study is warranted (Astin, 1975, 1985; Noel et al., 1985; Ramist, 1981; Sexton, 1965; Snow, 1977; Tinto, 1975, 1987; Wilder, 1983). Sexton (1965) indicated that a 1958 report from the U.S. Office of Education showed more than a 50% dropout rate for students in higher education. More recent studies of dropout rates concur; Snow (1977) validated that the national estimate for students leaving before the end of the first semester was as high

as 50%. Given the declining numbers of the traditional age students, enrollment driven funding formulae, and the concern for equal opportunity, retention remains a major issue for higher education.

#### Sexton's Research (1965)

An historical study was undertaken by Virginia Sexton in 1965. She reviewed 25 years of student retention literature in her study, "Factors Contributing to Attrition in College Populations: Twenty-Five Years of Research." Citing Iffert (1955) and Weintraub and Salley (1945), Sexton stated that the most difficult year and prime time for dropout is during the freshman experience, and this dropout is usually based on academic factors. Quoting Shuman (1956) concerning several prognostic assumptions about dropouts, Sexton wrote that "frequent cuts, haphazard work, low grades, indifferent attitudes, and either social withdrawal or inordinate social activity" (p. 303) affect student retention.

Sexton examined two sets of categories that influence student retention. The first categories are intellectual and academic factors which include high school performance, college-entrance age, academic load, study habits, and participation in extracurricular activities. The second set is concerned with nonintellectual factors. Physical health, personality and emotional factors, motivational factors and underachievement, social factors, vocational choice, and employment were all examples of nonintellectual considerations influencing retention.

Sexton also found that the selection of the institution has an impact on whether or not students will be successful. Important characteristics of institutions relating to retention are whether the school is public or private, and accredited or nonaccredited. In addition, the selection of an appropriate school may depend on location, size, and mission of the institution.

In conclusion, Sexton pointed out conflicting evidence revealed during the 25-year period studied. She said that this 25-year period serves to emphasize the enormous complexity of the college dropout problem and the impossibility of developing universally applicable methods of prevention and cure.

#### Tinto's Research (1975)

In 1975, Vince Tinto reported the findings from one of the first major longitudinal studies of student retention in the literature. Tinto was critical of previous retention research because of failure to define the problem and inadequate theoretical/conceptual development. Therefore, he designed a comprehensive conceptual framework to organize his retention model. Tinto's model was longitudinal; he argued that dropout from college is "a longitudinal process of interactions between the individual and the academic and social systems of the college" (p. 94). Tinto referred to his retention model as a conceptual schema for dropout from college and it utilized a path analysis with longitudinal data (see Appendix D).

Tinto espoused that individual characteristics that promote student integration with their selected college are essential components in retaining students. For example, the first of Tinto's designated characteristics is academic integration. Academic integration has two components. The first component is structural (i.e., meeting academic standards); the second is normative (i.e., how strongly the student identifies with the norms of that academic system).

The second individual characteristic pertinent to students who remain in college is social integration. Social integration for college students occurs basically through peer group association, semi-formal extracurricular activities, and interaction with faculty and administrative personnel within the college. Successful interaction through the social integration process encourages students to persist in college and therefore strengthens retention efforts.

Other important individual characteristics for retention include past educational experiences and goal commitment. The former correlates high school achievement with college achievement, while the latter is the student's goal commitment which involves the student's desire and determination to complete a college education. Tinto stated that dropout is the outcome of a multi-dimensional process involving interaction between the individual and the institution, so it is not surprising that institutional characteristics such as resources, facilities, and structural arrangements have been shown to contribute to differential rates of attrition. In the final analysis, a whole array of institutional and individual characteristics may influence dropout.

Tinto stated that institutional size seems to correlate with dropout figures. Generally, smaller institutions have lower dropout rates than do larger institutions. However, Tinto cited Kamen (1971) who took exception to this generalization. Kamen found that larger institutions have lower dropout rates than smaller institutions.

