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Grant-Sponsored Academic Support Services: Do They Improve Community College Special Population Students' Academic Achievement and Persistence?

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GRANT-SPONSORED ACADEMIC SUPPORT SERVICES: DO THEY IMPROVE COMMUNITY COLLEGE SPECIAL POPULATION STUDENTS' ACADEMIC ACHIEVEMENT AND PERSISTENCE?

By

Patricia Ann Graves

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ABSTRACT

GRANT-SPONSORED ACADEMIC SUPPORT SERVICES: DO THEY IMPROVE COMMUNITY COLLEGE SPECIAL POPULATION STUDENTS' ACADEMIC ACHIEVEMENT AND PERSISTENCE?

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The purpose of this study was to determine if grant-sponsored academic support services were used by eligible community college special population students and if these services improved special population students' academic achievement and persistence. A secondary focus of the study was to estimate the financial impact on a community college's budget as a result of providing academic support services to special population students.

The research methodology was a quasiexperimental design. An experimental group of 200 randomly sampled special population students enrolled at Delta College and a control group of 200 students with similar characteristics were surveyed to determine their usage of institutional and grant-sponsored academic support services during the Winter 1991 semester. An institutional group of 500 students was randomly selected to permit statistical comparisons to the overall student body, but these students were not surveyed. Institutional data was obtained to provide information on experimental, control, and institutional group students' academic achievement and persistence. The three groups were compared to determine

if differences existed between: experimental and control group students; experimental and institutional group students; and control and institutional group students.

This study reinforced previous findings that academic support services are underutilized by the students who report needing assistance to achieve their educational goals. Experimental group students reported using grant-sponsored academic support services approximately 1 hour during the Winter 1991 semester. It appears that the experimental group students' academic achievement was significantly lower than control and institutional group students; experimental group students completed significantly fewer courses during the Winter 1991 semester than students in the control and institutional groups; and experimental group students persisted to enroll in Fall 1991 semester courses at the same rate as control and institutional group students. In fact, control group students whose characteristics were "matched" with experimental group students and did not access supplemental academic support services "mirrored" the institutional group.

It was determined that there was a significant cost incurred by the community college for providing the supplemental academic support services to special population students.

A variety of suggestions were offered on how community colleges can determine if grant-sponsored academic support services benefit special population students' academic achievement and persistence and the financial impact on the institution's budget.

To my father, William D. Graves. Thanks dad, for your love, support, guidance and understanding. It's finally done!

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CHAPTER I

INTRODUCTION TO THE STUDY

Community colleges began in the late 1800s as junior colleges whose primary responsibility was to provide 18-22 year old students with low cost, quality educational opportunities within commuting distance of the student's residence. Students primarily enrolled in two-year academic programs and transferred to four-year institutions to complete their degree.

Community colleges were further legitimized by the President's Commission on Higher Education (1948), which endorsed the institutions as a viable means of increasing the accessibility of higher education to the general population. Promoting the "open-door" philosophy, community colleges enrolled students regardless of educational background or credentials in a variety of academic transfer programs, occupational/vocational programs, general education courses, and community education activities.

Prior to the 1970's, there was a relatively large labor market demand for low-skilled workers, primarily in the manufacturing sector. However, as the manufacturing sector became more technologically advanced and downsized during the 1980s, the demand for skilled workers increased. As a result, thousands of low-skilled and educationally underprepared individuals who relied on the manufacturing sector for high paying, lifetime employment became dislocated workers. At the

same time, many educationally underprepared individuals who were previously able to enter the manufacturing sector workforce directly upon high school graduation (or dropout) were presented with limited, low wage employment opportunities. As a result of the shifting workforce, many low-skilled individuals enrolled at a community college to obtain the educational and technical skills necessary to initially enter or reenter the labor market. As the unemployment rate increased, so did community college enrollments.

Both the federal and state governments authorized grant funding to provide financial aid to offset the cost of tuition, books, and fees for special population students to attend community colleges to obtain training or retraining. In addition, legislatures also approved grant funding to community colleges to operate academic and student support services such as counseling/academic advising, assessment, tutoring, and developmental/remedial education to enable special population students to be academically successful and achieve their educational goals.

For example, federal legislation has provided funding to assist special population students through the Carl D. Perkins Vocational Education Act. Carl D. Perkins grant funding has provided special population students enrolled in Michigan community colleges with $2,331,949 in Special Needs funding and $2,120,533 in Single Parent/Homemaker and Sex Equity grant funding to support tuition expenses and provide academic and student support services during the 1990-91 fiscal year (Michigan Department of Education). In addition, during the 1990-91 fiscal year, the State of Michigan has provided $2 million to fund a state-wide Michigan Job Opportunity Bank-Retrain Program and an additional $2 million to operate At-Risk Student Success programs at community colleges. Both of these programs were designed

to support the enrollment and enhance the academic success and persistence of special population students (State of Michigan 1990-91 Fiscal Year Budget).

Statement of the Problem

Community college administrators, legislators, and policy makers have realized that in contrast to recent high school graduates, many special population students require additional academic and student support services to overcome previous educational deficiencies and successfully achieve their educational goals. Federal and state legislatures have appropriated grant funds to provide supplemental counseling/academic advising, assessment, tutoring, developmental/remedial education, and other academic support services to improve special population students' academic achievement and persistence.

Through grants, federal and state legislatures have provided funding to community colleges to provide supplemental academic support services to assist special population students to successfully achieve their academic objectives. However, community colleges operating grant-sponsored academic support services for special population students have been required to submit limited data to the funding agencies indicating student use of these services and student outcomes. Limited data exists to indicate if these grants have any impact on students' academic performance. Therefore, it was important to determine if eligible special population students accessed grant-sponsored supplemental academic support services and if these services had a positive impact on special population students' academic achievement and persistence. Further, since community college enrollments of special population students is expected to increase (American Demographics

February 1988), an understanding of their enrollment on an institution's budget is important to future resource and financial planning, both by external agencies and college administrators.

Purpose of the Study

The purpose of this study was to determine if academic support services (primarily counseling and tutorial services) provided through grant funded programs (Single Parent/Homemaker Program, Special Needs Program-disadvantaged component, Michigan Job Opportunity Bank-Retrain Program, and At-Risk Student Success Program) were used by eligible community college special population students and if these services improved special population students' academic achievement and persistence. The research methodology used was a quasiexperimental design that compared three groups of students. The experimental group consisted of 200 randomly sampled special population students enrolled at Delta College during the Winter 1991 semester and the control group was 200 "matched pairs" students enrolled during the Winter 1991 semester with characteristics similar to experimental group students. An institutional group of 500 students enrolled during the Winter 1991 semester was selected by random sample to permit statistical comparisons to the overall Delta College student body. Institutional group students' characteristics were not "matched" with either experimental or control group students. A secondary focus of the study was to estimate the financial impact on a community college's budget as a result of providing academic support services to special population students.

Research Questions

A number of research questions were identified to assist in the implementation of this study:

1. Do special population students use the supplemental (grant-sponsored) academic support services available?

2. Do special population students use institutional academic support services at the same rate as non-special population students?

3. Do grant-sponsored academic support services provided to special population students supplement or replace institutionally funded academic support services?

4. When supplemental (grant-sponsored) academic support services are available, do special population students academically achieve at a rate comparable to non-special population students?

5. When supplemental (grant-sponsored) academic support services are available, do special population students persist at a rate comparable to non-special population students?

6. What portion of supplemental (grant-sponsored) academic support services costs are borne by the community college?

7. When grant-sponsored academic support services are provided to special population students, what is the estimated impact on a community college's budget?

Research Hypotheses of the Study

The research questions were formulated into null hypotheses to determine if there were differences in the academic achievement, persistence, and usage of

academic support services by experimental group (special population) students and control group (non-special population) students. The researcher compared three groups to determine if differences existed between: experimental and control group students; experimental and institutional group students; and control and institutional group students.

Hypothesis 1. The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will not statistically significantly exceed ($p > .05$) the mean hours of use by experimental group students.

Hypothesis 2. The mean hours of academic support services used during the Winter 1991 semester by experimental group students will not statistically significantly exceed ($p > .05$) the mean hours used by control group students.

Hypothesis 3. The experimental group students' Winter 1991 semester mean grade point average will not statistically significantly ($p > .05$) exceed the Winter 1991 semester grade point average of control group students.

Hypothesis 4. Experimental group students' proportion of Winter 1991 semester courses completed will not statistically significantly exceed ($p > .05$) the proportion of courses completed during the Winter 1991 semester by students in the control group.

Hypothesis 5. The Fall 1991 semester enrollment of experimental group students will not statistically significantly exceed ($p > .05$) the Fall 1991 semester enrollment of control group students.

Hypothesis 6. The mean grade point average during the Winter 1991 semester for the experimental group will not statistically significantly ($p > .05$) exceed the institutional group students' mean grade point average.

Hypothesis 7. The proportion of courses completed during the Winter 1991 semester by the institutional group will statistically significantly exceed ($p > .05$) the proportion of courses completed by the experimental group.

Hypothesis 8. The enrollment of experimental group students in Fall 1991 semester courses will not statistically significantly exceed ($p > .05$) the proportion of institutional group students.

Hypothesis 9. The institutional group students' Winter 1991 semester mean grade point average will not statistically significantly exceed ($p > .05$) the Winter 1991 semester mean grade point average of control group students.

Hypothesis 10. The proportion of courses completed by institutional group students during the Winter 1991 semester will not statistically significantly exceed ($p > .05$) the proportion of courses completed during the Winter 1991 semester by control group students.

Hypothesis 11. Fall 1991 semester enrollment by institutional group students will not statistically significantly ($p > .05$) exceed the enrollment of students in the control group.

Importance of the Study

The numbers of special population students enrolling at community colleges who require supplemental academic support services are expected to increase rather than decrease (American Demographics February 1988). Concurrently, legislatures, policy makers, and community college administrators must be fiscally responsible as they attempt to effectively maximize and allocate limited resources. The results of this study can provide information to community college administrators

to estimate the usage, costs, and associated benefits of providing supplemental academic support services to special population students through grants and institutional funding. These data may determine if additional funding is necessary to support these services and if so, may provide a rationale for community colleges to request additional grant funding and/or to reallocate institutional funding.

Delimitations, Limitations, and Generalizability

The study was delimited by being applied to a limited number of experimental and control group students enrolled at one community college. The study was also delimited by examining four grant programs at the institution as compared to the number of grant-sponsored programs available. A major limitation to this study is that it was not longitudinal; it only studied a limited number of students over a one year period. This timeframe did not allow for the identification of transfers, stopouts, or permanent leavers. A second major limitation to this study is that it was not conducted during the Winter 1991 semester, but approximately one year later. This limitation was further compounded as modifications in legislation, administrative rules, and funding levels also made comparisons across time and grant programs difficult. The definition of academic support services can also differ between grant programs and across time. Finally, while institutional recordkeeping can be used to verify student survey responses, the research was conducted on self-reported data.

Since limited conceptual models of student academic achievement and persistence have been specifically designed and tested at community colleges, transferability to other institutions should be carefully considered. However, the generalizability of the findings of this study to other community college settings is

possible if the institution operates similar academic support services sponsored by similar grant funded sources. Due to the national federal funding policies that provide grants to assist community college special population students to be academically successful, generalizations to other institutions is highly possible.

Definition of Terms

The following terms are defined in the context in which they were used in this study.

Academic Achievement. A student's grade point average during the Winter 1991 semester.

Academic Persistence. A student's successful completion of at least 60 percent of the courses in which they enrolled during the Winter 1991 semester; and completion of a stated program during the Winter 1991 or Spring/Summer 1991 semesters or subsequent enrollment in courses during the Fall 1991 semester.

Academic Support Services. Counseling and tutoring.

ASSET. A basic skills assessment instrument that is nationally normed and identifies students' scores for writing, reading, numerical, and algebra skills.

At-Risk Student Success Program. A state funded program designed to provide supplemental academic support services to students enrolled in developmental courses as designated on the institution's Academic Classification System Report.

College Fiscal Year. 1990-91 fiscal year; July 1, 1990-June 30, 1991.

Cumulative Credit Hours. The number of credit hours completed prior to the Winter 1991 semester, classified in ranges of credit hours 1-14, 15-29, 30-44, 45-59,

60-74, 75-89, 90-104, 105-119, 120-134, and 135 and above.

Enrollment Status. Part-time enrollment is defined as enrolled in 0-11 credit hours and full-time is defined as enrolled in 12 or more credit hours during the Winter 1991 semester.

Institutional Group. A group of 500 randomly selected students attending Delta College during the Winter 1991 semester. The 500 students will not be in either the control or experimental group and their student characteristics will not be identified.

Michigan Job Opportunity Bank-Retrain Program. A state funded program designed to assist displaced workers to receive training and regain employment. To receive services, students must be unemployed or have received a layoff notice. Eligible students must be enrolled in training that will be completed and allow job placement within one year of enrollment.

Single Parent/Homemaker Program. A federal program to support activities including tuition-free vocational education to assist single parents/homemakers or pregnant single women to acquire the job skills and training necessary to provide adequate financial support for themselves and their dependents. Eligible students must be enrolled in a state-approved vocational education program or course, approved basic literacy instruction, or approved career guidance workshops, seminars, or courses.

Special Needs Program-disadvantaged component. A federally funded program that provides supplemental academic support services to students who are academically deficient and enrolled in state-approved vocational education programs or courses.

Special Population Students. Students who federal and state grant agencies have determined require additional academic support services to be academically successful, and who enrolled at Delta College during the Winter 1991 semester and received supplemental academic support services funded through the At-Risk Student Success, Single Parent/Homemaker, Special Needs-disadvantaged component, and Michigan Job Opportunity Bank-Retrain programs during the 1990-91 academic year.

Supplemental (Grant-Sponsored) Academic Support Services. Academic support services provided during the 1990-91 academic year to eligible Delta College students enrolled in the At-Risk Student Success, Michigan Job Opportunity Bank-Retrain, Single Parent/Homemaker, and/or Special Needs-disadvantaged component programs.

The Study Setting

The study was conducted at Delta College, University Center, Michigan. Delta College is a community college established in 1961 to provide postsecondary education opportunities to Saginaw, Bay, and Midland County residents. The College is controlled by a nine-member Board of Trustees elected by the constituents of the three counties. During the 1990-91 academic year, Delta College enrolled approximately 12,500 students each semester in thirty-six transfer programs, fifty-three associate degree programs, and seventeen certificate programs.

In the 1990-91 academic year, some form of financial aid (grants, loans, scholarships, and/or student employment) was received by approximately 42 percent of the students who enrolled on at least a part-time basis. Many special population

students received financial assistance from grants, loans, employer tuition reimbursement programs, and State and Federal retraining assistance programs.

Organization of the Study

This study is presented in five chapters. Chapter II contains a review of the published literature regarding student academic achievement, student persistence, related academic and student support services, the financial resources utilized by community colleges to provide these services, and relevant grant legislation and funding. Chapter III is a presentation of the research methods and an explanation of the procedures used to gather and analyze the data. Chapter IV contains the results of the data analysis and Chapter V includes a summary of the study, conclusions, and recommendations.

Appendices that contain the questionnaires used in the study, copies of various communications with respondents, and other documents related to the study follows the text material which is followed by an extensive bibliography.

CHAPTER II

REVIEW OF RELATED LITERATURE

Historical Origins of the Community College

The open-door philosophy and mission of the community college in the United States evolved in response to several societal factors. The community college movement began through several alternatives including private academies, university extension centers, private two-year colleges, and junior colleges, with junior colleges having the most significant impact on the development of the community college. While the "first" community college was Moline Community College in 1947, community colleges have a history dating back to the 1800s. There is evidence that two-year colleges were in existence before 1850, however, the Morrill Act of 1862 provided the impetus for the open-door philosophy of the community college (Plaucher, 1987). Key university presidents encouraged the diversion of academically inferior students into an upper extension of the high school. If academically underprepared students demanding access to higher education enrolled at a two-year college, then universities could focus on research and advanced professional training. As a model, the University of Chicago (1892) was separated into two divisions; a lower division for freshmen and sophomores and an upper division for juniors and seniors. In 1900, the University of Chicago began awarding Associate degrees to students completing lower-division coursework. Associate degree

students who indicated academic promise and achievement could continue their education and enroll in upper division courses (Brint and Karabel, 1989).

In the early 1900s, the junior college's mission was to provide the first two years of college for the increasing numbers of high school graduates who wanted to attend college but were unable to access four-year universities due to their geographically distant location, high cost, and required academic standards. By 1921, there were 207 junior colleges established in the United States (Plaucher, 1987) and their student enrollments grew in response to several societal factors. The factors that impacted on junior college growth included the need for trained workers for employment in industries skilled for new technologies, the need to educate youth beyond high school, the drive for social equality that was enhanced by opening more schools and encouraging everyone to attend, and the means for achieving upward mobility (Cohen and Brawer, 1984).

The Great Depression further increased junior college enrollments as individuals attended college as an alternative to unemployment. State legislatures authorized the establishment of new colleges, so that by 1940, ten percent of all United States college students were enrolled in public two-year institutions. During this time, the junior college expanded its mission and established its role as a provider of transfer courses, community services courses, and vocational training (Plaucher, 1987).

In 1948, the President's Commission on Higher Education validated the junior college's mission and role in higher education. The Commission's report suggested that the name "community college" be applied to institutions designed to primarily serve local community needs. These institutions could have various forms of

organization and curricula of various lengths. Their dominate feature is their intimate relation to the community they serve. The Commission established five basic purposes and functions of these institutions: 1) survey the community and adapt programs to the needs of its full-time students, 2) consider apprenticeship training to provide older students alternate periods of college attendance (classroom study) and work experience, 3) provide students with a total educational effort that integrates general and vocational education, 4) provide students with academic preparation to transfer to four-year institutions, and 5) administer a comprehensive adult education program (Bogue, 1950).

Federal legislation played a significant role in the expansion of the community college system and increased student enrollments. Enrollments at community colleges surged during the post-World War II period as the G.I. Bill of 1944 sponsored World War II veterans and brought a new population of adults and returning students to community colleges. Community colleges were the institution of choice of a large number of veterans who wanted to resume their education at a location geographically close to their home and at a relatively low cost.

The 1963 Vocational Education Act initiated increased vocational funding to two-year institutions. Under the 1963 Vocational Education Act, a majority of the funding was appropriated to technical institutes rather than community colleges. The Higher Education Acts of 1965 and 1968 provided increased federal funding to community colleges and significantly expanded their vocational education programs. The Educational Amendment Act of 1972 further increased the federal financial commitment to vocational programs for disadvantaged and handicapped students.

The increase of federal funding to community colleges in the early 1970s

"channeled" students into vocational education programs. Between 1970 and 1977, full-time community college vocational education student enrollments increased from 33 percent to over 50 percent and student enrollments in transfer programs significantly declined. Community colleges continued to revise their curricula from a transfer orientation to vocational in response to consumer preferences, changing market conditions, and social preferences in their immediate geographical area (Brint and Karabel, 1989).

The greatest increase in community college growth and public acceptance occurred during the 1960s and early 1970s. In 1960, there were 315 public two-year colleges that enrolled approximately 392,000 students, accounting for 11 percent of the total higher education enrollment. In 1979, 926 community colleges enrolled over 4 million students, accounting for 35 percent of all postsecondary enrollments, and enrollments have remained steady during the 1980s with approximately 4.8 million students enrolling at 1,240 institutions that account for approximately 50 percent of all first-time college enrollments in the United States. There are two key reasons that have accounted for the tremendous student enrollment at community colleges since 1960: 1) the post-World War II "baby boom" generation came of college age, and states had to expand the number of positions in higher education institutions. Community colleges could be built and opened quickly and were assumed to be a cost-effective way to expand postsecondary education, and 2) the open-door philosophy provided the opportunity to postsecondary education to individuals who could not gain admission to more selective institutions. Federal policy encouraged equal educational opportunity that was supported by need-based financial aid programs. Enrolling increased numbers of minority and disadvantaged

students in higher education institutions was a particular goal (Breneman and Nelson, 1981).

