TERESA ANN RESCH
Attrition, Completion, and Graduation Rates in Georgia Technical Colleges
        Before and After the Initiation of the HOPE Grant
(Under the Direction of DR. HELEN HALL)

In fall 2000, 72% of students enrolled in Georgia's technical colleges utilized

HOPE funds. Few studies have examined the HOPE Scholarship program that was

initiated in 1993. Two groups of students enrolled in Georgia technical colleges

diploma programs with less than 90 quarter credits completed in the program of study

were included in this study: One group matriculated in fall 1992 (n=9,463) and a

second group matriculated in fall 1997 (n=12,467). Z scores and logistic regression

was used to determine differences and relationships in attrition, completion, and

graduation rates before and after the initiation of the HOPE Grant based on the

independent variables (a) full-time and part-time enrollment status, (b) age, (c)

gender, (d) ethnicity, (e) program divisions, and (f) need-based financial aid.

Archival data analyzed in this study was acquired from BANNER, a computer

software program used as a student management system by all public Georgia

technical colleges. Student records were analyzed for two years, to allow for program

completion and to classify each student as a leaver, completer, or graduate. Attrition

and completion rates were greater after the initiation of the HOPE Grant, while the

graduation rate was less after the initiation of the HOPE Grant by nearly 10%. The

attrition and completion rates were also higher for students who received the HOPE

Grant compared to students who received need-based financial aid. The graduation

rate was 17% less for students who received the HOPE Grant compared to those who

received need-based financial aid. The results of logistic regression analysis

illustrated that students were less likely to leave school in 1992 than in 1997, and part-time students were more likely to be completers than full-time students. Students were less likely to be completers in 1992 than in 1997. Students were more likely to be a graduate in 1992 than in 1997. When statistically controlling for all independent variables in the study, 50% of the total change in increasing attrition rates and 37% of the total change in decreasing graduation rates was contributed to after the initiation of the HOPE Scholarship program.

INDEX WORDS: Attrition, completion, graduation rates, financial aid, HOPE Grant, Need based financial aid, Merit based financial aid, Georgia technical colleges, z scores, Logistic regression, BANNER

ATTRITION, COMPLETION, AND GRADUATION RATES IN GEORGIA

TECHNICAL COLLEGES

BEFORE AND AFTER THE INITIATION OF THE HOPE GRANT

by

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DEDICATION

This dissertation is dedicated to my family who has loved, supported, and encouraged me every step of the way on this journey to complete my doctorate degree. Their support throughout my life has given me the ability and stamina to complete this dissertation. The diversity shared by my husband, children, parents, brothers, sisters, aunts, uncles, nephews, nieces, cousins, in-laws, and my Georgia family have taught me that there is much to learn about life and has led me on the path to life-long learning.

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To my Mom, I dedicate this dissertation to you because you taught me how to love others unconditionally and about the power to forgive the people in your life. You taught me to value education and I will always remember your encouraging words. To my Dad, from whom I have inherited my stubbornness to do what is needed to get done. I could not have finished this dissertation without the stamina to persevere.

I am truly grateful to my two wonderful children, Jonathan and Stephanie for understanding when I had to go to school. I feel like I have gone to school since you

were babies. Always remember I love you and get a good education before you have a family.

Finally and most importantly, I dedicate this dissertation to the love of my life, my husband and soul mate, Brian. Thank you for supporting and encouraging me through all my years of education. I promise you there will be no "double doctorate" for me to finish. I look forward to spending the rest of our life living a healthy and happy life together.

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CHAPTER 1

INTRODUCTION

The study of student attrition in postsecondary education takes on much

importance as colleges work to retain students. Attrition is defined as students who quit

attending school prior to completing requirements for graduation from a diploma

program. In studies of attrition at the 2-year postsecondary level, distinctions are made

between program completion and graduation. Students completing at least 50% of a

recognized program of study and then gaining employment in the field of study are

considered completers although they have not graduated from any particular program

(Council on Occupational Education, 2000).