Tinto suggested that there were a number of issues concerning retention in higher education that require further investigation. First, there is a need for more information regarding the relationship between race and dropout from higher education. Second, research needs to be conducted with urban institutions regarding the dropout problem. Third, future research needs to explore the question of student and faculty subcultures and how socialization affects persistence in college. Finally, Tinto indicated that further research should utilize the longitudinal rather than cross-sectional data. The longitudinal model allows tracking cohorts, which is more helpful in obtaining meaningful comparative analyses of institutional impact upon retention.

#### Astin's Research (1975)

According to the publisher's comments in Alexander Astin's 1975 book, *Preventing Students from Dropping Out*, this work was the first longitudinal, multi-institutional study of college dropouts. A survey was conducted nationwide of 41,356 undergraduates at 358 representative two-year and four-year collegiate institutions; four years later a follow-up survey was conducted. As previously indicated, the majority of research studies prior to Astin's work

concentrated on descriptions such as enumerating and classifying demographic information. Astin's research focused on those characteristics that predict dropout and how to minimize the number of dropouts. Astin admittedly pointed out that some higher education critics have justifiably applauded student dropout. However,

Many decision-makers, students included, legitimately want to know more about how to increase students' chances of finishing college, whether this concern is based on the loss of talent, the waste of limited educational resources, or the vocational and personal setbacks that result from the student's impeded career development and futile expenditure of time and effort. (p. 1)

Astin criticized previous retention research because of its poor design. He strived to improve the design of his research by acute attention to the definition of dropout. Astin identified three different categories related to dropping out: students who drop out, persist, or "stop out." Astin defined the new category of "stop out" as "students who interrupt their undergraduate education for a relatively brief period and return to complete the degree" (p. 9).

Astin developed a questionnaire that was given to students to determine reasons for dropping out (see Appendix E). Students were requested to select no more than three reasons from the 12 provided with regard to dropout. The numbers in Astin's chart represent percentages. The most frequent reasons given for dropping out, according to Astin's survey, were boredom with courses, financial difficulties, dissatisfaction with requirements

or regulations, and change in career goals. However, Astin found that certain gender differences did occur; women gave family as the most important reason for dropping out, while that category was not as important for male dropouts. The "some other reason" category received a substantial response by students. (This category was used to denote personal or emotional problems.)

The results of Astin's study concur with major findings of studies reviewed by Summerskill (1962), with the exception of the major discrepancy, which was in the importance attributed to academic difficulties: only 22% of students in Astin's study, in contrast with a median of about 33% in the studies reviewed by Summerskill, cited poor academic performance as a reason for dropping out. Thus, for a combined review of studies, Astin (1975), Summerskill (1962), and Tinto (1975) have provided a comprehensive array of reasons why students drop out.

Astin devoted an entire chapter on impact of financial aid, effects of employment, residence and campus environment, characteristics of the college, matching the student and institution, and implications for decision making and research. Astin may have been the first retention researcher to focus on the study habits of students as a significant variable. He listed 26 variables associated with student study habits.

Astin's study supported the theory that student involvement is important in student retention. Astin stated that "a student's tendency to drop out of

college is inversely related to the degree of direct involvement in the academic and social life of the institution" (p. 176). Possible future research would include independent psychological measures of student involvement. Psychological measures could be highly predictive of dropout behavior and should correlate substantially with behavioral measures. Future research should also examine how different students (i.e., high-ability students, minority students, and male versus female students) manifest their involvement in different ways. Astin identified the possible value of dropping out as another area that should be considered important for future research.

#### Ramist's Research (1981)

A more recent major comprehensive study was conducted for the College Board in 1981 by Leonard Ramist. Ramist found that 30 to 40% of entering freshmen graduate in four years from their college of original entry. An additional 30 to 50% graduate after four years or eventually graduate from a different college, or both; the remaining 10 to 35% are dropouts who never receive a degree. The students' responses given in the College Board study for dropping out were: academic matters, financial difficulties, motivational problems, personal considerations, dissatisfaction with college, military service, full-time jobs, the expressed need for new practical, nonacademic experiences, and the lack of initial plans to obtain a degree.

Ramist provided definitions and discussions for the dropout categories in his study. Some of these are presented below.