By the 1970s, the community college appeared to have a universal definition of its mission, at least one that was accepted by community college professionals. The community college is an open-door institution with comprehensive programs that include transfer education, developmental education, vocational education, continuing education, general education, and student support services. Vocational and transfer programs are the instructional priorities of community colleges. The purpose of vocationalism is to teach specific skills to students to obtain employment and strong linkages exist between the local labor market, employers, and the community college's vocational training programs (Richardson and Leslie, 1980).

Due to the community college's open-door policy, developmental education and student support services became necessary to assist special population students to achieve their educational goals. In 1960, 16 percent of community college students who were given a standardized test were classified as remedial and required academic support services. Student support services such as academic advising, guidance, and counseling services were initiated after World War II based on recommendations by the Veteran's Administration (Bogue, 1950). As community colleges became the institutional opportunity for the less academically prepared or at-risk student, increased resources were allocated to developmental education and student support activities (Richardson and Leslie, 1980).

Demographics/Community College Students

Demographers predict by the year 2000 that there will be a significant shortage of qualified people to fill the available jobs; and many of the individuals who should fill these jobs will be unmotivated, undereducated, underhoused; a permanent underclass. The future economic strength of our country is in danger if the at-risk population is not empowered to be a contributing force (Parnell, 1990).

By 2000, nearly 75 percent of all jobs will require postsecondary education or technical training. However, literacy and educational inequities currently exists among various ethnic and socioeconomic groups:

	High School Graduation	College Enrollment	Bachelor's Degrees
Anglo	83%	38%	23%
Black	72%	29%	12%
Hispanic	55%	23%	7%
Native American	55%	17%	6%

(Parnell, 1990, p. 110)

Community colleges are enrolling increasing numbers of educationally underprepared students due to their open-door admissions policies. Colleges who enroll academically at-risk students need to provide student and academic support services to increase students' academic success, retention, and to assist students to achieve their educational goals. Programs and services to assist at-risk students should include: an assessment upon admission to assure basic skills in reading, math and written English expression, with developmental courses provided for students with identified deficiencies; a process to continually monitor student

progress; academic advising to assure students have accurate, appropriate information on what is required to obtain a certificate or degree; counseling or academic advising to assist students to select the appropriate courses; self-paced enrichment and tutorial programs; and a core curriculum that is required of all degree students to assure that proficiencies are met (Parnell, 1990).

The Workforce 2000 study indicates that by the turn of the century, the mean years of education required for employment will rise to 13.5, and only 27 percent of all jobs will be in low-skilled occupations. Similarly, the 1987 Committee for Economic Development Report demonstrates that "occupations requiring a college education or postsecondary technical training head the list of the fastest-growing occupations over the next decade and are expected to account for 6.2 million of the 16 million jobs projected to be added from 1984 to 1995" (Gold, 1990, p. 6). The economy will need to fill more of its high-skilled jobs through adult retraining as the birth rate declines and the workforce grows older, more female, and more disadvantaged (Gold, 1990).

At-risk adults are the individuals with the most to gain by attending college. "They are persons who are not employed at or near their productive capacity because of their personal circumstances or changes in the workplace" (Gold, 1990, p. 6). These adults include welfare recipients, displaced homemakers, dislocated workers, and people whose skills are rendered obsolete by advancing technology (Gold, 1990). Members of these special populations are enrolling in college in greater numbers. A recent United States Census Bureau Report indicated that 52 percent of the nation's undergraduate students are 22 years of age or older, and approximately 20 percent are 30 years of age or older. At community colleges,

these percentages are even higher, as the average age of students attending a community college is 29 years of age. Between 1972 and 1985, the number of 30 to 34 year old students enrolled in higher education institutions increased by 122 percent and the number of students 35 years of age and older increased by 112 percent. As a result, institutions are offering more evening courses, expanded administrative services, and expanded hours for academic support services. However, nontraditional student enrollments, special programs, and developmental projects can only maintain enrollment levels for so long. The additional costs and stress on faculties and support personnel are often at a great cost to the institution (Melia and Goodman, 1988).

Federal Legislation Impacting Community Colleges

The federal government operates a variety of programs aimed at providing aid to college students, tax incentives for employer-paid training, and funds for conducting manpower training. Recently, the key legislation impacting community colleges has been the Carl D. Perkins Vocational Education Act. The purpose of this legislation is to make the United States more competitive in the world economy by fully developing the population's academic and occupational skills. This will be accomplished by concentrating resources to improve educational programs that lead to academic and occupational skill competencies that are necessary to work in a technologically advanced society. The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 amended the previous legislation. The primary purpose of the amendment is to redirect federal assistance to improve vocational education and services for special population students. States must

assure that special population students will be given equal access to vocational education and receive supplementary and other services necessary to succeed in vocational education. States must give priority to programs that serve the highest concentrations of special population students (Federal Register, October 11, 1991). The legislation focuses federal resources on the following community college programs.

Career Guidance and Counseling programs provide special population students with career awareness, planning, and decision-making; placement skills; an understanding of local, state, and national occupational, educational, and labor market needs, trends, and opportunities; and assists individuals in making and implementing informed educational and occupational choices (State of Michigan Dean's Guide for Vocational Education, 1991).

Special Needs program funding provides academically disadvantaged students with supplemental academic support services and counseling. In Michigan during the 1990-91 academic year, community colleges received $2,331,949 to operate Special Needs programs. To receive supplementary services, students must be unable to succeed in regular vocational education courses without additional assistance. The following indicators are evidence of a special population student's inability to succeed: 1) a grade point average based on high school or prior college work of less than a 2.0, or demonstrated inability to succeed based upon standardized testing procedures; and 2) less than a 2.0 grade in any federally reimbursable vocational course, or enrollment in a developmental course needed to prepare the student for course work in a vocational curriculum. Approved activities to assist special population students include: outreach activities to inform the public

of the availability of programs and services; assessment to determine the interests, abilities, and needs of each special population student; peer tutorial or professional instructional assistance; curriculum modification to revise curriculum materials or instructional methods; the purchase of special instructional equipment; and guidance, counseling, and career development activities (State of Michigan Dean's Guide for Vocational Education, 1991).

Single Parent/Homemaker programs serve special population students who are displaced homemakers, homemakers, or single parents. Services available include tuition and fee reimbursement for vocational training, reimbursement for the appropriate tools, supplies, and materials necessary to participate in vocational training, counseling, tutoring, developmental skill building, and job placement. In Michigan during the 1990-91 academic year, community colleges received $2,120,553 to operate the Single Parent/Homemaker Program. Students meeting the following eligibility criteria can receive program services: 1) a Single Parent is an individual who is unmarried or legally separated from a spouse, and has a minor child or children for whom the parent has either custody or joint custody; 2) a Homemaker is an individual who is an adult and has worked primarily without remuneration to care for the home and family, and for that reason has diminished marketable skills; 3) a Displaced Homemaker is a homemaker who because of divorce, separation, or the death or disability of a spouse must prepare for paid employment. This individual must also be an adult who has worked primarily without remuneration to care for the home and family and for that reason has diminished marketable skills; has been dependent on public assistance or on the income of a relative but is no longer supported by such income; or is a parent whose youngest dependent child

will become ineligible to receive assistance under the Aid to Families with Dependent Children program within two years of the parent's application for assistance; or is unemployed or underemployed and is experiencing difficulty in obtaining any employment or suitable employment as appropriate; and 4) a Single Pregnant Woman is an individual who is unmarried or legally separated from a spouse and is pregnant (State of Michigan Dean's Guide for Vocational Education, 1991).

State Legislation Impacting Community Colleges

In addition to federally sponsored activities, state-funded programs to assist special population students have been implemented. In Michigan, Governor Blanchard initiated the At-Risk Student Success Program in September 1989. A total of $2.15 million was appropriated in fiscal year 1990 (Community College Appropriation Act No. 175, P.A. of 1989). Each community college received a minimum grant of $40,000 with the remaining funds allocated on a formula based on the number of unduplicated students served during the 1988-89 academic year through the Michigan Job Opportunity Bank-Retrain Program, the Tuition Incentive Program, and the Michigan Occupational Skills Training Program. Community colleges accepting At-Risk Student Success funding were required to pretest all incoming special population students' academic ability using a nationally standardized test and provide a minimum of one counseling contact during the first half of each term. At-Risk Student Success Program funding could be used to provide assessment testing, counseling, mentoring, or related activities. During the 1991 fiscal year, student eligibility was revised to serve special population students enrolled in developmental courses as defined by institutional Academic Classification System Reports.

Retraining the Unemployed

Retraining workers for new jobs has become a major challenge for community colleges, especially in communities where residents face either immediate layoffs or long-term unemployment. Displaced workers must be able to operate new technologies, implement new manufacturing processes, and practice quality control strategies required by business and industry. For displaced workers to successfully reenter the job market, retraining to obtain these skills is often required (Wojcicki and Kaufman, 1990).

In the past, local economies experienced periodic highs and lows, with corresponding changes in the unemployment rate. Workers grew accustomed to "riding out" these recessions because they knew that in time, the economic situation would improve and their jobs would return. Workers felt secure that their skills would still be adequate when the local economy returned to normal. Unfortunately, in today's industrial economy, the reality is that some worker's skills are no longer adequate to meet the needs of today's highly technical, automated manufacturing systems (Wojcicki and Kaufman, 1990).

Prior to entering a training program to develop new occupational skills, displaced workers should participate in a series of transitional services. These services will assist the displaced worker to realistically examine the current and projected labor market, identify the skills required by employers, and select the appropriate vocational training program to acquire these skills. Transitional services should include an orientation, evaluation process, career path exploration, career choice qualifications, and retraining to complete the career change (Wojcicki and Kaufman, 1990).

In Michigan, Governor Blanchard initiated the Michigan Job Opportunity Bank-Retrain Program on January 1, 1986 to assist unemployed Michigan residents to obtain the retraining necessary to reenter the labor market. During fiscal year 1986, the State provided $2 million to Michigan community colleges to serve a minimum of 1,000 dislocated workers. An additional $2 million was provided annually through fiscal year 1991 to support the program's objectives. The goals of the Michigan Job Opportunity Bank-Retrain Program were to: 1) successfully utilize Michigan's community colleges to provide assessment, training and placement services to dislocated workers; 2) train at least 1,000 dislocated workers in occupations with employment opportunities available in the local labor market; and 3) place at least 70 percent of participating dislocated workers into training-related jobs at a rate of at least $5.00 per hour.

To be eligible to receive services, individuals must be: 1) a citizen or national of the United States and a Michigan resident; and 2) a dislocated worker who is: unemployed or underemployed due to a layoff or plant closing; not currently enrolled in other federal or state training programs for similar services; employed at least three years in the same industry or occupation before being displaced; and capable of successfully completing the training within one year or less as determined by the community college staff.

Community colleges participating in the Michigan Job Opportunity Bank-Retrain program were required to provide eligibility determination services, assessment, counseling, vocational skills training, and job development and placement.

Each of these legislated programs appropriate funding to assist special population students to successfully complete their educational objectives and obtain

the occupational skills necessary to enter or reenter the labor market in the shortest timeframe possible. While community colleges are required to compile data and submit final reports to the funding agency indicating the numbers of students served, the activities implemented, and financial expenditures, limited information exists on the impact these grant-funded programs actually have on the special population students they were designed to serve. Additional research is required to determine if grant funds awarded to community colleges positively impact special population students' ability to achieve their educational objectives.

Student Persistence in Postsecondary Education

Attrition and persistence are both reflections of the functioning of the higher education system. As a national phenomenon, attrition has been a stable feature of higher education and the rates of attrition have remained constant over the past 100 years. With the exception of the period during and immediately following World War II, the rates of attrition have remained stable at about 45 percent, despite the marked growth and alteration in the character of the higher education system. It is unlikely that this rate will be significantly altered without massive changes in both the structure and functioning of higher education in the United States.

Vincent Tinto conducted several research studies on student persistence in four-year institutions. The model developed by Tinto (1975) is the most widely recognized and tested model of student retention. Tinto's model is a longitudinal, institution-specific retention model in which emphasis is placed on integration. Integration into the academic system of the college leads to new levels of student commitment. The interaction between the student's commitment to the institution

and his/her commitment to the goal of college completion determines whether or not the student persists. In the academic domain, goal commitment influences student's grade performance and intellectual development, which increases their likelihood of persistence. There are two forms of academic integration. The first form is measured in terms of grade performance and intellectual development and in the second, grades are the single most important factor in predicting persistence in college (Ammons, 1971; Astin, 1972; Blanchfield, 1971; Coker, 1968; Greive, 1970; Jaffe and Adams, 1970; Kamens, 1971; and Mock and Yonge, 1969).

In conducting a retention study, researchers need to identify the longitudinal process of interactions by building into the model sets of individual characteristics and dispositions relevant to educational persistence. The model should identify student's background characteristics, expectations and motivational attributes (measured by career and educational expectations and levels of motivation for academic achievement), educational goal commitment, and institutional commitment. Other things being equal, the higher the student's degree of integration into the college's academic system, the greater their commitment to the specific institution and to the goal of college completion. If unchanging external conditions are assumed (changing labor/job market, repeal of the draft law, etc.), attrition is a result of the student's experiences in the college's academic system.

A number of attrition studies at four-year residential institutions have validated portions of Tinto's model. The influence of academic integration on student retention has been supported in a number of studies including Nelson, Scott, and Bryan, 1984; and Pascarella and Terenzini, 1980. Pascarella and Terenzini's study assessed the dimensions of academic integration. The study sought to determine

whether a multidimensional measure of academic integration based on Tinto's model would significantly discriminate between freshman year persisters and voluntary withdrawals, with the student's pre-college characteristics held constant. The study's results support the predictive validity of the Tinto model, and have significant implications for educational decision-makers concerned with maximizing institutional resources associated with attrition. A significant portion of student attrition can be prevented through timely and carefully planned institutional interventions. These interventions will be effective if students with a high probability of withdrawing can be accurately identified (Pascarella and Terenzini, 1980).

Munro used path analysis to test Tinto's model using a sample drawn from the National Longitudinal Study of the High School Class of 1972. In this study, it was found that while pre-college characteristics predicted college integration, they did not directly affect persistence. Factors related to the student's integration into the college's academic environment were more important. This lends support to the findings of Terenzini and Pascarella (1978) in which academic integration variables accounted for nearly twice as much variation in persistence as did other variables.

As the costs of higher education continue to rise, colleges and universities are increasingly under pressure to document the consequences or outcomes of the educational programs and services they offer. Numerous studies have focused on the personal traits of students and their influence on educational outcomes. Fewer studies have attempted to assess the relationship between student's developmental progress and the various collegiate programs presumed to influence that growth and over which institutions have some control. A good deal is known about how students grow in the collegiate environment, but far less is known about the institutionally

induced forms of student development (Terenzini, Pascarella, and Lorang, 1982).

A large number of student retention studies were conducted without controlling for academic aptitude and other student background characteristics. The absence of control creates interpretive problems for studies seeking to isolate institutional effects. In studies of institutional influences, failure to control for students' pre-college characteristics means that one cannot reject the hypothesis that students performed or grew as they did because of what they were like when they first matriculated. For college administrators, the question is not whether students change or grow in various ways during their college enrollment but whether (and to what extent) the growth or change is attributable to the collegiate experience. The issue is not what the influences are, but rather what institutionally controllable influences have a positive effect on desirable educational outcomes (Terenzini, Pascarella, and Lorang, 1982).

Terenzini, Pascarella, and Lorang (1982) conducted a study with two primary purposes: 1) to determine whether students' perceptions of their growth in certain areas could be reliably related to their experiences at a higher education institution, and 2) to identify those features of the collegiate experience over which the institution has some control that influence students' perceptions of growth in various areas. Because Tinto's model suggested that students' academic growth is related to a variety of background characteristics, and due to the interest in assessing the influence of the collegiate experience on educational outcomes, this study controlled for the following pre-college characteristics that the research literature suggests are important correlates of academic development (Lenning, 1974; Feldman and Newcomb, 1969; Astin, 1977): gender, race, intended academic major, combined

formal education of parents, university's rank as a college choice, parent's combined annual income, high school achievement, academic aptitude, and highest academic degree planned.

The results of Terenzini, Pascarella, and Lorang's study (1982) determined that with the exception of gender, race, and combined SAT scores, the pre-college traits measured in this study appear to be unrelated to student's perceptions of their growth during the freshman year. The research findings suggest that even when differences in a battery of student pre-enrollment traits are statistically controlled, measures of student involvement with faculty, peers, campus social environment, and classroom experiences account for significant increases (from 3 to 25 percent) in the explained variance of a range of educational outcomes. These outcomes include freshman year academic achievement and perceived growth in four areas: perceived personal development, academic and intellectual processes and content, and preparation for the future.

Pantages and Creedon (1987) have stressed the importance of identifying at-risk students so that intervention with counseling or other institutional programs can be undertaken before withdrawal decisions are made. The performance of five institutional integration scales in this study suggests that they may be useful in identifying freshman students with a high probability of withdrawing. The five scales are: 1) interactions with faculty, 2) students' perceptions of faculty concern for student development and teaching, 3) peer-group interactions, 4) academic and intellectual development, and 5) institutional and goal commitment.

Different forms of institutional actions for student retention must be carefully timed to meet the changing situations and needs of students as they attempt to

progress along the path to college completion. Programs and evaluation strategies must be employed to determine which forms of institutional action are most effective in treating departure at different points in the student's career. Whatever forms of action institutions take on behalf of student retention, these actions should be concentrated on the very early stages of the student's college career rather than on later stages after serious problems have surfaced. Institutions must not ignore student needs beyond the first year, however, it is evident that the first year, indeed the first semester is critical to the student's eventual persistence until degree completion (Tinto, 1988).

Student Persistence in Community Colleges

During the last two decades, the most common point of entry into higher education has been the community college. More than half of new college entrants begin their higher education in a two-year college (Tinto, 1987). While Tinto's research focused on four-year residential institutions, all college students have to make some form of intellectual transition to the academic demands of college, eventhough these demands will vary from institution to institution. Tinto determined that variances in the attrition rates in different types of institutions are due to the entering students. The attrition rates are higher at public institutions than private institutions and the attrition rates are higher at two-year colleges than at four-year institutions, even after students' characteristics have been taken into account.

The higher rates of attrition at two-year colleges are primarily attributable to the lower level of motivation and academic ability of the entering students. However, student retention rates at two-year colleges are still lower than would be expected

from the characteristics of their students alone. Some authors have concluded that it may be the function of two-year colleges to screen-out students from transferring to a four-year institution (Astin, 1972; Bayer, 1973; and Berls, 1969). Other authors have suggested that two-year colleges may screen out lower economic status students from transferring to a four-year institution and reinforce inequality of opportunity within the higher education system (Karabel, 1972; Spady, 1970; and Tinto, 1971).