I researched the relationship between the Helping Outstanding Pupils

Educationally (HOPE) scholarship program and student attrition, completion, and

graduation from Georgia's technical colleges for those students enrolled in diploma

programs. Students receive funding to pay tuition, mandatory fees, and per quarter book

allowance fees through the HOPE Grant program while enrolled in diploma programs in

Georgia's technical colleges.

Rationale

Historically, approximately one-half of all traditional freshmen entering college

ultimately graduate. Conversely, the attrition rate for nontraditional students in two-year

colleges is close to 60% (Lombard, 1992). In fact, of the three million students who

enrolled in two-year postsecondary institutions in 1995-96, after three years, 36% did not

earn a degree or certificate and were no longer enrolled in school, 6% did not earn a

degree but were still enrolled in school, and 58% had attained a degree or certificate after

three years (Berkner, Carroll, Clune, & Horn, 2000). Kerka (1995) speculated that

perhaps attrition rates have increased because students in colleges and universities are

increasing at more widely varying stages of the life cycle compared to the traditional 18-

to 22- year old cohort.

While attrition is a problem, colleges have struggled in their attempts to gather

good information on attrition, and without such data are hampered in efforts to launch

successful retention programs. According to Tinto (1987), most college students leave

voluntarily, and their decisions to withdraw stem most often from personal, social, or

financial problems. Barton (1997) suggested that to make higher education obtainable

there are several critical issues to be examined including the formulations for financial

aid, noncompletion rates at postsecondary institutions, and improving graduation rates in

high schools. College Board Online (1996) described four distinct factors influencing

student attrition: student experience factors, finances, cost and external factors, and

institutional variations. It was suggested that enrollment managers need to realize that

financial aid lowers the net cost of attendance and increases the probability of

persistence. Roslund (1998) completed a study of 600 non-returning students from

Davenport College Career Center and found that financial aid problems were the number

one reason for not returning. It appears there is a direct relationship between financial aid

concerns and student retention.

According to DeSalvatore and Hughes (2000), for the third year in a row in 1999-

2000 year, Georgia ranked number one for students receiving state financial aid to attend

postsecondary education. In fact, the national survey reported that 77.9% of Georgia's undergraduate students received state-financed grants and scholarships to attend Georgia public and private colleges and universities during the 1998-1999 academic year. Georgia's high ranking is attributed to the Helping Outstanding Pupils Educationally (HOPE) Scholarship program funded by the Georgia Lottery for Education. HOPE became available in September, 1993 and is available to all qualified Georgia citizens. For the first seven years of the program, 556,030 students received more than one billion dollars in scholarships to pay for tuition, fees, and books (Georgia Student Finance Commission, 2000a). Among Georgia's 33 public technical colleges, 243,000 students received HOPE Scholarships funds with total awards in excess of $21 million between September 1, 1993, and December 9, 2000.

Of the 64,539 students in 2-year postsecondary technical colleges who received financial aid during the fall 2000 academic quarter, 46,532 received HOPE Scholarship or Grant funds, 16,639 received Pell Grant funds, 1,673 received funds through Veterans Administration, and 1,008 received funds through the Job Training Partnership Act. During this same quarter, 5,847 students were enrolled in developmental studies for English/reading and 6,706 in developmental studies for math (Georgia Department of Technical and Adult Education, 2000a).

According to Georgia's HOPE Scholarship Program Regulations for the 2000-2001 academic year (Georgia Student Finance Commission, 2000b), non-traditional students, GED recipients, recent high school graduates, and home-study students are eligible to receive a HOPE Grant to cover tuition, HOPE-approved mandatory fees, and a book allowance to seek a technical diploma or certificate at a public 2-year postsecondary

institution in Georgia if he or she meets the requirements for the HOPE Grant. All individuals who have been legal residents of Georgia for at least one year, regardless of grade average or high school graduation date, may be eligible for a HOPE Grant. Selective service registration is required for all males over the age of 18. Students must not be in default of a student loan and must be free of drug convictions for 90 days in order to qualify for HOPE Grant funds. In order to retain the HOPE Grant funds at technical colleges, students must make satisfactory progress toward earning a diploma or certificate. According to the Georgia Student Finance Commission (2000b), graduates from 91 high schools had a 40% or better renewal rate for the HOPE Scholarship. This means that approximately 60% of the high school graduates eligible in one academic year were no longer eligible for HOPE funds the following year.