According to Ramist, academic matters,

. . . the most frequently cited category, include poor grades, boredom with courses, change in career goals, and inability to take desired courses or programs. These reasons are given most often by men, by those in technical institutes, by those with a poor high school record, by those who drop out late in the freshman year, and by those who later transfer to another college or return. These reasons are given least by those in teacher colleges or by those who drop out in the senior year. In contrasting Summerskill's (1962) summary of several older studies with more recent studies, there appears to be a shift of emphasis from poor grades to boredom with courses (Astin, 1975) and to the irrelevance of school work (Fetters, 1977). (p. 3)

Concerning the category of financial difficulties, Ramist stated:

This second most frequently cited category is used primarily by minorities, women with a poor high school record, early dropouts, and temporary dropouts. It is used least by those in technical institutes or by women with a good high school record. Interestingly, counselors rate this category much lower in importance than do students. Student reports of financial difficulties could be partially due to the fact that financial reasons are more socially acceptable. (pp. 3-4)

The next category considered motivational problems:

This category includes uncertainty about educational and occupational goals, lack of interest in studies, and inability or unwillingness to study. It is cited particularly by early and permanent dropouts, by academic dropouts, and by women with a poor high school record. It is rarely cited by women with a good high school record. The fact that it is cited most often by academic dropouts could mean that a lack of goal clarity contributes to low grades. (p. 4)

In describing the category of personal considerations, Ramist stated:

This category includes emotional problems, problems of adjustment to college life, 'getting one's head together,'

marriage, pregnancy, family responsibilities, and illness. Marriage is given as a reason most often by women and minorities. This category was cited least by those in technical institutes. Although students do not rate these reasons as high in importance, counselors indicate that socio-emotional problems were the most important reasons for attrition. (p. 4)

The final three categories discussed by Ramist were dissatisfaction with the college, military service, and full-time jobs. First, dissatisfaction with the college "includes dissatisfaction with the size, the social or academic environment, the regulations, etc. It was cited most often by early and permanent dropouts" (p. 4). Second, military service "has become somewhat dated, but may take on more importance if the draft is reinstated. It was cited by those who later re-enrolled" (p. 4). Last, full-time jobs were "the reason cited primarily by early dropouts and those in teacher colleges or two-year colleges" (p. 4).

Ramist organized retention programs into 15 major categories. The most frequently cited programs for retaining students were learning and academic support, advising, early warning systems, and new policies and structures within the institution that were concerned with meeting student needs.

Perhaps one of the more interesting points of Ramist's study was that college does appear to make a difference in the quality of graduates' lives. Ramist stated that college graduates, in general, are more optimistic, and have better opportunities, more job security, better working conditions, and higher job satisfaction. He also found that they take on more leadership roles.

and make better citizens. Table 35 (Appendix F) is directly related to educational attainment as a retention variable.

Ramist concluded by cautioning the reader that the information associating many student and college characteristics with retention is not conclusive. He asserted that there are substantial differences among institutions, so it is important to begin by conducting a local institutional dropout study. The Educational Testing Service's (ETS) Admission Testing Program, the College Board, and the National Center for Higher Education Management Systems may be instrumental in helping individual institutions to develop a retention plan.

#### Smith's Research (1981)

Another comprehensive study of retention that examined the two- and four-year college student was performed in 1981 by Alan Smith. Smith's study was divided into nine major components: (a) higher education and the concern for attrition, (b) factors involved in student attrition, (c) demographic factors, (d) financial factors, (e) socio-economic status, (f) academic achievement, (g) stated reasons for withdrawal, (h) institution type and persistence, and (i) dropout theory.

The key findings of Smith's study were that financial considerations are important in their relationship to retention. The majority of both dropouts and persisters have been from the middle class socio-economically. Higher persistence was associated with students of higher socio-economic status.

According to Smith, even though the relationship to persistence is clouded, high school grade point average (GPA) and rank still appear to be the best predictors of college grades.