Although a number of theoretical models of college student degree persistence have been developed since Vincent Tinto first proposed his theoretical model in 1975, a majority of the models are based on research conducted at four-year colleges and universities. The few studies that have focused on two-year colleges have generally tested the applicability of Tinto's model at two-year institutions. However, differences in the nature of two-year and four-year colleges and their students as pointed out by Tinto (1987) and others, may make Tinto's model unsuitable for two-year institutions. In addition, Tinto's model fails to place sufficient emphasis on subgroup characteristics such as those associated with age, gender, or racial/ethnic categories (Tinto, 1987). Because nontraditional students comprise a large proportion of the two-year college population, this is a serious flaw in the Tinto model.

Halpin's study examined the application of Tinto's model as operationalized by Pascarella and Terenzini (1980) to analyze student persistence at a community college during the first semester of enrollment. The research results indicated that Tinto's model did have utility for researchers and administrators concerned about retention. Varying levels of integration were significant predictors of persistence, withdrawal, and academic dismissal, with the effects of background and

environmental factors controlled. The greater influence of academic integration compared to other variables was particularly noteworthy. The Tinto model does predict persistence or exit outcomes. Perhaps the explanation for the predictive power of the model and the importance of academic integration for this population has to do with the fact that the academic systems of commuter and residential colleges are more similar than their respective social systems.

Pascarella and Chapman (1983) compared withdrawal from three types of institutions: four year residential, four-year commuter, and two-year commuter institutions. They determined that Tinto's model had predictive validity for all types of institutions. Other studies have reported the same general findings including Pascarella, Duby, Miller, and Pasker, 1981; Pascarella, Duby, and Iverson, 1983; and Pascarella and Wolfe, 1985.

In two-year and four-year commuter institutions, academic integration has greater indirect effects on attrition than do other variables (Pascarella and Chapman 1983a; Pascarella and Wolfe, 1985; and Tinto, 1987). In addition, the external environment has been found to be a factor influencing the retention decisions of students at commuter institutions (Chacon, Cohen, and Strover, 1983; Tinto, 1987).

A study by Webb (1988) reviewed the Tinto model and its applicability to understanding freshman persistence at two-year colleges. Webb concluded that none of the existing models were adequate for two-year populations, if the intent of a retention program is to identify potential dropouts as early as possible. Webb identified variables that can be used to predict retention using information that can be obtained prior to, or at the time of matriculation. In Webb's model, the following factors had primary effects on student persistence: 1) high school academic

achievement (ASSET test scores, high school graduation status), 2) external environment (need for financial aid, hours planned to work, day/evening status, need for employment), 3) goal commitment (educational goal, certainty of major, enrollment status), 4) expected student/college fit (reason for attending, college choice rank), 5) academic intent (vocational education status, two-year degree plans), and 6) academic integration (first semester grade point average, number of courses passed first semester). In addition, there were two secondary effects in the model: 1) background characteristics (race, gender, veteran status) and 2) academic self-confidence (need for academic assistance). Webb's model differs from Tinto's model due to the inclusion of external environment, academic self-confidence, and expected student/college fit.

Bean and Metzner (1986) developed a separate model of persistence for nontraditional students. This model presents variables other than academic integration as having indirect effects on psychological outcomes and intent to leave, thus having a limited effect on attrition. Bean and Metzner's model appears more valid for studying attrition at two-year institutions than Tinto's model.

Pascarella, Smart, and Ethington (1986) focused specifically on the long-term persistence of two-year college students. Eight hundred and twenty-five students who initially enrolled in 85 two-year colleges were tracked over a nine year period. The variable with the most consistent pattern of positive effects on persistence was academic integration.

A study by Voorhees (1987) followed re-enrollment patterns of 369 students in a community college over two semesters. In this study, academic integration defined as grade point average, number of informal conversations with faculty, and

number of hours spent studying was determined not to have an independent effect on persistence.

Neumann conducted an ethnographic study of attrition in an urban, community college in the Northeastern United States. Neumann selected a group of students who were high-risk or by institutional standards, were deemed unlikely to complete their degree program. The study focused on whether the experiences of the students who did persist differed from similar students who withdrew. Neumann discovered that successful students consistently made the successful transition to college, often with the help of faculty or staff.

The implications for researchers and administrators concerned with retention in community colleges is clear. While little can be done to influence "background characteristics" or "environmental" characteristics of community college students, the creation of institutional mechanisms to maximize student/staff contact is likely to result in greater levels of integration and therefore persistence. Developmental academic advising systems, mentoring, and small group learning projects, and a generally accessible, involved faculty and staff may be a significant portion of the prescription for retention in open-door community colleges.

Few community colleges have had the financial resources to develop a formal student tracking system and few have created a system to identify high risk students. As a result, a serious information gap exists given the increasing concern in higher education with student retention and attrition. The differences in student retention and attrition between two and four-year institutions lie in the characteristics of the students attending and the nature of the community college as an institution. Most research on student retention is based on four-year colleges and either implicitly or

explicitly defines retention as on-time graduation from the institution of first matriculation. Therefore, much of this research has limited application in the community college. A college should be concerned with that portion of student attrition that occurs because of institutional weaknesses or failures. Therefore, the goal becomes one of helping students define and achieve their educational and vocational objectives and prevent the immense waste of individual and societal resources when students fail to achieve their goals (Walleri, 1981).

The major thrust of retention research is to be able to identify which types of students are most likely to withdraw. However, with only 10 percent of the variance in withdrawals explained, there is simply no basis for meaningful predictions. The factors associated with student retention and attrition can be grouped into four classes: 1) student characteristics, 2) institutional characteristics, 3) the interaction effects between student and institution, and 4) societal or external factors (Walleri, 1981).

Student characteristics include background traits and process attributes; those factors that influence student behavior while in college such as motivational, psychological, financial and employment patterns. Institutional characteristics identified in the literature as affecting student persistence have less application in the community college than other segments of higher education. Students attend a community college primarily because of low cost, convenient location, or for particular programs. Other institutional characteristics are of secondary importance (Walleri, 1981).

The concept of fit between student and college has limited application to the community college. The community college often presents the only viable option for

students seeking a higher education. For students not aspiring to a four-year degree, community colleges provide the only option for vocational training within a college environment. In the area of transfer and pre-professional education, community colleges provide smaller classes and more personal attention than is feasible for large university systems to offer. For students who need it, community colleges provide a period of transition. Because of the diversity of needs served and because of the practical considerations that draw students to the community college, it is difficult to adapt the concept of fit to the community college environment. The challenge facing a community college is to develop an institution flexible enough to respond to the diverse needs of a very heterogeneous audience without allowing the academic experience to become diluted. Retention strategies in the community college will by necessity be multi-faceted and tailored to the specific needs of identifiable groups within the general student population (Walleri, 1981).

At Lethbridge Community College, a student retention model was established to increase the retention of high-risk students. Community college administrators and faculty determined that institutional retention activities should focus upon the positive aspects of upgrading the quality of education and improving the experiences provided for individual students both inside and outside of the classroom. Institutions and their student services staffs should develop a greater awareness of the needs and characteristics of dropout-prone students. Once they identify these students, student services personnel should institute intrusive strategies to offer immediate support to any student experiencing difficulty. In this study of student retention, Heath found that academic variables such as high school rank, first semester college grades, study habits, and financial aid were predictive in identifying

high risk students. A student alert system which monitored high risk students was used to quickly begin proactive interventions when these students began to experience difficulties and as a result, student retention was increased (Heath, 1991).

Limited retention studies have been conducted at community colleges. The research indicates that academic integration is a key factor to student persistence, particularly for at-risk students. However, many of these studies have transposed Tinto's four-year residential model and applied it to a community college. This research method fails to consider the differences in student characteristics and academic support services inherent in the community college environment. Additional research to examine these factors is necessary.

Academic Support Services

Counseling/Academic Advising

For many years, student affairs officers have touted the importance of academic advising for student development and retention. Enrollment management concepts and reports such as Involvement in Learning (Study Group on the Conditions of Excellence in American Higher Education, 1984) supported services such as freshman advising because these activities provided benefits for both students and the institution by improving retention.

Academic advising is a factor in student persistence and retention. Baldridge, Kemerer, and Green (1982) contend that advising, orientation, and counseling are important retention activities in colleges. Because the major causes of freshman attrition are uncertainty about academic choices and unpreparedness for academic success (Noel and Levitz, 1982; Titley and Titley, 1980; and Cross, 1971), effective

first-year advising is especially important. Forrest (1982) concluded that a well-developed orientation and advising system make a significant and positive contribution to student satisfaction and therefore to retention (Young, Backer, and Rogers, 1989).

In a study of freshman attrition, Young, Backer, and Rogers (1989) found that grade point averages of students participating in academic advising and counseling services were significantly higher than students who did not receive those services, indicating that the services had an impact on student's grade performance. Attrition was indicated at the end of the fall semester of the first year and upon students' failure to re-enroll in the fall of the second year. The overall attrition rate of 29 percent was the lowest at the university in at least 8 years. From 1979 to 1985, first-year attrition ranged from 31 percent to 36 percent. In this study, students participating in academic advising and counseling services had markedly higher grades and lower attrition than did nonparticipants (Young, Backer, and Rogers, 1989).

Walleri (1981) found that the availability and quality of student services including orientation, counseling, academic advising, developmental education, and tutorial services had a positive impact on community college students' persistence. Improvements in these areas have often resulted in increased retention rates. The research suggests that students who need this assistance receive it as early as possible in their college experience. In particular, the college should make every effort to ensure that students identified as "high-risk" receive adequate counseling and academic advising (Walleri, 1981).

Reyes (1981) randomly assigned 124 freshmen to either control or experimental groups in her study "The Effects of Peer Counseling on the Academic

Performance of College Freshman in Predominately Minority Institutions". The effectiveness of peer counseling from sophomores trained to peer-counsel freshmen; and academic groups, study groups, and outreach programs from which the freshmen seek information was evaluated. The freshmen were evaluated in five areas: grade point average; career maturity (Crites Maturity and Inventory Attitude Scale); study orientation (Brown and Holtzman Survey of Study Habits and Attitudes); retention indexes; and reactions of community college members, faculty, administration, peer counselors, and students.

The findings between the counseled and non-counseled groups demonstrated that there was no significant difference in their grade point average; there was no significant difference in career maturity; there were considerable changes on the counseled student's teacher approval and educational acceptance; 15 percent more students in the non-counseled groups withdrew; and generally positive reactions about the peer counseling program were indicated. The results of Reyes' study indicated peer counseling made a difference, not directly in the form of grade point average, but indirectly in terms of increased retention.

Improvement in academic advising ranks among the most frequently recommended and implemented interventions for increasing student retention. Several major reasons appear to underlie the appeal of academic advising as a means of promoting student retention. These reasons include: 1) academic advising offers the potential of linking students' goals with institutional resources on a personalized basis; 2) high-quality advising can help students clarify their educational goals and relate these goals to the curriculum and to future careers; 3) encourage academic success by assisting students with a selection of coursework that is compatible with

their interests, abilities, outside commitments, and career aspirations; 4) facilitate referral to other services and programs at the institution; and 5) establish a personal bond between a student and college personnel.

For students, the linkage of their goals with institutional resources may subsequently create a better appreciation of the benefits of a college education, greater involvement in the institution, increased learning, a more satisfying college experience, and stronger motivation for continued enrollment. The outcomes of high-quality advising for students suggests that advising may have indirect effects on retention through other variables related to retention. For example, academic advising may influence students' college grade point average or their perception of the value of their college education for future employment, factors that in turn affect retention. Many intervention programs have been implemented on the assumption that an improvement in advising quality will decrease student attrition. However, empirical investigations have neither thoroughly tested this assumption in the context of the student attrition process nor estimated the magnitude of the total effects on attrition from differences in the quality of advising (Metzner, 1989).

In Metzner's study, a model of the student attrition process was used to examine the influence of the perceived quality of academic advising on freshman attrition. Neither good advising or poor advising had a significant, unique, direct effect on student attrition. However, the indirect effects of the advising variables on attrition occurred through the intervening variables of satisfaction, utility, grade point average, and intent to leave. Good advising was found to have a negative association with attrition based upon the following factors: student's better academic performance (grade point average), their belief that a college education had greater

value for future employment opportunities, more satisfaction with courses and the role of being a student, and less intent to leave the university.

Advising has direct links to student concerns and implications for performance in the academic area and other areas of development. Forrest (1982) concluded that "probably the single most important move an institution can make to increase student persistence to graduation is to ensure that students receive the guidance they need at the beginning of the journey through college to graduation" (Hartley, 1987, p. 88).

Callis and DePauw (1985) reviewed a number of studies that found that counseling improves the academic performance of students, while Bishop and Breneman (1986) reported that the vast majority of students who were considered to be retention risks chose to continue their enrollment after receiving counseling. Eighty percent of the students participating in counseling center services were still enrolled as full-time students for the academic year following their initial contact with the counseling center. Twenty percent did not re-enroll at the institution during the next academic year. The results of this survey provided additional evidence that students who are identified as retention risks tend to persist in their academic careers after receiving counseling (Bishop and Walker, 1990).

Western New Mexico University developed a retention program that significantly reduced attrition and increased enrollment. For the eleven years prior to implementing the retention program, student attrition had increased, reaching a peak of 65 percent for freshman classes and 35 percent for sophomore classes during the 1980-81 academic year. To reverse this trend, Western New Mexico University evaluated the reasons for the high attrition. The institutional evaluation revealed that

the students who dropped out were primarily freshmen and sophomores who had not received enough individual attention; needed developmental programs; were confused about degree and program requirements and ways to meet requirements; needed more vertical degree options; and were, most importantly, disinclined to take advantage of many of these programs and services should they be offered. As a result of implementing advisement and counseling retention strategies, university enrollment increased during the 1982-83 academic year by 18 percent and for the 1983-84 year by 13 percent. Attrition for freshmen was reduced from 66 percent to 48 percent during the 1981-82 academic year and from 48 percent to 25 percent during the 1982-83 year. Freshmen attempted a greater number of credit hours, more attempted hours were completed and a higher mean grade point average was earned (Heath, 1991).

In 1977, Jefferson Community College faced an 11 percent drop in enrollment. The institution conducted an extensive study of in-class attrition and found that approximately 40 percent of the class enrollments resulted in either a failing grade or in a withdrawal from the course. Institutional personnel determined that the overall class attrition of 40 percent was too high (eventhough it matched the national average) and used this as a starting point to initiate an institutional retention program. The program included: an on-line computer student records and tracking system; an advising system capable of following the progress of entering freshmen during their first semester and continued monitoring of special population students; and a coordinated assessment of students from their point of entry to their point of exit. As a result of this retention program, the grade point average of experimental (program) students during the Fall 1983 semester was 2.45 and a similar control

group of students received a grade point average of 1.62 (Miller, 1985).

Landward and Hepworth (1984) conducted a study of at-risk college students and placed the students into three groups: 1) an experimental group consisting of high-risk freshmen who participated in an academic support program, 2) a control group I, consisting of high-risk students who were not included in the experimental group, and 3) a control group II, consisting of high-risk students were did not participate in an academic support program. The students were equivalent on ACT test scores and predicted grade point averages and there were no significant differences in age or gender. The criterion measures to compare the three groups were mean grade point averages achieved for each of the three quarters and for the full academic year. A second criterion measure was the proportion of students who remained in school after completing the first quarter and during the full academic year. The program consisted of academic advising and counseling both on an individual and group basis.

Landward and Hepworth found that there was a significantly higher academic performance level for students in the experimental group. The results:

Group	N	Mean	SD	F Value
Experimental	30	2.14	1.13	
Control I	59	1.14	1.02	6.61
Control II	115	1.34	1.05	
Total	204	1.47	1.16	

(Landward and Hepworth, 1984, p. 123)

The experimental group also outperformed the control groups on rate of continuance in school. Eighty-six percent of the experimental group students continued their

enrollment after the first quarter as contrasted to only 54 percent and 52 percent. The results:

Group	Number Beginning	Number Remaining	Percent of Total
Experimental	30	26	86
Control I	61	35	54
Control II	121	62	52

(Landward and Hepworth, 1984, p. 124)

Data for the three groups for the second quarter reflected a reverse trend. The experimental group mean grade point average decreased whereas the control groups slightly increased their mean grade point averages:

	2nd Quarter GPA				3rd Quarter GPA			
Group	N	Mean	SD	F Value	N	Mean	SD	F Value
Experimental	26	1.29	1.03		18	1.78	1.25	
Control I	30	1.69	.97	1.07	29	1.63	1.10	.39
Control II	59	1.54	1.09		58	1.53	.95	
Total	115	1.53	1.05		105	1.60	1.04	

(Landward and Hepworth, 1984, p. 124)

The marked drop in academic performance could have resulted from the withdrawal of the academic support and assistance provided during the first quarter. The increase in grade point averages were lowest for the first quarter. In large measure, the effects of the academic support services were transitory, and served

only to delay the attrition characteristic of the high-risk students in the experimental group. The composite grade point average of the experimental group (1.78) was slightly higher than those of Control I (1.57) and Control II (1.47). By the end of the freshman year, the experimental group had a slightly higher retention rate (60 percent) than Control I (48 percent) and Control II (47 percent). Therefore, academic support services provided during the first quarter of enrollment did not improve high-risk students' grade point average or retention overall. Students who received services during the first quarter outperformed their peers in grade point average and retention during the semester academic support services were provided (Landward and Hepworth, 1984).

A study was conducted by Hudesman, Avramides, Loveday, Wendell, and Griemsmann (1986) to determine the impact of counseling on the academic performance of college students enrolled in special programs. There have been several attempts to develop counseling strategies for improving the academic performance of at-risk students. One approach is to provide high-risk students with a structured model of counseling services. Treadwell (1977) found that using a structured group approach in counseling and advising situations was associated with higher grade point averages and better retention of students after one year. These findings are consistent with conclusions drawn by Moore (1976) and Godbold (1978), who contend that disadvantaged or high-risk students place greater value on tangible services, specific referrals, and direct answers than on more nondirective counseling procedures (Hudesman, Avramides, Loveday, Wendell, and Griemsmann, 1986).

Educational institutions are becoming more concerned about how to retain students. This can be inferred from the rise in student support services such as

study skills workshops, orientation courses, and tutoring services (Lenning, Beal, and Sauer, 1980; Pantages and Creedon, 1978; and Pascarella, 1982). Students report the need for such support services (Weissberg, Berentsen, Crote, Cravery, and Heath, 1982) and marginal students who use such support services experience greater academic success than those who do not (Collins, 1982). These services however, are probably underused (Friedlander, 1980; Lewicki and Thompson, 1982) or are resisted if their use is mandated (Benedict, Apsler, and Morrison, 1977). Even when support services are available, students often prefer to seek help from informal sources. A greater reliance on informal sources would help to explain the underuse of more formal sources of aid (Knapp and Karabenick, 1988).

In a study conducted by Knapp and Karabenick (1988), 612 general psychology students were surveyed. Of those surveyed, 39 students (61 percent) reported no need for academic assistance. The 573 individuals who expressed some degree of need for help with courses or general study skills:

Source of Help	Frequency of Contacts (Percent)						
	0	1	2	3	4	5	6+
Formal							
Instructors	47	12	14	8	4	6	9
Student Tutors	81	8	4	2	2	1	2
Instructional Center	82	6	3	2	2	1	3
Career Planning and Placement Center	92	4	2	1	0	0	1
Instructional support center for general study skills	91	4	2	1	0	0	2
Informal							
Friends	37	5	6	11	7	19	24
Other students in class	43	7	11	9	5	8	16

(Knapp and Karabenick, 1988, p. 225)

It is evident that formal sources of assistance other than instructors were rarely used. Even though instructors were more widely employed than other formal sources, 47 percent of the students in need reported they never obtained help from their instructors. The data indicates that informal sources of help were used to a greater degree than their formal counterparts. For example, 63 percent of the students received help from more knowledgeable friends at least once and 57 percent obtained some level of assistance from other students in their classes. These percentages can be contrasted with the 80-90 percent of students reporting no contact with formal sources other than their instructors (Knapp and Karabenick, 1988, p. 225).