Variables of interest in attrition studies include full-time and part-time status, entry-level education, financial aid plans, age, gender, ethnicity, and types of programs of study. Tinto (1982) suggested developing group-specific models of student disengagement to include gender, race, age, and social status backgrounds. Metzner and Bean (1987) proposed that dropout decisions for nontraditional students are based both singularly and interactively on six constructs which include background and defining variables, academic variables, environmental variables, psychological outcomes, academic outcomes, and intent to leave. Catt (1998) found that the obstacles most likely to inhibit student persistence were loneliness, financial issues, housing problems, security concerns, and the inability to commit to the college or local community. Horton (1998) included prerequisite requirements for courses, student age and enrollment status at the time the courses were taken, ACT subscores and composite scores, type of high school

diploma, type of high school attended, and gender as variables in his study of student attrition. Pardee (1992) conducted a study at a medium-sized California community college and concluded that: (a) the typical returning student was a white female between the ages of 28 and 32, taking less than six units during the evening and working in excess of 40 hours per week; (b) 30% of the students had been out of school for 5 years or longer, 23.7% for one year, and 10% for two or three years; (c) desire to learn was the most important influence to return to college for both men and women and for all ethnicities, except black students; (d) other significant influences were improved earning potential, increased value on education, improved emotional outlook, occupation requires, and dissatisfaction with job; (e) the six top-ranked influences corresponded closely to the top-ranked *trigger influences* that were identified before a student drops out of school; and (f) 73% of students were returning to the college they had left originally. Nippert (2000) concluded that women are somewhat more likely to complete their degrees than men and academic activities, college GPA, and choosing to re-enroll had a positive effect on educational attainment.

<div align="center">Statement of Problem</div>

Financial aid issues are a major problem for students and the most common reasons students give when dropping out of school. A large percentage (72% in fall 2000) of students at Georgia's technical colleges utilize HOPE Scholarship and Grant funds (Georgia Department of Technical and Adult Education, 2000a). HOPE funds are being spent with little or no documentation of the impact they have on educational attainment. Therefore, I investigated the relationship of the HOPE Grant to student

attrition, completion, and graduation from diploma programs at Georgia technical colleges.

<h2 style="text-align:center">Statement of Purpose</h2>

The purpose of this causal-comparative study was to determine the attrition, completion, and graduation rates of students in Georgia technical college diploma programs (less than 90 quarter credits) before and after the initiation of the HOPE Grant in 1993 and to explain the relationship between selected dependent and independent variables. The HOPE Grant was initiated in September 1993, therefore two groups of students were included in the study: one group matriculated in 1992 the year before the initiation of the HOPE Grant program, a second group matriculated in 1997 five years after the initiation of the HOPE Grant program. This study compared the dependent (response) variables, attrition, completion, and graduation rates of students based on the independent (explanatory) variables (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, (e) program divisions, and (f) need-based financial aid. Attrition, completion, and graduation rates of students who received Pell Grant and/or JTPA funds (need-based financial aid) were compared with students who received only HOPE Grant funds.

<h2 style="text-align:center">Research Questions</h2>

The following research questions were addressed:

1. Is there a significant difference in attrition rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

2. Is there a significant difference in completion rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

3. Is there a significant difference in graduation rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

4. Is there a significant difference in attrition rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?

5. Is there a significant difference in completion rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?

6. Is there a significant difference in graduation rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need based financial aid?

7. What are the strengths of the relationship between the dependent variable, attrition, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

8. What are the strengths of the relationship between the dependent variable, completion, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

9. What are the strengths of the relationship between the dependent variable, graduation, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

10. Controlling for all of the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division, what is the relationship of the initiation of the HOPE Grant and attrition, completion, and graduation rates?