### Summary of Retention Research

To summarize, there appeared to be a consensus among retention researchers that more study in this field was warranted (Astin, 1975, 1985; Noel et al., 1985; Ramist, 1981; Sexton, 1965; Snow, 1977; Tinto, 1975, 1987; Wilder, 1983). Furthermore, retention researchers see the need to conduct local studies (Astin, 1975; Ramist, 1981; Terenzini, 1980) because of substantial differences among institutions. The major criticisms of past retention studies include the failure to define the problem, inadequate theoretical and conceptual development and design, lack of information concerning race and dropout, and lack of longitudinal processing. A discrepancy was identified in the major findings on the importance of dropout attributed to low academic achievement (Astin, 1975; Summerskill, 1962). Astin found that 22% of the student dropout population leave school because of academic difficulties, while Summerskill found the number for this population to be 33%. Therefore, more research on student attrition attributed to academic difficulty would appear to be useful.

Sexton (1965) accented the freshman experience as the most afflicted, adverse, and fragile time in terms of student dropout. Astin (1975) and Tinto (1975) agreed with Sexton and deemed student involvement to be a powerful

mitigator of student dropout. Tinto suggested that individual characteristics that further student academic and social integration with their selected institutions are essential components in retaining students.

The general retention background information revealed that Astin (1975), Beal and Noel (1980), Cope and Hannah (1975), Maxwell (1979), Sexton (1965), Spady (1971), and Tinto (1975) provided a comprehensive review of student retention determinants. For example, Cope and Hannah's (1975) bibliography (found in their work, *Revolving College Doors*) contains more than 400 citations.

#### Academic Assistance Programs

Academic assistance programs are as diverse and complex as historical development information on retention studies. Academic assistance programs have interchangeable descriptors such as developmental education, basic skills education, variations of tutoring, academic adjustment, intervention programs, and individualized instruction. Therefore, this research review of academic assistance programs employs various descriptors.

Academic assistance programs for high-risk students may be traced back to "one of the first remedial courses for college students which was implemented in 1894, at Wellesley College" (Cross, 1979, p. 24). In the 1930s and 1940s, colleges most often attempted to assist high-risk students through reading or learning courses that were seen as developmental in content; that

is, the courses were offered as basic skills on a non-credit basis. By the 1950s and 1960s, administrators of academic assistance programs began to recognize the importance of affective as well as cognitive development. Programs provided counseling to assist with the development of attitudes, values, and motivations. The Civil Rights Movement of the 1960s provided the justification for equal opportunity for handicapped and socially, educationally, culturally, and economically disadvantaged students. The result of these experimental programs was further development of academic assistance programs that provided a more comprehensive array of student services.

One of the first major evaluations of the effectiveness of academic assistance programs was conducted by Tinto and Sherman (1974). The overall evaluation findings were not favorable to such programs. Tinto and Sherman expressed concern that previous intervention programs attempted to control their situation (in terms of evaluation), but in reality did a very poor job. A difficulty inherent in academic assistance program evaluation is that program participants take part voluntarily; therefore, unknown reasons for dropping out, reactivity of respondents to testing procedures, and low questionnaire and interview responses have darkened the majority of these program evaluations. To resolve this problem, Tinto and Sherman suggested an experimental design with randomization of program participants to treatment so that extraneous factors could be minimized. Tinto and Sherman,

citing Evans (1974) and Timpane (1970), stated, "Unfortunately, such controlled experiments have rarely been employed in social settings" (p. 13).

Evaluations based exclusively on IQ tests or achievement scores measured by a pretest/posttest gain score may indicate that a program has not been successful when, in reality, it has been. Tinto and Sherman (1974) made reference to St. John (1971) and Coleman et al. (1966), who have recognized the importance of non-cognitive perceptual learning in the process of educational attainment. Specifically, they found a person's self-concept and sense of control over their environment to be significant factors in school achievement. Tinto and Sherman stated that these factors have been virtually ignored in intervention programs even though the value of this information is of consequence.

Another criticism in academic assistance program evaluation, aside from lack of empiricism and appropriate design, is the method of evaluating programs in terms of cost effectiveness and continuation of services. Tinto and Sherman (1974) stated that objectivity in program evaluation regarding cost effectiveness and continuation of services is practically impossible because program practitioners feel that programs should continue "because it's the right thing to do" (p. 29).

The Higher Education Amendments of 1968 authorized intervention programs for retention of the disadvantaged student (i.e., educationally, culturally, economically, or handicapped). Special Services, within the federal





































































































































































































