Of the 62 percent of the students (355) who saw at least one formal source, 86 percent (305) saw their instructor rather than using an academic support service. Thus, it becomes apparent that the more formal, institutionalized helping services

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were rarely employed as the sole means for obtaining assistance (Knapp and Karabenick, 1988, p. 225).

The results of Knapp and Karabenick's study points to a pattern of low use of institutional support services, a result consistent with those reported by Friedlander (1980) and Lewicki and Thompson (1982). Although instructors were employed as a source of help by a substantial number of students, other formal sources of help were never employed by more than 80 percent of the students. It is important to point out that this pattern of underuse is based on students who reported some degree of need for academic assistance. The services provided by the institution are the very ones that students often state they need. Other studies conducted by Aitken, 1982; Baumgart and Johnstone, 1977; Bean, 1980; Disque, 1983; Enos, 1981; Kowalski, 1977; Staman, 1980; and Steele, 1978 failed to discover an association between student retention and the frequency or quality of their advising.

Some studies have found a positive relationship between retention and student's indication of the frequency or quality of the advising. These studies include research conducted by Bergman, Kuk, and Stager, 1982; Endo and Harpel, 1979; Louis, Colten, and Demeke, 1984; Meyers, 1981; Pascarella and Terenzini, 1977; Smith, 1980; and Taylor, 1982.

Tutoring

Studying a group of at-risk college freshman enrolled at a four-year university, Abrams and Jernigan (1984) sought to correlate academic success variables as measured by college grade point averages, number of credit hours completed, and persistence in the university, with the traditional predictors of academic achievement,

admission test scores, and high school grades. The researchers projected that students' use of tutorial support services and developmental training would affect their academic success. The four hypotheses tested: 1) the number of hours spent in the reading and study skills program and the number of tutor contacts would significantly correlate with college grade point averages and retention of at-risk students in the university; 2) a significant decrease in students' use of the academic support services would occur from fall to winter semester; 3) first semester college grades would significantly correlate with reading test scores; and 4) participation in a structured reading program would result in measurable and significant increases in reading vocabulary, comprehension, and speed.

The university involved in Abrams and Jernigan's study provided academic advising assistance, academic support services, tutoring, and counseling. Supportive services instruction took two forms: 1) students could elect to attend scheduled workshops, or 2) students could come to the support center for individual assistance. A total of 229 students participated in the study and academic support services. Ten students did not complete the fall semester, so the population was reduced to 219 students. Of the 219 students, 29 withdrew after the fall semester (9 of the 29 students received fall semester grade point averages of 2.0 or above/passed; and 20 of the 29 students received fall semester grade point averages below 2.0/ failed). Of the 219 students who completed the fall semester, 77 or 35 percent failed and of the 190 students who completed the winter semester 78 or 41 percent failed. Overall, 43 percent of the at-risk college freshmen failed to achieve a C average their first year. In comparison, 3 percent of the university's other students were put on academic probation.

For the variable of hours spent in a tutorial program, statistical correlations with fall grade point average, first year grade point average, number of fall semester credit hours, and the total number of credit hours were positive. The difference in the number of hours spent in the tutorial program was statistically significant when the group was divided into those who passed the fall semester and those who failed it. The difference in hours approached significance when the group was divided subsequently into those who passed the winter semester and those who failed.

To test the retention hypothesis, Abrams and Jernigan investigated the differences between the returning winter students and the nonreturning students. The only significantly different variable besides their fall semester grade point averages was the number of hours they received tutorial assistance. The mean number of hours spent in the program for returnees was 14.77 and the mean for nonreturnees was 10.71 (Abrams and Jernigan, 1984).

Traditional predictors of academic success are not accurate determinants of academic achievement for at-risk students. The number of hours spent obtaining supportive services and tutoring were the major variables contributing to the academic success achieved by these at-risk students. Abrams and Jernigan determined that 26 percent of the fall semester grade point average variance was accounted for by the number of hours spent in a tutorial program. A study of winter grade point averages revealed that the additional variable of tutoring was the second best predictor of winter semester grade point averages. The number of hours of tutoring during the fall semester remained the strongest indicator of winter grade point averages.

Abrams and Jernigan's study (1984) demonstrates that at-risk entering

students' willingness to seek assistance from tutors is the most accurate predictor of their first-semester college grade point averages. The usual entrance criteria, admission test scores and high school grades were not reliable predictors of academic success for this particular population. At-risk students who took advantage of tutoring enjoyed greater academic success. Institutionally, the university benefited by retaining 57 percent of these at-risk students through their freshman year.

A Learning Center was established at Indiana University of Pennsylvania in 1984 to develop and implement learning enhancement programs for students. The tutorial program is one of the learning improvement services initiated at the institution. The high rate of use during the first year (1,438 students; 5,136 contacts) of implementation indicated that student users believed the services could be beneficial and perhaps raise their course grades and ultimately their overall grade point averages. To determine if students believed their interaction with the tutorial program positively affected their course performance, Harrar and Ender (1987) conducted a survey of students using the tutoring services. Of those contacted, 44 percent reported that they came to supplement class presentations; 22 percent to get better grades; 15 percent to keep from failing; and 15 percent for other reasons.

Students were asked what final grade they believed they would have received if they had not been tutored and what grade they actually received. The responses were: 42 percent thought they would have received a failing grade, but only 7 percent reported actually receiving that grade; 12 percent thought they would have received an above-average grade without tutoring; and 27 percent reported receiving a final grade of A or B. Overall, 68 percent of the students surveyed reported that their actual final grade increased at least one grade level over their perceived actual

grade without tutoring. Eighty-two percent of the students who believed they were earning a grade of F before tutoring indicated a minimum improvement of one letter grade. Students with a perceived grade of B before tutoring indicated an improvement of 40 percent. Students who reported an increase were asked an additional question to determine whether they believed that the increase was due to tutoring. All (100 percent) replied that their increase was a result of the tutoring they received. Harrar and Ender (1987) concluded that regular users of the Learning Center's tutoring services have a positive view of the program and its effects. The data indicates that failing students have a significant opportunity to improve their course grade with tutoring (especially after 5 visits).

A study conducted by House and Wohlt (1990) supports the findings of Abrams and Jernigan (1984) and Harrar and Ender (1987). House and Wohlt determined that academically underprepared college students' participation in a tutoring program during their freshman year was related to their academic performance. Students who participated in the tutoring program earned more credit hours during their first year than did students who did not participate. In addition, participation in tutoring during both semesters of the freshman year was associated with significantly higher cumulative grade point averages, particularly for male students. These results support tutoring as an important component of programs designed to improve the academic performance and retention of academically underprepared students.

Cost Implications of Academic Support Services

Attrition rates have remained steady at 50-60 percent over four-year spans despite extensive changes in American higher education and administrative efforts

to reduce attrition. Counselors, advisors, and psychologists have created numerous interventions designed to reduce attrition. A combination of educational reform movements, declining enrollments in some jurisdictions and rising enrollments in others, exploration of ways to improve the education of a burgeoning population of at-risk students, and increasing pressure on educational budgets has created inducements to consider systematically both the costs and effects of alternative courses of action. Federal budgetary deficits have reduced the prospects for additional federal funding to support these educational reforms. Although state and local governments have responded, both levels of government are hard-pressed to expand educational funding in light of rising needs for other constituencies (Levin, 1988). For example, in Michigan, each community college is appropriated to receive $150 per student and $25 for each Pell Grant recipient for counseling, financial aid, admissions, and job placement assistance. The goal is to encourage community colleges to effectively serve at-risk students (State of Michigan Executive Budget, Fiscal Year 1986-87).

Cost-Benefit Analysis

Cost benefit analysis is a systematic approach to allocating public sector resources. This technique is particularly useful for determining which programs to support and the appropriate size of those supported. An economic analysis of the costs and benefits of alternative programs of a university counseling center "poses in particularly stark terms the problems of what to measure and how to measure it" (Weiss and Giddan, p. 261, 1986).

Cost-benefit analysis refers to a set of techniques for deciding whether the

benefits of a program outweigh its costs. The application of cost-benefit analysis raises several practical issues: 1) the preferences of individuals should be most important versus administrators; 2) emphasis should be on economic efficiency because of the theoretical and practical difficulties of including problems of equity; and 3) measuring and valuing the benefits of projects in dollar terms is difficult.

Cost-benefit analysis helps to identify those counseling center programs for which the value of the net benefits is greater than the value of the cost, thereby assisting in decisions regarding which programs are economically efficient. Institutions need cost-benefit analysis information as part of the decision-making process. To conduct a cost-benefit analysis, the appropriate costs and benefits must be identified and quantified. Then the net present value (i.e. the benefits minus the costs measured at their present value) is estimated through the application of formal decision rules. Proper measurement of the net benefits of a counseling center intervention to reduce attrition requires the following approach: 1) define the program; 2) define and estimate the net present value of the costs to society; 3) define and estimate the net present value of the benefits to society; and 4) initiate or continue the program only if the net benefits are positive.

In a cost-benefit analysis from a counseling program's point of view, a monetary value is placed upon all costs and benefits. The costs are those involved with the counseling center program, including staff and administration costs but excluding student fees or the social costs of attrition. Benefits are increased tuition, fees, and subsidies, but do not include individual benefits such as long-term salaries, or other societal and educational benefits.

Cost-benefit analysis' appeal is outweighed by practical problems. Unit costs

such as per student or cost per session are useful to policy makers because they may indicate the current state of affairs in a counseling center, unusual costs such as a high cost per session, and a basis for gauging and comparing comparable problems or centers at other universities or unit costs. These problems outweigh the benefits and as a result, cost-effectiveness analysis is a more practical method for utilization within educational institutions.

Cost-Effectiveness Analysis

Cost-effectiveness analysis is a comparison of the costs of alternative programs with the major benefit or outcome not measured in dollar terms. One or more decision alternatives are evaluated by comparing the cost of achieving one unvalued output unit and comparing the results across programs. A study of the cost-effectiveness of programs to reduce attrition would be based on five steps: 1) definition of the program(s) under consideration; 2) selection of the program(s) that are of interest to the appropriate decision-maker; 3) measurement of the productivity of the program(s); 4) measurement of the costs of the program(s); and 5) calculation of the costs per unit of output.

The basic technique has been to derive results for educational effectiveness of each alternative by using standard evaluation procedures or studies (Rossi and Freeman, 1985) and to combine such information with cost data that are derived from the ingredients approach. The ingredients approach was developed to provide a systematic way for evaluators to estimate the costs of social interventions (Levin, 1975; 1983; 1988). The main strength of the ingredients approach is that it is based upon a straightforward approach to estimating costs that is comprehensive to

evaluators and policy makers while meeting rigorous standards of economics methodology. The ingredients approach to cost estimation entails three distinct phases: 1) identification of ingredients, 2) determination of the value or cost of the ingredients and the overall cost of an intervention, and 3) an analysis of the cost in an appropriate decision-oriented framework.

The first step is to ascertain which ingredients are required for an intervention (Levin, 1983). Most educational interventions are labor-intensive, so an initial concern is to account for the number and characteristics of personnel. Beyond this, it is necessary to identify the facilities, equipment, materials, and other resources which are required for the intervention. Identification of ingredients requires a level of detail that is adequate to ensure that all resources are included and are described adequately to place cost values on them.

Once the ingredients have been identified and stipulated, it is necessary to ascertain their costs (Levin, 1983). In doing this, all ingredients are assumed to have a cost to someone, even if the institution did not pay for them in a particular situation. Once each of the ingredients is costed, the costs can be added to obtain a total cost for the intervention. The next stage entails the use of these costs in an analytic framework. The two most important concerns for cost summary and analysis are the appropriate unit for expressing costs and who pays the costs. Cost-effectiveness ratios are usually based on the average effects and costs per student.

Who pays the cost is a different issue. The overall cost-effectiveness ratio may be irrelevant to a decision-maker who pays only part of the cost for one intervention, but all of the cost for an alternative. Therefore, cost-effectiveness analysis was designed to assist decision-makers to choose among successful practices on

the basis of which ones would maximize the impact of available resources.

Counseling center programs to reduce attrition can supply more services and increase the number of students persisting in school if they are run efficiently. Efficiency in economic terms is defined as maximum output (such as additional student credit hours generated if students remain in school) for a given budget or for use of resources. Data on students, staffing, and other resources allow the measurement of average and marginal output by constructing a measure of the relationship between the input of staff and equipment into the program and the output of added attendance at the college solely because of the counseling center intervention. The relationships among program resources then may be combined with increased attendance due to counseling. The production relationships may be used as the basis for measurement of program costs and benefits.

Counseling centers are concerned with the identification, measurement, and usefulness of cost information in relation to programs to prevent attrition. Questions about a counseling center's efficient use of resources or the relation of costs to common outcomes of decision alternatives require that costs be correctly measured. Administrators must distinguish average from marginal costs and become more familiar with the concept of unit cost.

Cost-effectiveness analysis in retention studies is a worthy goal. When based on careful evaluation techniques, it holds genuine promise for improving the efficiency and effectiveness of student retention programs. Cost-effectiveness can be used to determine which programs are worthy of pursuing, given a limited budget, to help design programs based on staff parameters and to target them to students who meet decision-makers' efficiency and equity criteria (Levin, 1988).

Current trends such as a declining 18 to 24 year old population, expanding enrollment of nontraditional students, and rapidly rising costs of higher education tend to increase the likelihood of application of cost-effectiveness in counseling and student development studies of attrition. Educators and administrators need to know if retaining students by counseling is less costly and more effective than are recruiting, admitting, and enrolling them. The answer depends on the application of cost-effectiveness analysis to retention and admission programs. Key indicators are whether counseled students stay in college or return once they have temporarily "stopped out".

In the Balance-Sheet Method (Russell, 1986) of presenting items for a cost-effectiveness analysis, the ingredients used for individual college counseling were actually identified by the center staff of the participating college. The cost of each of the ingredients used in individual counseling was estimated from the counseling center budget. Based upon staff goals, objectives, and performance evaluations, it was found that approximately 60 percent of counseling center resources were allocated to individual counseling. The costs of the ingredients do not include support costs for the remainder of the institution or other overhead costs because they would be unlikely to change because of this program. Additional costs of administration or maintenance would likely be small and not amenable to easy calculation from the institutional budget. Estimates of the costs of space and equipment are arbitrary, so they are also not included. The most costly counseling ingredient is the professional staff.

Application of cost-effectiveness analysis to counseling center activities could be used with other relevant outcomes such as grade point average, enrollment,

educational benefits, and graduation rates, which are useful in a policy making context. Kiesler and Morton (1988) provide the following argument: "For maximized policy relevance, outcome studies should include cost information so...planners can evaluate treatment outcomes in terms of direct and indirect financial impact" (Kiesler and Morton, 1988, p. 1001).

The literature provided numerous examples of student retention studies and the impact of academic support services, particularly counseling and academic advising. However, a majority of these studies focused on four-year institutions. Limited research was conducted on community college students, and none addressed the impact of using grant-sponsored academic support services to enhance special population students' academic achievement and persistence.

CHAPTER III

METHODOLOGY

Research Methodology of the Study

A sample of students attending one community college were surveyed and corresponding institutional data reviewed. Delta College was selected due to the accessibility of data, the number of grant-sponsored programs available for inclusion in the study, and the increasing enrollments of special population students due to its location in a heavily industrialized manufacturing region.

The research methodology was a quasiexperimental design. The experimental group was 200 randomly sampled special population students enrolled at Delta College during the Winter 1991 semester and the control group was 200 "matched pairs" students enrolled during the Winter 1991 semester with characteristics similar to experimental group students. An institutional group of 500 students enrolled during the Winter 1991 semester was selected by random sample to permit statistical comparison to the overall Delta College student body. Institutional group students' characteristics were not matched to either the experimental or control group students.

Research Population

Special population students enrolled during the 1990-91 academic year at Delta College were identified through lists generated by Single Parent/Homemaker Program, At-Risk Student Success Program, Michigan Job Opportunity Bank-Retrain Program, and Special Needs Program-disadvantaged component grant staff. The initial lists identified 156 students served through the At-Risk Student Success Program, 165 students received assistance through the Single Parent/Homemaker Program, 313 students were served through the Special Needs Program-disadvantaged component and 23 students enrolled in the Michigan Job Opportunity Bank-Retrain Program during the 1990-91 academic year, for a total of 653 grant-sponsored students. Since students were eligible to receive assistance through multiple grant programs, the lists were cross-referenced by student name and student number. It was determined that a total of 85 students were served by multiple grant programs, and duplicate names were removed from the population (77 students were served by both the At-Risk Student Success Program and the Special Needs Program-disadvantaged component; 4 Single Parent/Homemaker Program students were served by the At-Risk Student Success Program and Special Needs Program-disadvantaged component; 3 Single Parent/Homemaker Program students were served by the Special Needs Program-disadvantaged component; and 1 Single Parent/Homemaker Program student received services through the At-Risk Student Success Program). As a result of students receiving services from multiple grant programs, the initial research population was reduced to 568 unduplicated grant-sponsored students.

Enrollment in Winter 1991 semester courses was a criteria for students to be included in the study. The researcher accessed the College's PRIME computer system database by student name and student number and reviewed students' schedules and/or transcripts to verify enrollment in Winter 1991 semester courses. Due to the criteria, the research population was narrowed from 568 unduplicated grant-sponsored students served during the 1990-91 academic year to 422 grant-sponsored students who were enrolled during the Winter 1991 semester. The research population included 248 students in the Special Needs Program-disadvantaged component, 100 Single Parent/Homemaker Program students, 55 students served through the At-Risk Student Success Program, and 19 students who participated in the Michigan Job Opportunity Bank-Retrain Program during the Winter 1991 semester.

Once the students' Winter 1991 semester enrollment was confirmed, the 422 grant-sponsored students were listed by name and student number in a computerized database (pc-File). At this point, the student was no longer associated with a particular grant program (Single Parent/Homemaker Program, At-Risk Student Success Program, Special Needs Program-disadvantaged component, or Michigan Job Opportunity Bank-Retrain Program) and became a "generic" grant-sponsored student enrolled during the Winter 1991 semester.

Delta College's PRIME computer system was used to identify a random sample of 200 special population students for inclusion in the experimental group. Once the random sample was completed, the characteristics of the experimental group students were identified including gender, ethnicity, age, ASSET scores for the writing, math and reading comprehension subtests, enrollment status during the

Winter 1991 semester, cumulative credit hours upon completion of the Fall 1990 semester, and program major. This information was obtained through a combination of college records and computerized databases.

Based on the characteristics of the 200 randomly sampled experimental group students, a "matched pairs" control group of 200 non-special population students attending Delta College during the Winter 1991 semester were identified using the PRIME computer and placed in a database file (pc-File). It was planned that at least four characteristics of experimental group students would be matched with control group students. Special population students in the experimental group had counterparts in the control group with six similar characteristics including gender, ethnicity, age (classified in age ranges 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and 65-69), enrollment status (classified in ranges of credit hours 0-11 and 12 and above), cumulative credit hours completed at the end of the Fall 1990 semester (classified in ranges of credit hours 1-14, 15-29, 30-44, 45-59, 60-74, 75-89, 90-104, 105-119, 120-134, and 135 and above) and program major.