<div align="center">Theoretical Framework</div>

The framework for this study was based on theories of student attrition from St. John (1991, 1992), Tinto (1993), and Bean and Metzner (1985). St. John (1991) reported that evidence existed from econometric studies concluding that student financial aid was an effective means of promoting equal opportunity and in promoting persistence in higher education. St. John reported that some studies found that financial aid was effective, while others concluded it had no significance. Because of conflicting findings St. John (1992) recommended two models for evaluating the effects of financial aid, which he referred to as the Basic Attendance Model and Workable Persistence Model. These models, based on national research, used existing institutional data sources. The Basic Attendance Model includes social background (gender, age, ethnicity, dependency status, and financial need), academic preparation (test scores, high school, and some college), student aid (any aid, grants, loans, loans and work, grants and work, all other types of aid, amounts), and attendance. The Workable Persistence Model includes all of the parts of the Basic Attendance Model plus academic experience (grades and programs of study), and college experiences (special programs and extracurricular activities) (St. John, 1992).

The challenge remains to make better use of research in the formulation of public and institutional student aid policies (St. John, 1991).

According to Tinto (1987), most traditional college students leave voluntarily and their decisions to withdraw stem most often from personal, social, and financial problems. Tinto (1982) suggested developing group-specific models of student disengagement to include gender, race, age, and social status background. Models of attrition that include descriptions/levels of social and academic interactions without including gender, race, age, and social status tend to underestimate and even distort the characteristics of dropouts among various groups of students, especially those from disadvantaged backgrounds (Tinto, 1982). Tinto (1988) suggested that students are more likely to be successful at college if they go through the so-called rites of passage that included separation from past associations, transition that begins when the person begins to interact with members of the new group, and the last phase which is incorporation. Incorporation is the taking on of new patterns of interaction with members of the new group and establishing competent membership in that group as a participant member.

Tinto (1993) revisited his theories on student attrition, particularly as they related to traditional and nontraditional students at two-year and four-year, public and private institutions. His major emphasis was that student attrition is most affected by a lack of social and academic integration with the community. The community is described as the school, faculty, and students.

Bean and Metzner (1985) developed a model of student attrition that states that older students (nontraditional) drop out of school because of one or more of the following variables (a) academic performance, (b) intent to leave, (c) previous performance and

educational goals, and (d) environmental variables. Bean and Metzner further indicated that environmental variables (finances, hours of employment, outside encouragement, family responsibilities, and opportunity to transfer) have a greater impact on decisions of adult students to leave than academic variables (study habits, academic advising, absenteeism, major certainty, and course availability). The Bean-Metzner model suggested that making environmental factors conducive to completion could compensate for weak academic support. Metzner and Bean proposed that dropout decisions for nontraditional students are based both singularly and interactively on six constructs which include background and defining variables, academic variables, environmental variables, psychological outcomes, academic outcomes, and intent to leave. In contrast with Tinto's expectations, the social integration variable was not found to have significant effect on nontraditional student attrition. The Bean and Metzner 1987 model indicated that the most significant variables influencing dropout decisions for nontraditional students were academic performance, intent to leave, background and defining variables, mainly high school performance and educational goals, and environmental variables.

<div style="text-align:center">Significance of the Study</div>

Given the amount of money and resources of the HOPE Scholarship program to pay for the tuition, fees, and books for postsecondary students to further their education, it is important to determine its influence on student attrition, completion, and graduation rates while attending postsecondary education at Georgia's technical colleges. The results of this study have provided evidence that the practices of the HOPE Grant should be reviewed and revised. This study has identified of the relationship of the HOPE Grant to the dependent variables, attrition, completion, and graduation and how the independent

variables can predict this relationship. This study also compared if the attrition, completion, and graduation rates of students utilizing HOPE Grant are different based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, (e) program division, and (f) need-based financial aid.

<div align="center">Summary</div>

Historically, approximately one-half of all traditional freshmen entering college ultimately graduate; conversely the attrition rate for nontraditional students in two-year colleges is close to 60% (Lombard, 1992). While attrition is a problem, colleges have struggled in their attempts to gather good information on attrition, and therefore are hampered in their efforts to launch successful retention programs. According to DeSalvatore and Hughes (2000), for the third year in a row, Georgia ranked number one for students receiving state financial aid to attend postsecondary education. Variables of interest in attrition studies include full-time and part-time status, entry-level education, financial aid plans, age, gender, ethnicity, and types of programs of study.