The computerized databases (pc-File) for both the experimental and control groups were placed in individual Statistical Package for the Social Sciences (SPSS) database files. Statistical Package for the Social Sciences (SPSS) was used to compute and verify that the means of the experimental and control groups were not statistically different at the .05 level of significance for the characteristics of gender, ethnicity, age, enrollment status, cumulative credit hours, and program major. To obtain a control group that was statistically significant at the .05 level, it was necessary to classify the characteristics of age, cumulative credit hours, and enrollment

status into ranges. ASSET scores for the writing, math and reading comprehension subtests were an unmatched variable. Delta College requires all full-time students and students enrolling after the Winter 1987 semester to have taken the ASSET test. Due to the part-time enrollment status of 33 percent of the experimental group students or their semester of initial enrollment occurring prior to the Winter 1987 semester, a large number of students (60 percent) in the experimental group had not taken the ASSET test and did not have ASSET scores on file. Therefore, this characteristic was not matched.

Independence between the experimental and control groups was assured since experimental group students were removed from the population prior to the selection of control group students.

An institutional group of 500 students enrolled during the Winter 1991 semester was randomly sampled using the PRIME computer database and placed in pc-File and Statistical Package for the Social Sciences (SPSS) databases. Unlike the experimental and control groups, there was no attempt made to match institutional group students' characteristics with those of experimental group students. Institutional group students permitted statistical comparisons to the overall Delta College student body.

Independence between the experimental, control, and institutional groups was assured since experimental and control group students were removed from the population prior to conducting the random sample to obtain the 500 institutional group students.

Hypotheses of the Study

The research questions were formulated into null hypotheses to determine if there were differences in the academic achievement, persistence, and usage of academic support services by experimental group (special population) students and control group (non-special population) students. The researcher compared three groups to determine if differences existed between: experimental and control group students; experimental and institutional group students; and control and institutional group students.

Hypothesis 1. The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will not statistically significantly exceed ($p > .05$) the mean hours of use by experimental group students.

Hypothesis 2. The mean hours of academic support services used during the Winter 1991 semester by experimental group students will not statistically significantly exceed ($p > .05$) the mean hours used by control group students.

Hypothesis 3. The experimental group students' Winter 1991 semester mean grade point average will not statistically significantly ($p > .05$) exceed the Winter 1991 semester grade point average of control group students.

Hypothesis 4. Experimental group students' proportion of Winter 1991 semester courses completed will not statistically significantly exceed ($p > .05$) the proportion of courses completed during the Winter 1991 semester by students in the control group.

Hypothesis 5. The Fall 1991 semester enrollment of experimental group students will not statistically significantly exceed ($p > .05$) the Fall 1991 semester enrollment of control group students.

Hypothesis 6. The mean grade point average during the Winter 1991 semester for the experimental group will not statistically significantly ($p > .05$) exceed the institutional group students' mean grade point average.

Hypothesis 7. The proportion of courses completed during the Winter 1991 semester by the institutional group will statistically significantly exceed ($p > .05$) the proportion of courses completed by the experimental group.

Hypothesis 8. The enrollment of experimental group students in Fall 1991 semester courses will not statistically significantly exceed ($p > .05$) the proportion of institutional group students.

Hypothesis 9. The institutional group students' Winter 1991 semester mean grade point average will not statistically significantly exceed ($p > .05$) the Winter 1991 semester mean grade point average of control group students.

Hypothesis 10. The proportion of courses completed by institutional group students during the Winter 1991 semester will not statistically significantly exceed ($p > .05$) the proportion of courses completed during the Winter 1991 semester by control group students.

Hypothesis 11. Fall 1991 semester enrollment by institutional group students will not statistically significantly ($p > .05$) exceed the enrollment of students in the control group.

Distribution of Questionnaires

Experimental group students were surveyed to determine their usage of both grant-sponsored and institutional counseling and tutorial academic support services during the Winter 1991 semester. A questionnaire, cover letter, and a stamped self-addressed return envelope were sent to the 200 experimental group students on November 15, 1991. The questionnaire requested information on: 1) the number of hours of grant-sponsored counseling accessed during the Winter 1991 semester, 2) the number of hours of grant-sponsored tutoring accessed during the Winter 1991 semester, 3) the number of hours of institutional counseling accessed during the Winter 1991 semester, 4) the number of hours of institutional tutoring accessed during the Winter 1991 semester, and 5) whether the academic support services accessed were beneficial in assisting experimental group students to achieve their academic goals. Since grant-sponsored services were offered in a variety of physical locations on campus and at a major off-campus center, these locations

were identified on the survey to assist grant-sponsored students to identify and differentiate between the services provided by grant and institutional funding. All special population students identified by random sample for the experimental group were surveyed. A copy of the questionnaire and cover letter sent to experimental group students is included in Appendix A.

Concurrently, the 200 control group students were surveyed to determine their usage of institutional counseling and tutorial academic support services during the Winter 1991 semester. A second questionnaire, cover letter, and stamped, self-addressed return envelope was distributed to the 200 control group students on November 15, 1991. This questionnaire requested information regarding: 1) the number of hours of institutional counseling accessed during the Winter 1991 semester, 2) the number of hours of institutional tutoring accessed during the Winter 1991 semester, and 3) whether the academic support services accessed were beneficial in assisting control group students to achieve their academic goals. A copy of the questionnaire sent to control group students is included in Appendix B.

Three weeks later (December 5, 1991), a follow-up letter was sent to remind both experimental and control group students of the previous request and to ask them to complete and return the questionnaire as soon as possible. A third reminder letter was mailed on December 18, 1991 along with another copy of the questionnaire and a stamped, self-addressed return envelope. All survey responses were confidential and the surveys were not coded. If a respondent indicated his/her name on the return envelope, he/she did not receive follow-up mailings. Copies of the follow-up correspondence to experimental and control group students is included in Appendix C.

The cooperation and assistance from participants was similar to other community college studies surveying at-risk students, including those conducted by Delta College personnel. Five surveys were undeliverable due to students relocating without forwarding addresses. Undeliverable surveys were not included in the study. Tables 1 and 2 present the patterns of responses to the various mailings.

The overall response rate seemed satisfactory for a mailed questionnaire, particularly when 40 percent of the students surveyed were no longer enrolled at the College. It should be noted however, that the final results contain proportionately more responses from control group students than special population students.

Table 1.--Response Rate to Survey.

Mailing	% Returned	Cumulative %
First	58 surveys (15%)	
Second	23 surveys (6%)	21%
Third	95 surveys (24%)	45%

Table 2.--Response Rate by Group.

Type of Group	% Returned	Cumulative %
Experimental	72 surveys	37% of group
Control	104 surveys	53% of group

Design of the Questionnaires

The questionnaires were developed in draft form and reviewed by Dr. Gene Packwood, the Director of Research and Development at Delta College.

Dr. Packwood has extensive experience in the design and use of mailed questionnaires. Based on Dr. Packwood's advice, the questionnaires were revised and modified for experimental and control group students' easier reading and understanding.

A total of twenty Delta College students using the Teaching/Learning Center on October 24, 1991 were asked to review the revised questionnaires and comment on their readability, clarity, and ability to understand the information being requested. Ten students completed each questionnaire, and based on their advice, the questionnaires were slightly revised to improve clarity and understanding.

Due to the differences in the information being requested from the experimental and control group students, two questionnaires were developed. They differed in one way: the control group questionnaire did not request information on students' utilization of grant-sponsored academic support services. Since grant-sponsored academic support services are limited in use to grant-eligible students, these questions were not appropriate for control group students.

Confidentiality of Responses

The plan for conducting this study was described in writing and submitted to the Committee on Research Involving Human Subjects at Michigan State University to be certain it conformed to legal and ethical standards. The Committee felt the study was exempt from review and approved the plan as submitted. The letter of approval from the Committee Chairman, Dr. David E. Wright (November 8, 1991) is in Appendix D. The study was conducted as outlined in the plan.

In all communications with students, they were assured of the confidentiality

of their response. The surveys were not coded and follow-up mailings to respondents were eliminated only if they provided their name and address on the return envelope. No respondents were identified by name and the results have been used in an aggregate form, untraceable to an individual student.

On each questionnaire, both experimental and control group students were given the opportunity to provide open-ended comments. The comments are recorded in Appendix E.

The returned experimental and control group students' questionnaires were verified by Delta College data-entry staff. The data were entered into the study's computerized databases in the Statistical Package for the Social Sciences (SPSS) software and stored in a PRIME computer system.

Collection of the Data

Two computerized Statistical Package for the Social Sciences (SPSS) databases were established to collect and store information related to the study (experimental and control group). Institutional data regarding experimental and control group students' characteristics (gender, ethnicity, enrollment status, cumulative credit hours, age and program major) were available and stored in Delta College's PRIME computerized databases (pc-File and SPSS). This information was accessed by the experimental and control group student's student number, and the information was placed in the appropriate group's database. Additional information including the number of Winter 1991 credit hours enrolled, the number of Winter 1991 credit hours completed, the number of Winter 1991 credit hours withdrew, the student's Winter 1991 grade point average, the number of hours of institutional

counseling accessed in the Winter 1991 semester, the number of hours of institutional tutoring accessed during the Winter 1991 semester, the number of hours of grant-sponsored counseling accessed during the Winter 1991 semester (experimental group students only), the number of hours of grant-sponsored tutoring accessed during the Winter 1991 semester (experimental group students only), the number of credit hours enrolled during the Spring/Summer 1991 semester, the number of credit hours completed during the Spring/Summer 1991 semester, the number of credit hours the student withdrew during the Spring/Summer 1991 semester, the student's Spring/Summer 1991 grade point average, the number of credit hours the student enrolled in during the Fall 1991 semester, and whether the student graduated during the Winter 1991 or Spring/Summer 1991 semesters was obtained through the questionnaires, grant staff records, institutional staff records, student transcripts, student schedules, and student admission applications and entered into the appropriate group's computerized database. There was a non-bias factor for institutional staff providing data on students. In the review of institutional records, students in the experimental and control groups were not identified to staff.

A third computerized database (SPSS), was established for the 500 students who comprised the institutional group. By using the student's student number to access existing computerized databases, information was obtained on institutional group students that included: the number of Winter 1991 credit hours enrolled, the number of Winter 1991 credit hours completed, the number of Winter 1991 credit hours withdrawn, their Winter 1991 semester grade point average, the number of Spring/Summer 1991 semester credit hours enrolled, the number of Spring/Summer 1991 credit hours completed, the number of Spring/Summer 1991 semester credit

hours withdrawn, their Spring/Summer 1991 semester grade point average, the number of Fall 1991 semester credit hours enrolled and whether the student graduated during the Winter 1991 or Spring/Summer 1991 semesters.

Processing of the Data

Once the flow of return questionnaires had stopped, the information from the questionnaires was verified by Delta College data-entry staff, entered into the appropriate database (experimental or control group) and stored in the PRIME computer system in Statistical Package for the Social Sciences (SPSS) databases. All analysis of the data was completed on the PRIME computer system, using the Statistical Package for the Social Sciences (SPSS) software package that provides frequency tables and most of the standard statistical tests used in educational research.

Statistics

The respondents involved in this study represented potentially all of the research universe of interest to the inquiry. As indicated in the paragraph on response rates, not all possible respondents completed and returned questionnaires, but all were contacted and encouraged to participate. In view of the 45 percent rate of return of the questionnaires, it was assumed for purposes of this research that respondents and non-respondents were similar.

Usually in studies of this type, the data comes from a sample of a larger research population. Most statistics measure samples of a research population to determine the likelihood that other samples from the same population would produce comparable results. Normally, data are reported from the sample, and efforts are

made to generalize to the larger research population. In that process, null hypotheses are prepared and tested using one of several mathematical formulas. After computing a score with a standardized table, it is possible to conclude whether the initial hypotheses should be accepted or discounted. This process determines the statistical significance of the data (Glass and Hopkins, 1984).

When data from the entire research population are being considered instead of from a sample, the process is much simpler. The data are summarized in an appropriate manner and the results compared with hypotheses. There is no need to perform further mathematical calculations to generalize about the trends of the responses because the data already reflect the total research population as reported. This process produces conceptual significance (Glass and Hopkins, 1984).

In this study, the usage of academic support services, student academic achievement (grade point average), and student persistence (the proportion of Winter 1991 courses completed and subsequent enrollment in the Fall 1991 semester) was reported and compared with hypotheses to determine if they were conceptually significant. When specific hypotheses contained differences between segments of the population or variables to be tested, the hypotheses were tested by computing t-test for independent means and Chi-Square statistics as appropriate, and using the .05 level of significance as the decision point. In those instances, statistical significance was determined and reported.

The justification for using the t-test for independent means and Chi-Square statistics is due to the type of data analyzed and the recognition that the students in the experimental, control, and institutional groups were not the entire research population. The statistics utilized allowed the researcher to measure differences in

the samples, evaluate the data, and permit comparisons to the research population.

Financial Impact Component-Data Collection

A secondary focus of this study was to estimate the financial impact on a community college's budget as a result of providing academic support services to special population students. While the literature indicates that there are several methods that can be used to estimate the financial impact to the college of providing counseling and tutorial academic support services to special population students, a simple cost analysis method was used in this study.

To determine the institutional costs of providing counseling services to students, the 1990-91 fiscal year expenditures for counseling services were identified from the College's budget and divided by the number of academic credit hours for all institutional enrollments during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters to obtain a mean cost per academic credit hour of institutional counseling. The formula was:

1990-91 Institutional Counseling Expenditures Number of academic credit hours for institutional enrollments during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters	=	Mean cost per academic credit hour of institutional counseling services

The calculation was:

$767,337 196,749	=	$3.90 per academic credit hour

Information on the cost of operating the Teaching/Learning Center during the 1990-91 academic year was also obtained from the College budget. A similar

formula was derived to obtain a mean cost per academic credit hour of institutional tutorial academic support services:

1990-91 Institutional Tutorial Expenditures Number of academic credit hours for institutional enrollments during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters	=	Mean cost per academic credit hour of institutional tutorial services

The calculation was:

$165.005 196,749	=	$.839 per academic credit hour

Control group students enrolled in a total of 1,643 academic credit hours during the Winter 1991 semester. At the mean rate of $3.90 per academic credit hour, the calculation ($3.90 x 1,643 = $6,407.70) provided an estimate of the institutional cost of providing counseling services to control group students.

A similar calculation was conducted to estimate the mean cost per academic credit hour of institutional tutoring. At the mean rate of $.839 per academic credit hour, the calculation ($.839 x 1,643 = $1,378.48) provided an estimate of the institutional cost of providing tutorial services to control group students.

Experimental group students can access institutional counseling in addition to grant-sponsored services. Experimental group students enrolled in a total of 1,669 academic credit hours during the Winter 1991 semester. At the mean rate of $3.90 per academic credit hour, the calculation ($3.90 x 1,669 = $6,509.10) provided an estimate of the institutional cost of providing counseling services to experimental group students.

Likewise, a calculation was used to estimate the institutional cost of providing

tutorial services to experimental group students. The calculation ($.839 x 1,669 = $1,400.29) indicated the cost of providing institutionally-supported tutorial services to special population students.

The costs associated with providing grant-sponsored counseling and tutorial academic support services available strictly to special population students was estimated based on the cost per academic credit hour of providing each service. Grant expenditures during the 1990-91 academic year for counseling were identified through final grant reports (Single Parent/Homemaker Program and Special Needs Program-disadvantaged component) and College financial records (Michigan Job Opportunity Bank-Retrain Program and At-Risk Student Success Program), including institutional matching funds designated for that purpose. Once these expenditures were identified, the total was divided by the number of academic credit hours generated by grant-sponsored students enrolled in the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters (credit hours obtained through student schedules stored in the College's PRIME computer system) to obtain a mean cost per academic credit hour of grant-sponsored counseling funded by both the grants and the institution. The calculation is represented by:

1990-91 Grant Counseling Expenditures Number of academic credit hours for grant-sponsored students enrolled during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters	=	Mean grant cost per academic credit hour of grant-sponsored counseling services

The calculation was:

$293,757 9,574	=	$30.68 per academic credit hour

At the mean rate of $30.68 per academic credit hour, the total cost of providing grant-sponsored counseling services to experimental group students ($30.68 x 1,669) was $51,205.00. This calculation indicates cost estimates of providing grant-sponsored counseling to experimental group students.

A similar calculation was made to determine a mean cost per academic credit hour of grant-sponsored tutorial academic support services funded by both grants and institutional matching funds. Grant expenditures for tutorial services during the 1990-91 academic year were obtained through final grant reports (Single Parent/ Homemaker Program and Special Needs Program-disadvantaged component) and College financial records (Michigan Job Opportunity Bank-Retrain Program and At-Risk Student Success Program). Once these expenditures were identified, the total was divided by the number of academic credit hours generated by grant-sponsored students enrolled in the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters (credit hours obtained through student schedules stored in the College's PRIME computer system) to obtain a mean cost per academic credit hour of grant-sponsored tutorial services funded by grants and the institution. The calculation was:

1990-91 Grant Tutorial Expenditures Number of academic credit hours for grant-sponsored students enrolled during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters	=	Mean grant cost per academic credit hour of grant-sponsored tutorial services

The calculation was:

$116,256 9,574	=	$12.14 per academic credit hour

Therefore, the total cost of providing grant-sponsored tutoring to experimental group students was ($12.14 x 1,669) $20,261.66.

These calculations provided cost estimates on the financial implications incurred by a community college for providing counseling and tutorial academic support services to special population students. These implications will be further analyzed in Chapter IV.

Summary

Two questionnaires were developed and mailed to 200 experimental and 200 control group students enrolled at Delta College during the Winter 1991 semester. The original and two follow-up mailings resulted in a final response rate of 37 percent for the experimental group and 53 percent for the control group. The questionnaires were developed with expert advice and recommendations from a group of students. Each student participating in the survey was guaranteed confidentiality of his/her response and this was observed during the study. Descriptive statistics were used to analyze the data (t-test for independent means and Chi-Square) and where cross-tabulation was necessary, the Statistical Package for the Social Sciences (SPSS) software was used to compute the data and test the null hypotheses. The .05 level of significance was used to determine the statistical significance of a relationship.

A secondary focus of the study was to determine an estimate of the financial impact on a community college's budget as a result of providing academic support services to special population students. Based on information from institutional budgets and grant expenditure reports, financial data were used with institutional

enrollment data to estimate the cost of providing academic support services per academic credit hour. These calculations will provide data estimates on the cost implications incurred by a community college for providing counseling and tutorial academic support services to special population students.

CHAPTER IV

RESULTS OF THE DATA ANALYSIS

Introduction

This study provided the opportunity to test a number of hypotheses to determine if eligible community college special population students used grant-sponsored academic support services and if these services improved their academic achievement and persistence. A secondary focus of the study was to estimate the financial impact to a community college's budget as a result of providing academic support services to special population students. A total of 72 experimental group (grant-sponsored) and 104 control group students responded to the survey, for a total of 176 responses. However, one experimental group survey response was not included in the data analysis. In reviewing the respondent's estimates of institutional and grant-sponsored academic support services used during the Winter 1991 semester, the usage estimates appeared exorbitant. In checking institutional staff records in the Teaching/Learning Center (respondent indicated name on return envelope), it appeared that this respondent overestimated her usage by a considerable amount (approximately 900 hours) and the response to that question was invalid. Since one response appeared invalid, the entire questionnaire was suspect and was not included in the data analysis. Therefore, the data analysis was

conducted on 175 respondents; 71 experimental and 104 control group students. In the pages that follow, data are presented that pertain to each of the null hypotheses stated in Chapter I.

Results of the Study

As indicated in Chapter I, the researcher developed null hypotheses to compare three groups to determine if differences existed between: experimental and control group students; experimental and institutional group students; and control and institutional group students.

Use of Academic Support Services

Institutional Resources

In an attempt to determine if experimental or control group students used a greater amount of institutional academic support services, data were collected to examine three research hypotheses that were incorporated into one null hypothesis. First, it was hypothesized that experimental group students would access less institutional counseling services. The data in Table 3 indicates that by their estimate, there was no statistically significant difference in the amount of institutional counseling services used by experimental group and control group students during the Winter 1991 semester. Experimental group students reported an average of 1.24 hours of institutional counseling during the Winter 1991 semester and by their estimate, control group students reported an average of 1 hour.

Null Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will not statistically significantly exceed ($p > .05$) the mean hours of use by experimental group students.

Alternative Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will statistically significantly exceed the mean hours of use by experimental group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: p .238 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 3.--Institutional Counseling Services Accessed During the Winter 1991 Semester.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	71	1.2394	2.226	0.264	0.71	173	.238
Control	104	1.000	2.145	0.210			

While it was not hypothesized, experimental and control group students were asked to indicate if the Counseling Center services they accessed during the Winter 1991 semester were beneficial in assisting them to meet their academic objectives. The responses of the 37 experimental group and 58 control group students are indicated in Table 4.

Table 4.--Students' Perceptions of the Benefits of Institutional Counseling Services Accessed Winter 1991 Semester.

Rating	Experimental Group (n=37)	Control Group (n=58)
Very Beneficial	41 %	41 %
Beneficial/Somewhat Beneficial	54 %	52 %
Of Little Benefit	0 %	5 %
No Benefit	5 %	2 %

Additional comments from experimental and control group respondents are included in the open-ended comments included in Appendix E.

The second academic support service available to assist students was tutoring. It was hypothesized that experimental group students would use less institutional tutoring assistance from the Teaching/Learning Center. The data in Table 5 indicates that by their estimate, there was no significant difference in the amount of institutional tutoring used by experimental group students and control group students during the Winter 1991 semester. Experimental group students used the College's Teaching/Learning Center an average of 3.55 hours during the Winter 1991 semester and by their estimate, control group students used an average of 3.43 hours of tutorial assistance from the College's Teaching/Learning Center during the Winter 1991 semester.

Null Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will not statistically significantly exceed ($p > .05$) the mean hours of use by experimental group students.

Alternative Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will statistically significantly exceed the mean hours used by experimental group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: p .463 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 5.-- Institutional Tutorial Academic Support Services Accessed Winter 1991 Semester.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	71	3.5493	6.742	0.800	0.09	173	.463
Control	104	3.4327	8.948	0.877			

While it was not hypothesized, experimental and control group students were asked to indicate if the services obtained from the Teaching/Learning Center during the Winter 1991 semester were beneficial in assisting them to achieve their academic objectives. Thirty-one experimental group students and 32 control group students responded to the question. The results are in Table 6.

Table 6.--Students' Perceptions of the Benefits of Institutional Tutoring Services Accessed Winter 1991 Semester.

Rating	Experimental Group (n=31)	Control Group (n=32)
Very Beneficial	68 %	63 %
Beneficial/Somewhat Beneficial	32 %	31 %
Of Little Benefit	0 %	6 %
No Benefit	0 %	0 %

Additional comments from experimental and control group respondents are included in the open-ended comments included in Appendix E.

As a summary, Table 7 indicates the third component of the research hypothesis, the combined hours of institutional counseling and tutorial academic support services accessed during the Winter 1991 semester by experimental and control group students. It was hypothesized that experimental group students would access less total institutional academic support services than control group students. Based on their estimate, there was no statistical difference in the amount of institutional academic support services used by experimental group students as compared to control group students during the Winter 1991 semester. Experimental group students reported an average of 4.79 hours of institutional academic support services during the Winter 1991 semester and control group students reported an average of

4.43 hours of institutional academic support services in the same timeframe.

Null Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will not statistically significantly exceed ($p > .05$) the mean hours of use by experimental group students.

Alternative Hypothesis: The mean hours of institutional academic support services used during the Winter 1991 semester by control group students will statistically significantly exceed the mean hours used by experimental group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: p .387 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 7.--Total Institutional Academic Support Services Accessed Winter 1991 Semester.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	71	4.7887	7.111	0.844	0.826	173	.387
Control	104	4.4327	9.759	0.957			

Grant-Sponsored Resources

It was hypothesized that experimental group students would use a greater amount of total academic support services during the Winter 1991 semester due to their eligibility to receive supplemental counseling and tutoring services through grant-sponsored programs in addition to institutional counseling and tutoring. The data in Table 8 indicates that by their estimate, experimental group students used an average of 5.77 total hours of institutional and grant-sponsored academic support services during the Winter 1991 semester and control group students used an average of 4.43 total hours.

Null Hypothesis: The mean hours of academic support services used during the Winter 1991 semester by experimental group students will not statistically significantly exceed ($p > .05$) the mean hours used by control group students.

Alternative Hypothesis: The mean hours of academic support services used during the Winter 1991 semester by experimental group students will statistically significantly exceed the mean hours used by control group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: p .164 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 8.--Total Institutional and Grant-Sponsored Academic Support Services Accessed Winter 1991 Semester.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	71	5.7746	7.353	0.873	0.98	173	.164
Control	104	4.4327	9.759	0.957			

While it was not a hypothesis, experimental group students were asked if the supplemental counseling and tutorial services provided through grant funding during the Winter 1991 semester were beneficial in assisting them to achieve their academic objectives. The perceptions of the 27 experimental group students responding to the counseling question and 5 students responding to the tutoring question are indicated in Table 9.

Table 9.--Students' Perceptions of the Benefits of Grant-Sponsored Academic Support Services.

Rating	Grant-Sponsored Counseling (n=27)	Grant-Sponsored Tutoring (n=5)
Very Beneficial	52 %	20 %
Beneficial/Somewhat Beneficial	37 %	80 %
Of Little Benefit	4 %	0 %
No Benefit	7 %	0 %

Additional comments from experimental group respondents are included in the open-ended comments in Appendix E.

Academic Achievement

Winter 1991 Semester Grade Point Average

It was hypothesized that due to the availability and use of supplemental academic support services that experimental group students' Winter 1991 semester mean grade point average would be higher than control group students. The data in Table 10 indicates that control group students who did not access supplemental academic support services during the Winter 1991 semester earned a significantly higher mean grade point average during that semester (2.72) than did experimental group students who accessed supplemental grant-sponsored academic support services (2.23).

Null Hypothesis: The experimental group students' Winter 1991 semester mean grade point average will not statistically significantly ($p > .05$) exceed the Winter 1991 semester grade point average of control group students.

Alternative Hypothesis: The experimental group students' Winter 1991 semester mean grade point average will statistically significantly exceed the Winter 1991 semester grade point average of control group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: control group mean exceeded experimental group mean; accept the null hypothesis. Reject the alternative hypothesis.

Table 10.--Winter 1991 Semester Mean Grade Point Average Experimental and Control Group Students.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	200	2.2298	1.054	0.075	-4.79	398	<.001*
Control	200	2.7197	0.993	0.070			

* Control group mean exceeded experimental group mean.

One of the unmatched characteristics between experimental and control group students was an assessment of their basic skills. While incoming, full-time Delta College students were required as of the Fall 1987 semester to have taken a basic skills assessment test (ASSET), 60 percent of the students served by the grant programs included in this study did not have basic skills assessment scores on file. Due to this limited percentage of basic skills assessments available, basic skills were not one of the variables used for matching students in the experimental and control groups. A significant difference in basic skill levels of control group students could be an explanation why control group students achieved significantly higher grade point averages during the Winter 1991 semester than experimental group students. Therefore, the assessment scores available for both experimental and control group students were obtained and a t-test for independent means statistical analysis conducted. The statistical results of the ASSET scores are in Tables 11-13.

Table 11.--ASSET Scores for Experimental and Control Group Students Writing Skills Subtest.

Group	N	$\bar{x}$	SD	SE	t	DF	2-Tail Prob.
Experimental	80	39.03	6.026	0.674	-2.56	152	.011
Control	74	41.76	7.123	0.828			

* Students obtaining a scaled score of 35-39 in the Writing Skills subtest would be advised to enroll in an Applied English Skills (ENG 101), Business English (OSE 150), or a Writing Methods/College Composition I (ENG 111A) course. Students scoring in the 40-41 range are in the decision zone. They can enroll in either the courses recommended for students in the 35-39 range or they can enroll in College Composition I (ENG 111) or Business Communications I (OSE 151). The advisement in the decision zone is based on other factors, including student's performance in recent courses and life experiences. According to Delta College's Dean of Enrollment Services, students in the decision zone in the Writing Skills subtest tend to underestimate their skills and enroll in lower level English courses.

Table 12.--ASSET Scores for Experimental and Control Group Students Reading Skills Subtest.

Group	N	$\bar{x}$	SD	SE	t	DF	2-Tail Prob.
Experimental	80	41.08	6.425	0.747	-1.89	152	.061
Control	74	39.24	5.682	0.635			

** Students obtaining a scaled score on the Reading Skills subtest in the 38-40 range are advised to enroll in the Effective Reading II (ENG 109) course. A scaled score of 41-53 is an indication that students have the skills appropriate for college-level courses.

Table 13.--ASSET Scores for Experimental and Control Group Students Numerical Skills Subtest.

Group	N	$\bar{x}$	SD	SE	t	DF	2-Tail Prob.
Experimental	78	39.46	6.322	0.716	-1.22	152	.224
Control	76	40.68	6.093	0.699			

*** Students were not required to take each subtest. Therefore, the N varies in Tables 11-13.
**** Students obtaining a scaled score of 36-39 are in the decision zone and are advised to enroll in courses based on recent course performance and life experiences. According to Delta College's Dean of Enrollment Services, students in the decision zone in the Numerical Skills subtest tend to overestimate their skills and enroll in higher level math courses. Students scoring in the 40-55 range would be advised to enroll in Algebra I (MTH 107) or Business Mathematics (GB 110).

As Tables 11-13 indicate, experimental and control group students' scores on the Reading Skills and Math Skills subtests did not significantly differ. However, control group students scored significantly higher than experimental group students in the Writing Skills subtest.

It was hypothesized that due to the availability and use of additional academic support services during the Winter 1991 semester that experimental group students would perform academically equivalent to a random sample of 500 students in an institutional group. The data in Table 14 indicates that the mean Winter 1991 semester grade point average of institutional group students (2.68) is higher than experimental group students (2.23) who used supplemental academic support services sponsored by grant funds.

Null Hypothesis: The mean grade point average during the Winter 1991 semester for the experimental group will not statistically significantly ($p > .05$) exceed the institutional group students' mean grade point average.

Alternative Hypothesis: The mean grade point average during the Winter 1991 semester for the experimental group will be equal to or exceed the institutional group students' mean grade point average.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: the institutional group mean exceeded the experimental group mean; accept the null hypothesis. Reject the alternative hypothesis.

Table 14.--Winter 1991 Semester Mean Grade Point Average Experimental and Institutional Group Students.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Experimental	200	2.2298	1.054	0.075	-4.99	698	<.001*
Institutional	500	2.6767	1.077	0.048			

* Institutional group mean exceeded experimental group mean.

It was hypothesized that due to their characteristics being "matched" with special population students in the experimental group who used supplemental academic support services, that the Winter 1991 semester mean grade point average earned by control group students would be lower than the mean grade point average earned by the 500 students in the institutional group. The data in Table 15 indicates that there was no statistical difference in the mean Winter 1991 semester grade point average of control group students (2.72) as compared to the mean grade point average of institutional group students (2.68).

Null Hypothesis: The institutional group students' Winter 1991 semester mean grade point average will not statistically significantly exceed ($p > .05$) the Winter 1991 semester mean grade point average of control group students.

Alternative Hypothesis: The institutional group students' Winter 1991 semester mean grade point average will statistically significantly exceed the Winter 1991 semester mean grade point average of control group students.

Statistical Test of Significance: t-test for independent means; 1-tailed probability.

Decision: p .313 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 15.--Winter 1991 Semester Mean Grade Point Average Control and Institutional Group Students.

Group	N	$\bar{x}$	SD	SE	t	DF	1-Tail Prob.
Control	200	2.7197	0.993	0.070	0.49	698	.313
Institutional	500	2.6767	1.077	0.048			

Academic Persistence

Completion of Winter 1991 Semester Courses

It was hypothesized that due to receiving supplemental academic support services during the Winter 1991 semester that experimental group students would withdraw from less courses and complete a higher proportion of their courses during the Winter 1991 semester than their counterparts in the control group. The data in Table 16 indicates that control group students who did not receive supplemental academic support services withdrew from a lower proportion of courses and persisted to complete a higher proportion of the courses they enrolled in during the Winter 1991 semester as compared to experimental group students.

Null Hypothesis: Experimental group students' proportion of Winter 1991 semester courses completed will not statistically significantly exceed (p > .05) the proportion of courses completed during the Winter 1991 semester by students in the control group.

Alternative Hypothesis: The proportion of Winter 1991 semester courses completed by experimental group students will statistically significantly exceed the proportion of courses completed by control group students.

Statistical Test of Significance: Chi-Square.

Decision: control group students exceeded the experimental group; accept the null hypothesis. Reject the alternative hypothesis.

Table 16.--Winter 1991 Semester Course Completion Rate for Experimental and Control Group Students.

Group	All	Some	None	Row Total
Experimental	157	28	15	200 50.0
Control	181	12	7	200 50.0
Column Total	338 84.5	40 10.0	22 5.5	400 100.0

Chi-Square	D.F.	Significance
11.01323	2	0.0041*

* Control group proportion exceeded experimental group.

It was hypothesized that the experimental group students' completion rate of Winter 1991 semester courses would equal the completion rate of institutional group students. The data in Table 17 indicates that students in the institutional group completed a significantly higher proportion of the courses they enrolled in during the Winter 1991 semester than did experimental group students who accessed supplemental academic support services.

Null Hypothesis: The proportion of courses completed during the Winter 1991 semester by the institutional group will statistically significantly exceed ($p > .05$) the proportion of courses completed by the experimental group.

Alternative Hypothesis: The proportion of courses completed by the experimental group will statistically significantly exceed or be equal to the proportion of courses completed during the Winter 1991 semester by the institutional group.

Statistical Test: Chi-Square.

Decision: institutional group students exceeded the experimental group; accept the null hypothesis. Reject the alternative hypothesis.

Table 17.--Winter 1991 Semester Course Completion Rate for Experimental and Institutional Group Students.

Group		All	Some	None	Row Total
Experimental		157	28	15	200 28.6
Institutional		432	37	31	500 71.4
	Column Total	589 84.1	65 9.3	46 6.6	700 100.0

Chi-Square	D.F.	Significance
8.12852	2	0.0172*

* Institutional group proportion exceeded experimental group.

It was hypothesized that institutional group students would complete a higher proportion of the courses they enrolled in during the Winter 1991 semester as compared to control group students. The data in Table 18 indicates that there is no statistically significant difference in the proportion of courses completed during the Winter 1991 semester by institutional and control group students.

Null Hypothesis: The proportion of courses completed by institutional group students during the Winter 1991 semester will not statistically significantly exceed ($p > .05$) the proportion of courses completed during the Winter 1991 semester by control group students.

Alternative Hypothesis: The proportion of courses completed by institutional group students during the Winter 1991 semester will statistically significantly exceed the proportion of courses completed during the Winter 1991 semester by control group students.

Statistical Test of Significance: Chi-Square.

Decision: p .2735 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 18.--Winter 1991 Semester Course Completion Rate for Control and Institutional Group Students.

Group		All	Some	None	Row Total
Control		181	12	7	200 28.6
Institutional		432	37	31	500 71.4
	Column Total	613 87.6	49 7.0	38 5.4	700 100.0

Chi-Square	D.F.	Significance
2.59265	2	0.2735

Enrollment in Fall 1991 Semester Courses

It was hypothesized that a greater proportion of experimental group students would return to college and enroll in courses during the Fall 1991 semester than their counterparts in the control group. As the data in Table 19 indicates, there was no statistically significant difference in the enrollment of experimental group students and control group students in Fall 1991 semester courses.

Null Hypothesis: The Fall 1991 semester enrollment of experimental group students will not statistically significantly exceed ($p > .05$) the Fall 1991 semester enrollment of control group students.

Alternative Hypothesis: The Fall 1991 semester enrollment of experimental group students will statistically significantly exceed the Fall 1991 semester enrollment of control group students.

Statistical Test of Significance: Chi-Square.

Decision: p .2625 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 19.--Fall 1991 Semester Enrollments Experimental and Control Group Students.

Group		Enrolled	Did Not Enroll	Row Totals
Experimental		113	87	200 50.0
Control		125	75	200 50.0
	Column Total	238 59.5	162 40.5	400 100.0

Chi-Square	D.F.	Significance
1.25532	1	0.2625

It was hypothesized that experimental group students would return to college and enroll in Fall 1991 semester courses at the same rate as institutional group students.

Null Hypothesis: The enrollment of experimental group students in Fall 1991 semester courses will not statistically significantly exceed ($p > .05$) the proportion of institutional group students.

Alternative Hypothesis: The enrollment of experimental group students in Fall 1991

semester courses will be statistically significantly equal to or exceed the proportion of institutional group students.

Statistical Test of Significance: Chi-Square.

Decision: p .3439 > .05; accept the null hypothesis. Reject the alternative hypothesis.

Table 20.--Fall 1991 Semester Enrollments Experimental and Institutional Group Students.

Group		Enrolled	Did Not Enroll	Row Totals
Experimental		113	87	200 28.6
Institutional		261	239	500 71.4
	Column Total	374 53.4	326 46.6	700 100.0

Chi-Square	D.F.	Significance
0.89578	1	0.3439

It was hypothesized that institutional group students would return to college and enroll in Fall 1991 semester courses at a higher rate than control group students. As the data in Table 21 indicates, control group students returned to Delta College and enrolled in Fall 1991 semester courses at a higher proportion than students in the institutional group.

Null Hypothesis: Fall 1991 semester enrollment by institutional group students will not statistically significantly (p > .05) exceed the enrollment of students in the control group.

Alternative Hypothesis: Fall 1991 semester enrollment by institutional group students will statistically significantly exceed students in the control group.

Statistical Test of Significance: Chi-Square.

Decision: control group students proportion greater than institutional group; accept the null hypothesis. Reject the alternative hypothesis.

Table 21.--Fall 1991 Semester Enrollments Control and Institutional Group Students.

Group		Enrolled	Did Not Enroll	Row Totals
Control		125	75	200 28.6
Institutional		261	239	500 71.4
	Column Total	386 55.1	314 44.9	700 100.0

Chi-Square	D.F.	Significance
5.71778	1	0.0168*

* Control group students enrolled in the Fall 1991 semester at a greater proportion than institutional group students.

Cost Analysis

The primary purpose of this study was to determine if supplemental counseling and tutorial academic support services provided through grant-sponsored programs (Single Parent/Homemaker Program, Special Needs Program-disadvantaged component, Michigan Job Opportunity Bank-Retrain Program, and the At-Risk Student Success Program) were used by eligible community college students and if

these services improved special population students' academic achievement and persistence. A secondary focus of the study was to estimate the financial impact on a community college's budget as a result of providing academic support services to special population students.