The purpose of this causal-comparative study was to determine the attrition, completion, and graduation rates of students in Georgia technical college diploma programs before and after the initiation of the HOPE Grant. By studying the relationship of the HOPE Grant to student attrition in Georgia's technical colleges, plans can be made to improve how the HOPE Grant is utilized and to improve completion and graduation rates of students at Georgia's technical colleges.

CHAPTER 2

REVIEW OF LITERATURE

This chapter presents a review of the literature related to the study. The review includes an overview of philosophy and history of vocational/technical education, a description of population served and opportunities offered by technical colleges, a review of college student attrition literature in colleges, and the history, purpose, qualifications, and record of the HOPE Scholarship program in Georgia.

History and Philosophy of Vocational/Technical Education

The four major philosophies that have influenced education in the United States are idealism, realism, pragmatism, and existentialism (Ornstein & Hunkins, 1998). Four educational philosophies have been derived from the roots of these philosophies that are perennialism, essentialism, progressivism, and reconstructionism. According to Lerwick (1979) there are six basic educational philosophies that can be used to describe vocational educational paradigms: perennialism, essentialism, progressivism, reconstructionism, existentialism, and behavioral engineering.

Lerwick (1979) reported that a thorough understanding of the educational philosophies would help vocational educators understand where vocational education has been and where it is due to change. Miller (1985) recommended that philosophy could assist vocational educators in making decisions about the future and guide policymakers in developing policies for vocational education. According to Ornstein and Hunkins (1998), philosophy gives meaning to our decisions and actions while developing curriculum for all levels of education.

Perennialism is related to the root philosophy idealism (Lerwick, 1979). From a vocational education perspective, perennialism involves teaching students the virtue of the work ethic including the principle of an "honest day's labor for an honest day's pay." The primary efforts focus is to develop a worker who is conscientious, skillful, moral, and intelligent. According to Ornstein and Hunkins (1998) the aim of perennialism is to educate the rational person and to cultivate the intellect of individuals. This philosophy holds true today. With perennialism the curriculum is written to develop the skills, competencies, and knowledge basic to the education of artisans and craftsmen (Lerwick). The curriculum focus of perennialism is the classical subjects, literary analysis, and constant curriculum (Ornstein & Hunkins). Perennialism philosophy was at the root of vocational education when it began. The perennialist philosophy suggests that students need to develop strong reading and writing skills as well as vocational skills. When the Georgia technical institutes added the state standards for programs and curriculum in 1987-88, English, math, and psychology were added. Lerwick reported that teachers should have mastery of a vocation or occupation but should also be able to motivate students to have curiosity about the larger issues of the role of work. The method of teaching should be concrete and specific to the skills, competencies, and knowledge needed to develop mastery of the vocation for the education of the whole person. From a perennialist point of view, the curriculum should be arranged in a sequential manner to include essential core skills (Lerwick, 1979).

Essentialism is related to the root philosophy of realism and emphasizes that the majority of education should be organized according to relatively certain and proven truths (Lerwick, 1979). The aim of education based on essentialism philosophy is to

promote the intellectual growth of the individual and to educate the competent person

(Ornstein & Hunkins, 1998). When industry became prominent, as in World War I and

II, vocational education was organized around the proven needs of the nation, society,

and individual by developing vocational and technical skills necessary for national

security. The two essential principles of vocational education at that time were rapid

skilled production and the wise consumption of material goods and services. The

essentialist philosophical approach is more indicative of vocational education when our

nation was at war, such as in World War I and II. According to Ornstein and Hunkins

(1998), the essentialist philosophy based knowledge and content on essential skills and

academic subjects. The vocational graduate possesses a trade that has economic worth

and, therefore, encourages an image of self worth. From an essentialist point of view, the

clientele are students who want to learn and can benefit from vocational education

(Lerwick, 1979). Generally, the students are those who prefer to work with their hands.