Institutional Counseling Services

The institutional cost of providing counseling services to students was identified by obtaining the 1990-91 fiscal year expenditures for Counseling Center services from the College's budget and dividing that amount by the number of academic credit hours for all institutional enrollments during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters to obtain a mean cost per academic credit hour of institutional counseling. The calculation determined the cost of providing institutional counseling at the mean rate of $3.90 per academic credit hour. As indicated in Table 22, experimental group students enrolled in a total of 1,669 academic credit hours during the Winter 1991 semester. At the mean rate of $3.90 per academic credit hour, the estimated cost of providing institutional counseling to experimental group students during the Winter 1991 semester was $6,509.10, a mean cost to the institution of $32.55 per student.

Table 22.--Estimated Cost of Providing Institutional Counseling Services.

Group	Academic Credit Hours Enrolled During Winter 1991 Semester	Estimated Cost of Providing Counseling During Winter 1991 Semester	Mean Cost Per Student Winter 1991 Semester
Experimental	1,669	$6,509.10	$32.55
Control	1,643	$6,407.70	$32.04

A similar calculation was conducted to determine the cost of providing institutional counseling services to control group students. Control group students enrolled in a total of 1,643 academic credit hours during the Winter 1991 semester. At the mean rate of $3.90 per academic credit hour, the total cost of providing institutional counseling to control group students during the Winter 1991 semester was $6,407.70, a mean cost to the institution of $32.04 per student.

Institutional Tutoring Services

The institutional cost of providing tutoring services to students was identified by obtaining the 1990-91 fiscal year expenditures for the Teaching/Learning Center from the College's budget and dividing that amount by the number of academic credit hours for all institutional enrollments during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters to obtain a mean cost per academic credit hour of institutional tutoring. The calculation determined the cost of providing institutional tutoring at the mean rate of $.839 per academic credit hour. As indicated in Table 23, at the rate of $.839 per academic credit hour, the total cost of providing institutional tutoring to experimental group students during the Winter 1991 semester was $1,400.29, a mean cost to the institution of $7.00 per student.

Table 23.--Estimated Cost of Providing Institutional Tutoring Services.

Group	Academic Credit Hours Enrolled During Winter 1991 Semester	Estimated Cost of Providing Tutoring During Winter 1991 Semester	Mean Cost Per Student Winter 1991 Semester
Experimental	1,669	$1,400.29	$7.00
Control	1,643	$1,378.48	$6.89

A similar calculation was conducted to determine the cost of providing institutional tutorial services to control group students. At the rate of $.839 per academic credit hour, the total cost of providing institutional tutorial services to control group students during the Winter 1991 semester was $1,378.48, a mean cost of $6.89 per student.

Grant-Sponsored Academic Support Services

In addition to accessing institutional counseling and tutoring services, experimental group students also accessed additional counseling and tutorial services sponsored through grants.

The grant cost of providing counseling services to special population students was determined through the 1990-91 final grant reports documenting counseling expenditures for the Single Parent/Homemaker Program, the Special Needs Program-disadvantaged component, the Michigan Job Opportunity Bank-Retrain Program, and the At-Risk Student Success Program. The total counseling expenditures for these grants were divided by the number of academic credit hours that grant-sponsored students enrolled in during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters to obtain a mean cost of grant-sponsored

counseling. The calculation determined the cost of providing grant-sponsored counseling at the mean rate of $30.68 per academic credit hour. At the mean rate of $30.68 per academic credit hour, the total cost of providing grant-sponsored counseling services to experimental group students during the Winter 1991 semester was $51,205.00, a mean cost of $256.03 per student.

Table 24.--Estimated Cost of Providing Grant-Sponsored Services to Special Population Students.

Service	Academic Credit Hours Enrolled During Winter 1991 Semester	Estimated Cost of Providing Academic Support Service During Winter 1991 Semester	Mean Cost Per Student Winter 1991 Semester
Counseling	1,669	$51,205.00	$256.03
Tutoring	1,669	$20,261.66	$101.31

Grant-sponsored tutoring services were calculated at the mean rate of $12.14 per academic credit hour (determined by the tutorial expenditures indicated on grant final reports for the 1990-91 academic year and divided by the number of academic credit hours grant-sponsored students enrolled in during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters). The total cost of providing tutoring to experimental group students during the Winter 1991 semester was $20,261.66, a mean cost of $101.31 per student.

Total Academic Support Services

As Table 25 indicates, the total mean cost of providing academic support services to experimental group students during the Winter 1991 semester was

$396.89 and to control group students, $38.93. Therefore, it cost an additional $357.96 to provide academic support services to each experimental group student.

Table 25.--Total Mean Student Cost of Academic Support Services Winter 1991 Semester.

Group	Institutional Counseling	Institutional Tutoring	Grant-Sponsored Counseling	Grant-Sponsored Tutoring	Total
Experimental	$32.55	$7.00	$256.03	$101.31	$396.89
Control	$32.04	$6.89	0	0	$ 38.93

In addition to the issue of the cost of providing academic support services to special population students is the question of the funding source providing the service. As indicated, grant-sponsored students use both institutional and grant funded academic support services. The College was required to provide matching funds to obtain the grants. In reviewing the final 1990-91 fiscal year grant financial reports, the College contributed $64,750 in matching funds to support grant-sponsored counseling and tutorial academic support services. The institutional matching funds for counseling and tutorial academic support services were contributed to the projects as a total matching dollar amount. Certain amounts of matching funds are not designated by line-item specifically for counseling or tutoring. Therefore, to determine the amount of institutional matching funds for grant-sponsored academic support services, a calculation was conducted to determine the total institutional cost for supplemental academic support services by mean academic credit hour. The calculation was:

1990-91 Institutional Matching Funds Number of academic credit hours for grant-sponsored students enrolled during the Fall 1990, Winter 1991, and Spring/Summer 1991 semesters	=	Mean institutional match per academic credit hour

The calculation was:

$64,750 9,574	=	$6.76 per academic credit hour

Table 26 describes the estimated cost of providing academic support services to experimental and control group students during the Winter 1991 semester by funding source.

Table 26.--Academic Support Services Winter 1991 Semester By Group and Funding Source.

Group	Institutional Funding Academic Support Services Mean Per Student	Institutional Funding Grant Match Mean Per Student	Grant Funded Academic Support Services Mean Per Student
Experimental	$39.55	$56.41	$300.93
Control	$38.93	0	0

As indicated, experimental group students required a slightly higher financial commitment from the College to use institutional academic support services during the Winter 1991 semester than students in the control group. Due to their being no statistically significant difference in the institutional academic support services reportedly used by experimental and control group students, college resources were required at the rate of an additional $.51 to serve each experimental group student accessing institutional counseling and tutoring during the Winter 1991 semester than their control group peers. However, to operate supplemental academic support

services through grant-funded programs, the College contributed an average of $56.41 for each special population student. Therefore, while it cost the College a total of $38.93 to provide academic support services to control group students, the College used an average of $95.96 in institutional resources to serve each special population student in the experimental group.

Summary

The purpose of Chapter IV was twofold: to determine if eligible community college special population students used grant-sponsored academic support services and if these services improved their academic achievement and persistence. A secondary focus of the study was to estimate the financial impact to a community college's budget as a result of providing academic support services to special population students.

In reviewing students' usage of academic support services, the following research hypotheses were established, related data analyzed, and statistical conclusions obtained:

1. The research hypothesis predicted that experimental group students would use less institutional counseling services during the Winter 1991 semester than control group students due to their ability to access supplemental counseling through grant-funded resources. In fact, the research indicated that grant-sponsored students accessed institutional counseling services (average 1.24 hours per student) at a similar rate as students in the control group (average 1 hour per student).

2. The research hypothesis predicted that due to their ability to access supplemental grant-funded tutorial assistance, that experimental group students would access less institutional tutoring during the Winter 1991 semester than control group students. Similar to institutional counseling services, the research showed that experimental group students accessed a comparable amount of institutional tutoring at the Teaching/Learning Center (average 3.55 hours) as students in the control group (average 3.43 hours).

3. The research hypothesis predicted that due to their ability to access additional grant-sponsored academic support services, that experimental group students would access a greater amount of combined (institutional and grant-sponsored) academic support services during the Winter 1991 semester as compared to control group students. There was no statistically significant difference in the total academic support services accessed. During the Winter 1991 semester, experimental group students used an average of 5.77 hours of academic support services and control group students used an average of 4.43 hours.

4. The research hypothesis predicted that as a result of obtaining additional assistance from grant-sponsored counseling and tutorial services, that experimental group students would achieve a higher mean grade point average during the Winter 1991 semester than control group students. In fact, control group students who did not use the supplemental academic support services had a significantly higher mean grade point average (2.72) than experimental group students (2.23).

5. The research hypothesis estimated that experimental group students who received supplemental academic support services during the Winter 1991 semester would achieve a mean grade point average equal to a group of 500 students representing the institution as a whole. The institutional group mean grade point average (2.68) significantly exceeded the experimental group mean grade point average (2.23).

6. The research hypothesis was that the institutional group mean grade point average for the Winter 1991 semester would significantly exceed the mean grade point average of the control group. There was no statistically significant difference in the mean grade point average for the Winter 1991 semester earned by control group students (2.72) as compared to students in the institutional group (2.68).

7. The research hypothesis predicted that due to receiving supplemental academic support services that experimental group students would complete a higher proportion of the classes they enrolled in during the Winter 1991 semester than control group students. However, control group students completed a higher proportion of courses during the Winter 1991 semester than experimental group students.

8. The research hypothesis estimated that experimental group students would persist to complete the same proportion of courses attempted during the Winter 1991 semester as students in the institutional group. Institutional group students completed a higher proportion of their Winter 1991 semester courses than

did students in the experimental group.

9. The research hypothesis predicted that institutional group students would complete a higher proportion of the courses they enrolled in during the Winter 1991 semester as compared to students in the control group. It appears that institutional and control group students completed approximately the same proportion of courses during the Winter 1991 semester.

10. The research hypothesis was that experimental group students would persist and enroll in Fall 1991 semester courses at a higher rate than students in the control group. While control group students persisted and enrolled in Fall 1991 semester courses at a slightly higher rate than experimental group students, there was no statistically significant difference.

11. The research hypothesis was that experimental group students would persist and enroll in Fall 1991 semester courses at the same proportion as students in the institutional group. Experimental group students enrolled in Fall 1991 semester courses at approximately the same rate as institutional group students.

12. The research hypothesis was that institutional group students would persist and enroll in Fall 1991 semester courses at a higher proportion than control group students. Control group students returned and enrolled in Fall 1991 semester courses at a higher proportion than institutional group students.

There were no research hypotheses identified for the secondary focus of the study, estimating the financial impact to a community college's budget as a result of providing academic support services to special population students. Conclusions regarding the financial impact to a community college's budget and whether grant-sponsored academic support services impact on special population students' academic achievement and persistence will be presented in Chapter V along with the implications for practice and for further research.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR PRACTICE AND FOR FURTHER RESEARCH

Summary

The purpose of this study was to determine if eligible community college special population students used grant-sponsored academic support services and if these services improved their academic achievement and persistence. A secondary focus of the study was to estimate the financial impact on a community college's budget as a result of providing academic support services to special population students.

The research methodology was a quasiexperimental design. The experimental group was 200 randomly sampled special population students enrolled at Delta College during the Winter 1991 semester. The control group consisted of 200 students enrolled during the Winter 1991 semester with similar characteristics (gender, ethnicity, age, enrollment status, cumulative credit hours, and program major) to experimental group students. An institutional group of 500 students enrolled during the Winter 1991 semester was randomly selected to permit statistical comparisons to the overall Delta College student body. There was no attempt made to "match" the characteristics of institutional group students to either experimental or control group

students.

Questionnaires were sent to experimental group students to determine their usage of institutional and grant-sponsored academic support services (counseling and tutoring). Simultaneously, questionnaires were distributed to control group students to determine their usage of institutional academic support services. Institutional group students were not surveyed. A total of 71 experimental group responses (36 percent) and 104 control group responses (53 percent) were analyzed and included in the study.

Concurrently, institutional records were examined to obtain experimental group, control group, and institutional group students' Winter 1991 semester grade point averages, the proportion of Winter 1991 semester courses completed, and their subsequent enrollment in Fall 1991 semester courses. The researcher compared the three groups to determine if differences existed between experimental and control group students, experimental and institutional group students, and control and institutional group students.

To obtain information to conduct the cost analysis portion of the research, institutional budgets for the 1990-91 fiscal year were examined to determine the expenditures used to operate the Counseling Center and Teaching/Learning Center. Final grant reports for the 1990-91 fiscal year for the Single Parent/Homemaker Program, Special Needs Program-disadvantaged component, At-Risk Student Success Program, and Michigan Job Opportunity Bank-Retrain Program were examined to identify grant expenditures. The institutional matching funds designated for

counseling and tutorial academic support services were also identified. The institutional resources, matching funds committed by the College and grant funds expended to provide the academic support services were divided by the appropriate number of academic credit hours to obtain a mean cost per academic credit hour by funding source.

The intent of this study was to determine if grant-sponsored academic support services improved special population students' academic achievement and persistence and to identify the financial impact on a community college's budget for providing supplemental grant-sponsored services. In the study, a series of questions were posed including:

1. Do special population students use the supplemental (grant-sponsored) academic support services available?

2. Do special population students use institutional academic support services at the same rate as non-special population students?

3. Do grant-sponsored academic support services provided to special population students supplement or replace institutionally funded academic support services?

4. When supplemental academic support services are available, do special population students academically achieve at a rate comparable to non-special

population students?

5. When supplemental academic support services are available, do special population students persist at a rate comparable to non-special population students?

6. What portion of supplemental academic support services costs are borne by the community college?

7. When grant-sponsored academic support services are provided to special population students, what is the estimated impact on a community college's budget?

The data gathered in this research study permits tentative answers to these questions.

1. Community colleges provide a variety of academic support services in an attempt to enhance the skills and address the deficiencies of an increasingly diverse student population. Federal and state legislatures have provided grant funding to provide supplemental academic support services to assist special population students to successfully achieve their educational goals. The data from this study indicates that the special population students enrolled during the Winter 1991 semester significantly underutilized the grant-sponsored counseling and tutorial services available, a finding that confirms previous research. Special population students reported using these services an average of 1 hour during the Winter 1991 semester.

2. It was anticipated that special population students would rely on grant services and access less institutional academic support services. The data from this study indicates that special population students used approximately the same amount of institutional counseling and tutorial services as control group students.

3. The literature indicates that community college students who received additional academic advising and tutoring had a higher level of academic achievement and persistence. Therefore, it was anticipated that special population students who received supplemental academic support services would achieve a higher grade point average during the Winter 1991 semester than their peers in the control group. In fact, control group students who did not receive supplemental academic support services significantly outperformed the special population students academically.

4. Assessment scores for basic skills in writing, reading, and numerical skills were obtained for experimental and control group students. Experimental and control group students had the same (no statistical difference) scores on the Reading Skills and Math Skills subtests. However, control group students scored significantly higher than experimental group students in the Writing Skills subtest.

5. The literature indicates that students who receive academic support services will see an improvement in their academic achievement and persistence during the semester that academic support services are provided. This study did not support previous findings. Experimental group students did not persist as well as control

group students during the Winter 1991 semester. Control group students persisted to successfully complete a higher proportion of their Winter 1991 semester courses.

6. It was anticipated that experimental group students would persist and enroll in the following (Fall 1991) semester courses at a higher rate than control group students. However, while a slightly higher proportion of control group students returned and enrolled in Fall 1991 semester courses than experimental group students, there was no statistically significant difference.

7. An institutional group of 500 students was randomly sampled to permit comparisons to the overall student body. It was anticipated that due to receiving supplemental academic support services that experimental group students would improve their academic achievement and persist at a level equivalent to institutional group students. As the results indicate, institutional group students significantly outperformed experimental group students during the Winter 1991 semester in grade point average and proportion of courses successfully completed. However, experimental group students enrolled in Fall 1991 semester courses at approximately the same rate (no statistically significant difference) as institutional students.

8. Eventhough their characteristics were "matched" in six areas with experimental group students, control group students' academic achievement and persistence "mirrored" the performance of the institutional group students. In fact, there was no statistical difference in the mean grade point average achieved by control group students (2.72) during the Winter 1991 semester as compared to the mean

grade point average earned by institutional group students (2.68). Control group and institutional group students completed approximately the same proportion of Winter 1991 semester courses, and control group students enrolled in Fall 1991 semester courses at a statistically significantly higher rate than institutional group students.

9. It was inferred that experimental group students would use less institutional academic support services, therefore reducing the institutional cost of providing counseling and tutoring to special population students. However, there was no statistically significant difference in the use of institutional counseling and tutoring by experimental and control group students.

10. To obtain some of the grant funding, institutional matching funds were required. It appears from the data that institutional matching funds used to provide counseling and tutoring were required at almost twice the amount that it cost the institution to provide these same services through institutional resources.

Conclusions

It appears that special population students did not use the supplemental academic support services available and as a result, grant-sponsored counseling and tutorial services were not maximized. Based on self-reported usage, grant resources were significantly underutilized. This does not mean the need for the services was not there, only that students reported they did not access the services.

Special population students may not have been aware of the grant-sponsored

resources available and relied on the Counseling Center and Teaching/Learning Center staff for assistance. Special population students are able to determine on an individual basis, or refer themselves to the academic support services they prefer. Special population students "voted with their feet" and obtained assistance from institutional staff and resources rather than those provided through grant funding. As a result, institutional resources which are already near or at capacity were utilized, while grant-sponsored resources were underutilized.

While the writing skills of control group students were significantly higher than experimental group students, due to experimental and control group students being "matched" on six additional characteristics and with no statistical difference in two other ASSET subtests, this factor alone is not likely by itself to explain the higher grade point averages earned by control group students during the Winter 1991 semester. It appears that the supplemental academic support services accessed did not improve special population students' academic achievement. However, it should be noted that a pre-test was not conducted. Therefore, the researcher is unable to draw specific conclusions on how well a special population student would have academically achieved if supplemental academic support services had not been provided. Some special population students' Winter 1991 semester grade point averages may have been even lower without the supplemental academic support services.

One rationale for not enrolling in the following semester (Fall 1991) courses is if the student graduated upon completion of either the Winter 1991 or

Spring/Summer 1991 semesters. The researcher reviewed student transcripts to determine the graduation status of both experimental and control group students. A total of 15 (7.5 percent) experimental group students and 13 (6.5 percent) control group students graduated between the Winter 1991 and Fall 1991 semesters. This differential would not explain the slightly lower proportion of experimental group students enrolling in Fall 1991 semester courses. A second rationale that was considered is that community college students often do not seek an Associate's degree or certificate, but enroll in specific courses as life-long learners to upgrade specific skills. As a benchmark, student transcripts were reviewed to determine if experimental and control group students had previously earned a degree or certificate at the College. Four (2 percent) experimental group students and 10 (5 percent) control group students had earned degrees prior to the Winter 1991 semester. In considering the data from the study and in reviewing additional institutional data, it appears that the supplemental academic support services accessed did not assist special population students' persistence, and degree completion was not a determining factor.

Experimental group students' slightly higher (but not significant) Fall 1991 semester enrollment as compared to institutional group students can be partially explained by examining graduation records. Institutional group students graduated at a higher rate (9.8 percent) between the Winter 1991 and Fall 1991 semesters than did experimental group students (7.5 percent) and had completed an Associate degree or certificate prior to the Winter 1991 semester at a higher rate (5.2 percent) than experimental group students (2 percent). Therefore, a higher proportion of

institutional group students may have enrolled to upgrade specific skills and did not plan on attending Fall 1991 semester courses. It appears that the grant-sponsored services accessed did not assist special population students to improve their academic achievement and persistence to the institutional average.