This part of essentialism is seen today in the trade areas of technical colleges. Training is

related to the needs of the business and industry in the community. This philosophy has

been the driving force of technical education for many years. From an essentialist point

of view, the administrative staff should implement programs and services leading to real

employment opportunities with the input of advisory committees from the business and

industry community.

Many internships, clinicals, and labs at technical colleges are set up from the

essentialist prospective with real-life employment situations and work-study or on-the-

job-training being highly desirable. Prosser and Quigley (1949) suggested that training

environments should be a replica of those in the workplace. Prosser and Quigley

believed that a real-life training environment could have bearing on the length of a program and the quality of educated students produced. From an essentialist point of view, non-traditional occupations should be taught only after reliable evidence exists for the need or demand (Lerwick, 1979). From an essentialist prospective, Lerwick explained that nonvocational courses should be endorsed only if they were convenient to provide and could support their own costs. Teachers should be masters of the skills and knowledge to be taught and should be fact-oriented and familiar with the latest scientific and technical developments. The teacher is the authority in his or her subject field and teaches traditional values (Ornstein & Hunkins, 1998). The method of teaching should correspond to real employment situations (Lerwick). Prosser and Quigley suggested that instructors must have recent employment experience in order to be skillful with the latest equipment. Much of the philosophy driving technical colleges comes from essentialism.

Progressivism is rooted in the school of American pragmatism (Lerwick, 1979). Pragmatism advocates solving problems as they become apparent which requires an urgent need to become familiar with the world's problems. Thus, progressivist believe that the aim of education is to solve problems and can serve the needs of democracy by providing the individual citizen with the knowledge, competencies, and skills necessary for participation in a free democratic society (Lerwick). Ornstein and Hunkins (1998) added that the aim of education from a progressivist approach is to promote democratic and social living. Vocational education should promote a more democratic and humane working environment and students can be educated to select more personally rewarding careers. Preferred vocational education is fair and equal to all and instills a regular learning procedure that leads to lifelong learning on the part of the student. People of all

ages and abilities can benefit from opportunities in vocational education (Lerwick).

According to Ornstein and Hunkins (1998), from a progressivist approach knowledge

leads to growth and development of the individual and the focus is on active and relevant

learning.

Lerwick (1979) commented that from a progressivist and reconstructionist

prospective, vocational education should take place in the community itself whenever

possible. In other words, vocational curriculum should be arranged to provide training

and education aimed at short-range employability or entry-level skills and long-range

transferability to develop career potential. From a progressivist approach, the curriculum

focus is based on the student's interest and involves the application of human problems

and affairs (Ornstein & Hunkins, 1998). The development of technical certificates of

credit, diplomas, and degrees could be considered a reflection of progressivism

philosophy. The transferability of courses taken at technical colleges to two-year and

four-year institutions is needed to make life-long learning a real possibility for students.

The evaluation of the student and program should assess whether basic entry-level

employment skills and competencies have been mastered and if the student can

demonstrate problem-solving abilities (Lerwick). Prosser and Quigley (1949) also

recommend that problem solving be part of the education process.

Reconstructionism is derived from pragmatism and is thought of many times as an

extreme form of progressivism (Lerwick, 1979). Reconstructionists argue that to be

aware of better solutions to society's problems and then not actively promote those

solutions is unethical.   The belief that education is the hope for the future stems from the

reconstructionist's philosophy that education can lead society toward democratic

perfection. The reconstructionism approach to education involves change and social

reform to improve and reconstruct society (Ornstein & Hunkins, 1998). Perennialists and

reconstructionists believe that people of all age groups and abilities can benefit from

vocational education and that vocational educators should be active in directing and

lobbying for extensive social change. This includes recruiting students who have

leadership potential needed to implement a more perfect world of work (Lerwick). From

this perspective, vocational educators and students should be involved in local, state, and

national organizations which provide leadership seminars and forums concerning broad

issues about technical/vocational education.

Existentialism is a philosophy that defies systematic definition (Lerwick, 1979).