The differential in enrollment in Fall 1991 semester courses between control group and institutional group students can be partially explained by reviewing graduation records. Between the Winter 1991 and Fall 1991 semesters, 9.8 percent of institutional students graduated as compared to 6.5 percent of control group students. Therefore, it was expected that control group students would enroll in Fall 1991 semester courses at a higher proportion than institutional group students. Based on this data, it appears that control group students who did not access supplemental academic support services equaled the average institutional student.

With limited financial resources available, community colleges need to provide academic support services to special population students while minimizing the financial impact to the institution as much as possible. Since experimental group students used institutional counseling and tutoring at approximately the same rate as control group students, it appears that no cost savings was incurred by the College. As increasing numbers of special population students enroll at community colleges, it will be critical to evaluate the resources necessary to serve these students and assign the resources to the appropriate departmental budget. Community colleges may be assuming significantly higher costs for enrolling and serving increasing numbers of special population students than necessary.

Due to the relatively low utilization of supplemental academic support services by special population students, the per student cost of providing academic support services to experimental group students greatly exceeds the institutional cost of providing these services. Based on the academic achievement and persistence of experimental group students, it appears that significant grant funds are being expended to obtain minimal benefit in improving special population students' grade point average and persistence as compared to a comparable control group of students. It should be noted that two factors may have caused the grant-sponsored academic support services to reflect a higher cost per student than the institutional resources. First, a tutoring lab was established for special population students and a considerable amount of computer hardware and software was purchased. This was a one-time expenditure that would have inflated the cost of providing tutorial services to special population students during the 1990-91 academic year. Second, the Michigan Job Opportunity Bank-Retrain Program was being phased out by the funding agency, so student enrollments were limited. Therefore, the average cost of providing academic support services to special population students may have been slightly higher than normal.

This study resulted in some adjustments in perceptions concerning the use, benefit, and financial implications associated with providing grant-sponsored academic support services to special population students. Based on the data, it appears that future legislation should encompass a variety of factors, including a quantitative and qualitative evaluation of student outcomes. Special population students enroll in community colleges for a variety of reasons, one of which is their open-entry

admission policy. As community colleges enroll special population students, an assessment should be conducted to identify any deficiencies that the student may possess that will be a barrier to achieving their educational goals. Community colleges have a responsibility if they accept special population students to provide them with the academic support services to assist them to academically achieve and persist to complete their educational objectives. Community colleges that operate academic support services and the federal and state funding agencies that financially support these programs have a responsibility to evaluate these services both in terms of student outcome measures and the financial impact of providing these services to assure that maximum student benefit (in this study defined as academic achievement and persistence) is obtained at the lowest cost possible.

Implications for Practice

1. The numbers of special population students enrolling in postsecondary education institutions, particularly community colleges, is expected to significantly increase. Community colleges enrolling special population students should provide the academic support services to assist these students to achieve their educational goals and objectives. Community college administrators, faculty, and staff should quantitatively and qualitatively evaluate the academic support services currently available in their institution to ensure that they are positively impacting upon, and meeting the needs of their students.

2. Federal and state funding agencies currently request limited data on the special population students receiving grant-sponsored services. Granting agencies

should expand their current reporting requirements (headcount of students served, courses/programs enrolled, services provided, etc.) to include a quantitative evaluation of student performance outcomes. Community colleges should be accountable for the grant funding expended and assure that the services provided assist special population students to achieve their academic goals.

3. Several granting agencies currently provide funding to community colleges based on a formula (such as number of students enrolled, number of financial aid recipients, etc.) that does not incorporate any quantitative evaluation of the grant-sponsored services provided at that particular institution or the corresponding student outcomes. Granting agencies should place quantitative and qualitative performance measures as a criteria and focus on student outcomes in their application process or funding formula to reinforce the importance of improving special population students' academic achievement and persistence as a major program goal.

4. Federal funding agency staff should review the eligibility criteria of their specific programs to assure that grant-sponsored academic support services are provided to the special population students who require those services to be academically successful.

5. Academic support services should be evaluated on an on-going basis. Community college staff should review student utilization of the academic support services available to determine if students are utilizing existing institutional and grant-sponsored resources. To identify a trend, this research should be conducted

or information gathered over several academic semesters. Community college staff should determine the rationale of why students access specific resources, students' perceptions of the quality of assistance provided, and based on the evaluation, improve the academic support services. If necessary, existing resources should be reallocated to meet the needs of the special population students enrolled at that institution.

6. If grant-sponsored supplemental academic support services are underutilized at an institution, and grant-sponsored students access institutional resources to a greater extent, community college administrators should examine the internal allocation of existing resources and redirect resources to assure that special population students are adequately served and that personnel are sufficient to meet their needs.

7. As additional academic support service initiatives are developed and initiated at the college, they should be in response to an identified need or deficiency that can be quantitatively documented. An evaluation should be conducted to determine if these resources are used by the students they were intended to serve, and if these academic support services positively impact on students' academic achievement and persistence.

Implications for Further Research

As with most research studies, the data collected in this study have raised additional questions that other researchers may want to pursue.

1. This research was conducted on students who participated in four grant-sponsored programs (Single Parent/Homemaker Program, Special Needs Program-disadvantaged component, At-Risk Student Success Program, and Michigan Job Opportunity Bank-Retrain Program). Once the students were randomly selected and placed in the experimental group, they became "generic", untraceable to a specific grant program. This was in no way an evaluation of any one grant funded project, but rather a composite of four programs. Based on the results of this study, grant programs should be reviewed individually to evaluate if the academic support services provided by a specific program positively impact on the academic achievement and persistence of the special population students served by that program.

2. This research was conducted on special population students enrolled during the Winter 1991 semester and followed their progress through their enrollment in Fall 1991 semester courses. Additional research should be conducted to study special population students' academic achievement and persistence over a lengthier timespan to allow for the inclusion of long-term academic skill development and to permit the inclusion of community college students who temporarily stop-out or transfer to another postsecondary institution.

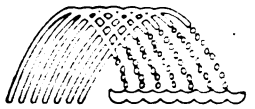
3. This research was conducted at a single community college. The study should be replicated at other community colleges (and perhaps four-year institutions) to determine if grant-sponsored supplemental academic support services positively impact on special population students' academic achievement and persistence in other postsecondary environments.

There are many other factors that could have impacted on the results of this study. The literature has outlined in considerable detail how special population students' academic achievement and persistence is improved by accessing supplemental academic support services. This study is limited in that it was conducted at a single institution, and the results should not be generalized to other community colleges without further research. In addition, part of the study was conducted on self-reported data. While the survey return rate of 45 percent was acceptable and typical for this type of research, the utilization of academic support services of respondents should not be inferred to reflect the usage of non-respondents. Additional research is recommended to evaluate the impact of grant-sponsored academic support services on special population students' academic achievement and persistence, and to determine the financial impact on community colleges' budgets as a result of providing these services.

APPENDICES

APPENDIX A

QUESTIONNAIRE AND LETTER SENT TO EXPERIMENTAL GROUP STUDENTS



DELTA COLLEGE

We are the Opportunity

November 1991

Dear Delta College Student:

Delta College offers a variety of counseling and tutorial services to assist students to successfully achieve their academic goals. To determine if these services are being used by students and meet their academic needs, we are asking a sample of students enrolled during the Winter 1991 semester to participate in a survey. Results will be used to evaluate and as appropriate, improve services for current and future students.

The survey information will also be included in a dissertation being completed at Michigan State University. A requirement of Michigan State University is that your participation is voluntary. You indicate your voluntary agreement to participate by completing and returning this questionnaire. All individual survey results will be confidential.

Please take a few minutes to complete the survey and return it in the enclosed envelope. Thank you for your cooperation. If you have any questions regarding the survey, please contact me at 686-9218.

Sincerely,

Pat Graves
Development Associate

Enclosures

UNIVERSITY CENTER • MICHIGAN 48710 • PHONE (517) 686-9000 • FAX (517) 686-8736

A. Delta College's **Counseling Center** staff (located in the K-Wing) provide academic advising, career and personal counseling, and course scheduling services to students. During the Winter 1991 semester (January 3 - April 24, 1991), did you use any **Counseling Center** services?

___ 1. Yes
___ 2. No

A1. **If yes,** please provide your ***best estimate*** of the number of hours you met with Counseling Center staff during the Winter 1991 semester: _____ hours

A2. **If yes,** were the services you received from **Counseling Center** staff beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

B. Other office staff provide academic advising, career and personal counseling, and course scheduling services to students. During the Winter 1991 semester, did you use any of the following services? If yes, please provide your ***best estimate*** of the number of hours you met with office staff during the Winter 1991 semester:

	Did not use services	Used services	Number of hours used
1. Student Development Center (located in B-116).....	___	___	____
2. Single Parent/Sex Equity Office (located in Admissions).....	___	___	____
3. MJOB-Retrain Office (located in the lower West Concourse).....	___	___	____
4. Student Development Center (located at the Ricker Annex).....	___	___	____
5. Other (please specify) _____..	___	___	____

B1. **If yes,** were the services you received beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

C. Delta College's **Teaching/Learning Center** (located in the lower East Concourse) provides students with tutoring, study skills workshops, and test taking services. During the Winter 1991 semester, did you use the **Teaching/Learning Center**?

___ 1. Yes
___ 2. No

C1. **If yes,** please provide your ***best estimate*** of the total number of hours you used the **Teaching/Learning Center** during the Winter 1991 semester: _____ hours

C2. **If yes,** were the services you received from the **Teaching/Learning Center** beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

D. Tutoring is also provided to students at the **Student Development Center** (located in B-116) and at the Student Development Center located at the Ricker Annex. Did you use either of these tutoring services during the Winter 1991 semester?

___ 1. Yes
___ 2. No

D1. **If yes,** please provide your ***best estimate*** of the total number of hours you used the **Student Development Center** for tutoring during the Winter 1991 semester: _____ hours

D2. **If yes,** were the tutoring services you received from the **Student Development Center** beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

Other comments: _____

_____

_____

THANK YOU FOR YOUR PARTICIPATION! Please return this questionnaire in the enclosed envelope to:
Delta College
Office of Research and Development
University Center, MI 48710

10/91
rd: q002

APPENDIX B

QUESTIONNAIRE SENT TO CONTROL GROUP STUDENTS

A. Delta College's **Counseling Center** staff (located in the K-Wing) provide academic advising, career and personal counseling, and course scheduling services to students. During the Winter 1991 semester (January 3 - April 24, 1991), did you use any **Counseling Center** services?

___ 1. Yes
___ 2. No

A1. **If yes,** please provide your ***best estimate*** of the number of hours you met with **Counseling Center** staff during the Winter 1991 semester:

_____ hours

A2. **If yes,** were the services you received from **Counseling Center** staff beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

B. Delta College's **Teaching/Learning Center** (located in the lower East Concourse) provides students with tutoring, study skills workshops, and test taking services. During the Winter 1991 semester, did you use the **Teaching/Learning Center**?

___ 1. Yes
___ 2. No

B1. **If yes,** please provide your ***best estimate*** of the total number of hours you used the **Teaching/Learning Center** during the Winter 1991 semester:

_____ hours

B2. **If yes,** were the services you received from the **Teaching/Learning Center** beneficial in assisting you to meet your academic objectives?

___ 1. Very beneficial
___ 2. Somewhat beneficial
___ 3. Beneficial
___ 4. Of little benefit
___ 5. No benefit

Other comments: _____

_____

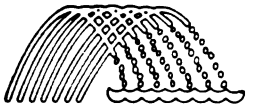
_____

THANK YOU FOR YOUR PARTICIPATION! Please return this questionnaire in the enclosed envelope to: Delta College
Office of Research and Development
University Center, MI 48710

10/91
rd: q002

APPENDIX C

FOLLOW-UP CORRESPONDENCE SENT TO EXPERIMENTAL AND CONTROL GROUP STUDENTS



DELTA COLLEGE

We are the Opportunity

December 2, 1991

Dear Delta College Student:

Approximately three weeks ago, we contacted you regarding a survey Delta College is conducting to determine the use and effectiveness of counseling and tutorial services. As you may recall, the results of the survey will be used to evaluate and as appropriate, improve services for current and future students.

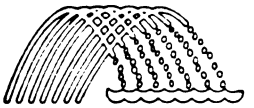
If you have already completed and returned a questionnaire, we would like to thank you for your cooperation. **However, if you have not yet completed a questionnaire, we still need your help.** Please take a few minutes to complete and return your questionnaire as soon as possible. All individual survey results will be confidential.

We appreciate your assistance in our effort to provide the best possible services for our students. If you have any questions, please contact me at 686-9218.

Sincerely,

Pat Graves
Development Associate

UNIVERSITY CENTER • MICHIGAN 48710 • PHONE (517) 686-9000 • FAX (517) 686-8736



DELTA COLLEGE

We are the Opportunity

December 18, 1991

Dear Delta College Student:

Approximately a month ago we contacted you regarding a survey we are conducting to determine the use and effectiveness of counseling and tutorial services. As you may recall, the results of the survey will be used to evaluate and as appropriate, improve services for current and future students.

If you have already completed and returned a questionnaire, please disregard the one we have enclosed. **However, if you have not yet completed a questionnaire, we still need you help.** Please take a few minutes to complete and return the enclosed questionnaire in the stamped return envelope as soon as possible. All individual survey results will be confidential.

We appreciate your assistance in our effort to provide the best possible services for our students. If you have any questions, please contact me at 686-9218.

Sincerely,

Pat Graves
Development Associate

Enclosures

UNIVERSITY CENTER • MICHIGAN 48710 • PHONE (517) 686-9000 • FAX (517) 686-8736

APPENDIX D

PERMISSION LETTER FROM UNIVERSITY COMMITTEE ON RESEARCH INVOLVING HUMAN SUBJECTS

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

November 8, 1991

Patricia Graves
5971 Weiss Apt. O-8
Saginaw, MI 48603

RE: GRANT-SPONSORED ACADEMIC SUPPORT SERVICES: DO THEY IMPROVE COMMUNITY COLLEGE SPECIAL POPULATION STUDENTS' ACADEMIC ACHIEVEMENT AND PERSISTENCE?, IRB #91-477

Dear Ms. Graves:

The above project is exempt from full UCRIHS review. I have reviewed the proposed research protocol and find that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to October 23, 1992.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

David E. Wright

David E. Wright, Ph.D.
Chair, UCRIHS

DEW/deo

cc: Dr. Eldon Nonnamaker

APPENDIX E

RESPONSES TO OPEN-ENDED QUESTIONS

RESPONSES OF EXPERIMENTAL GROUP STUDENTS TO QUESTION OF WOULD YOU LIKE TO PROVIDE ADDITIONAL COMMENTS

They should have more night hours and help provide more student financial services for students seeking financial aid help.

I asked for a tutor, but was refused one.

It was nice to know that there were student aids to help me with my problems in certain classes I had.

I am not on campus that much. I have not used the tutoring services because I am doing well in all of my classes.

Haven't used it that much because of the classes I've taken, but I know I'll need it more later on.

I realize there is help available, but I've never used any of it except for the counseling center in the K-wing and that was only for a half an hour. I've currently used the same center once again for about the same time and it was very beneficial.

I find that a great deal of my time is spent in the Library or in the Career Planning Center.

Single Parent grant was very helpful in helping me pay for things that my Pell grant didn't pay for.

Some of the counselors are unable to give you a good idea of how you should spend your time on classes geared toward your degree. What might be most beneficial to your individual needs. But they try.

There is a "tremendous need" for BIO 131-203 tutors and also Math 120, Nursing/ Nursing 100 and more qualified people are needed.

I feel there should be more classes than what they have or more teachers to teach these classes!

Dear Pat, This is just a note of concern to let you know, I am no longer a Delta College student. I graduated in April, 1991. I currently attend SVSU as a full time Music Education major. I do not wish to be bothered anymore with this counseling questionnaire. Please understand, it's nothing personal, and if it didn't pertain to counseling I wouldn't have a problem with it. However, the first year and a half I attended Delta, my counselor was H_____. That particular part of my college career was a nightmare. Not only was I academically counseled wrong. But, on a personal level towards me, H_____ was very rude and unprofessional. I have never had anyone make me feel so down on myself in my life! Thank God, S_____ was there to get my academic future on the right track again. I do not wish to pursue this matter any further. It happened in the past, and that's where I would like to leave it. Many faculty and staff members were aware of the problem I had with H _____ at that time. Also, I discussed this matter with the chairman of the Counseling Department. I believe I have done all I can do concerning this matter; it is no longer in my hands. As you can tell, this matter is very upsetting to me. I only hope no other student goes through the grief I have been through. Regretfully so, I will never recommend H _____ for anything. Sincerely, P_____.

RESPONSES OF CONTROL GROUP STUDENTS TO QUESTION OF WOULD YOU LIKE TO PROVIDE ADDITIONAL COMMENTS

The Nursing program has too many "costs" in it. Someone needs to evaluate the system to do some changing to meet the needs of the people who need to get a career as soon as possible.

I think that in some of the heavily taken classes (such as Health oriented courses) there should be more sections offered. Specifically: ST 100.

I used the math lab every day for about an hour before class.

I found the counselors very helpful to help me plan for my education; however, it was sometimes difficult for me to make an appointment at a convenient time for me. I work full-time, as I did then, and usually had to take time off from work to get an appointment. What all of this means is-I would like to see more evening appointments available for students taking night classes only.

Would be beneficial to have a computer lab/learner center with qualified and knowledgeable tutors staffing it.

Please make counselors more available to talk to those of us who work full time day jobs and are only able to seek counseling after 5 p.m.

I recommend E_____. She is excellent as a counselor and a very genuine person. She even took me to lunch one day!

I audited Dr. T_____ Art History and Appreciation Course #152. It was my only class. I am 64 years old and a retired elementary teacher. I took the class to broaden my art interest. I wish you well in your dissertation.

M_____ and L_____ are excellent with help. They always are positive and offer help worth using.

I'm on the wait list for LPN program. I wish all the departments involved would get their information straight. I've heard different info from all departments. As far as the financial aid dept goes, they need to get rid of everyone in that office (they are so rude and know nothing).

Your outline of courses needed to complete classes to obtain an Associate's is pretty much self explanatory. That is why I did not see a counselor as much.

I did not use the Teaching Learning Center, but I would not want it to be discontinued because someday I will probably need it.

The Counseling office needs to be updated on transfer info. I was given the wrong information on classes that would transfer. Thank goodness I found out that they would not transfer as the counselor told me, before it was too late.

Math is a real struggle for me. I don't know what I would have done without the extra help. The Counseling Center helped me line up all my classes so I didn't waste any time or money toward my degree. Please keep these services.

My counselor H_____ is the best.

Yes, a grade of a C- should be acceptable. Not just a flat C.

Have used counseling service, but not winter semester. They were very helpful.

Some of the macro sheets seem vague or unclear on which classes should be taken for the college you are going to transfer to.

The Teaching Learning Center is too small they need more tutors to help people with questions. Need tutor at one table not helping other tables. Single individual help.

The staff and most of the counselors in the counseling center treated me very kindly and courteously. They really want to help you. I feel I must state, however, that Mr. H_____ , counselor, told me during orientation that I really didn't need to worry too much about college and a career as I had a husband to take care of me. I see another counselor.

No

The staff at the loan center were very helpful with helping me pick the right classes and loan I needed.

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BIBLIOGRAPHY

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