The implications of absolute and inescapable personal freedom and the responsibility that

freedom places on the individual have become the central theme of existentialism

(Lerwick). Using existentialist philosophy, vocational education should focus on

promoting the student's self-awareness and consciousness of the meaning of work in a

personally subjective world. The goals of vocational education for existentialists are to

develop inner-directed people committed to the work experience, nurturing people to find

their own meaning(s) for work, encouraging students to realize that they are free to set

goals for their own lives and destinies, and developing a society whose individual

members will be personally responsible and accountable for their choices and freedom to

pursue a vocation or education (Lerwick). By teaching students skills in technical

education, the student displays confidence and becomes independent of others.

Existentialism suggests that the student should be a choosing agent, and helping the

student discover self and free choice in the matter of work is part of vocational education

(Lerwick). In technical colleges, advisors can guide students into a variety of occupations, but the bottom line is that the student is free to choose. Existentialism supports the idea that the whole of the curriculum should be paced to the student's learning needs (Lerwick). In many programs this is allowed, but in others it cannot be tolerated. For example, in health programs students must learn how to take vital signs before going to the clinical site. It would be a threat to patient safety if the student were allowed to attend clinical and then learn vital signs at his or her own pace. The teacher should have authentic experiences and should act as a role model to the students with the existentialist approach (Lerwick).

According to Lerwick (1979), behavioral engineering does not claim to be a philosophy. The early behavioralists confined their studies to tangible phenomena. Behavioral engineering places its faith in the supremacy of the scientific method and the ability of responsible engineering to improve the human environment. From a behavioral engineering perspective, every effort should be made to match the student to a job according to measures of inferred compatibility (Lerwick, 1979). Administrators must insure that programs are well engineered and empirically sound through the use of planned tasks, specific behavioral goals and objectives, and the appropriate sequence of reinforcements required or needed to make a given program successful. Competency-based education and performance-based instruction are necessary for success in the classroom from a behavioral engineering prospective (Lerwick, 1979). Competency-based education and performance-based instruction became popular in the 1980's and are evident today in the development of state standards and guides for technical colleges.

Few schools use a single philosophical approach to education, while most schools combine various philosophies (Ornstein & Hunkins, 1998). This adds to the dynamics of the curriculum within each school.

Federal Legislation Impacting Vocational/Technical Education

According to Scott and Sarkees-Wircenski (1996) the first federal legislation to affect the development of vocational education was the 1862 Morrill Act, known as the Land Grant Act. States were given land that could be either sold or leased to raise money for establishing at least one college in the state. This legislation paved the way to acceptance of vocational education because liberal and practical education were combined and was not considered to be an inferior form of education (Scott & Sarkees-Wircenski, 1996).

Dr. Charles A. Prosser was the author of the Smith-Hughes Act of 1917 (Kincheloe, 1999). Prosser brought groups together that shared a conservative social philosophy, a belief in specific training operations based on a behavior psychology of stimulus and response, and a curriculum theory that was shaped primarily by the needs of industry (Kincheloe). The Smith-Hughes Act of 1917 established the federal Board for Vocational Education, which was to advise local communities and states, administer money for vocational education, and publish research in the field of vocational education (Kincheloe).

The Servicemen's Readjustment Act of 1944, also known as the GI Bill of rights, was passed to help World War II veterans in making an adjustment to civilian life (Scott & Sarkees-Wircenski, 1996). The GI Bill paid for the cost of education and subsistence for many people involved in the World War II, Korean and Vietnam Wars. The length

and development of diploma programs in the technical colleges were influenced by the funding and time limitations in the GI bill (K. Breeden personal communication on December 19, 2000).

The National Defense Education Act of 1958 was passed as the result of a critical need in society because there was a concern that America was falling behind in technical and scientific areas after the Russians launched Sputnik I (Scott & Sarkees-Wircenski, 1996). Title VIII of the Act created the area vocational education school concept and provided funds for the operation of postsecondary area schools in each state.

Another act that impacted vocational education was the Perkins-Morse Bill, also known as the Vocational Act of 1963 (Scott & Sarkees-Wircenski, 1996). The Perkins-Morse Bill authorized federal grants to states to maintain, extend, and improve existing programs of vocational education. It further defined vocational education to mean "vocational or technical training or retraining which is given in schools or classes under public supervision and control, or under contract with a State board or local educational agency, and is conducted as a part of a program designed to fit individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations." This definition has been instrumental in developing the delivery system of vocational education used today (Scott & Sarkees-Wircenski, 1996). In 1968 the Advisory Council on Vocational Education proclaimed the 1963 legislation had been ignored, thus the Vocational Education Amendments of 1968 were passed (Kincheloe, 1999). Generally, the 1968 legislation had the same purpose as the Vocational Education Act of 1963, except it emphasized vocational education in postsecondary schools and broadened the

definition of vocational education to bring it closer to general education (Scott & Sarkees-Wircenski).

The Manpower Development and Training Act of 1962, Comprehensive Employment and Training Act of 1973, Comprehensive Employment and Training Act Amendments of 1978, and the Job Training Partnership Act of 1982 were federally funded programs with the primary focus to establish training programs for the unemployed and underemployed (Scott & Sarkees-Wircenski, 1996). The Job Training Reform Amendments of 1992 revised the 1982 act to improve services to those facing barriers to employment and improving services and increasing the accountability of funds and programs (Scott & Sarkees-Wircenski).

The Carl D. Perkins Vocational Education Act of 1984 and the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 affirmed that effective vocational education programs are essential to the nation's future as a free and democratic society (Scott & Sarkees-Wircenski, 1996). The goals of these acts were to provide equal opportunities for adults in vocational education and to improve the skills of the labor force and prepare adults for job opportunities. The 1990 act authorized the largest amount of funds ever for vocational education and placed emphasis on aiding disadvantaged, poor, and handicapped students and those with limited English-language proficiency (Scott and Sarkees-Wircenski, 1996). This act required an evaluation of how the money was spent and required a three-year state plan detailing how the technical colleges planned to administer Perkins funds.

According to Kincheloe (1999) the School-to-Work Opportunities Act of 1994 came about in response to a 1991 report of the Council of Chief School Officers that

work-based learning should be grounded in an integrated academic and vocational curriculum involving employers, schools, and postsecondary institutions. The 1994 act made work-based learning possible through programs such as youth apprenticeship, cooperative education, career academies and school-based enterprises (Kincheloe, 1999). As noted by Scott and Sarkees-Wircenski (1996) the 1994 act was expected to increase postsecondary programs and services to include a wider audience.

<div align="center">Development of Technical Institutes/Colleges in Georgia</div>

According to Bennett (1926) there were two schools early on that influenced the development of vocational education. The most important influence was the Rensselaer School at Troy, New York that opened in 1824. This school grew from the needs of a new and developing country and was established to give instruction in the application of science to the common purposes of life. The second influence was the Gardiner Lyceum that opened at Gardiner, Maine in 1832 (Bennett). The school offered courses in liberal arts but was a manual labor school with a large workshop. It was considered a full-time scientific and technical school.

In 1984, Dr. John Lloyd presented a history and background of area vocational-technical schools in Georgia to the newly appointed State Board of Postsecondary Vocational Education (State Board of Postsecondary Vocational Education, 1984a). Lloyd reported that the first state trade school in Georgia was established in 1943 in Clarkesville. In 1946, the second state trade school was established in Americus. Both schools became models for future area vocational-technical schools. Enrollment in technical schools soared after World War II until 1952-53. At that time, the State Board of Education appointed a committee to show cause why the state trade schools should not

be closed. The study concluded that the schools should not be closed and that more schools should be opened. The committee found that there was a need for industrial development and a trained labor pool (State Board of Postsecondary Vocational Education, 1984a). Dr. Lloyd reported that pressure was put on the Board of Education by Chambers of Commerce, business and industry, and the State Legislature for better and more productive vocational training. In 1958, the Georgia State Board of Education approved policies for the establishment of the area vocational-technical schools (State Board of Postsecondary Vocational Education, 1984a).

In 1961, in response to the National Defense Education Act of 1958, the first area vocational-technical schools were opened in Georgia. Area vocational-technical schools offered a broader curriculum than the trade school established earlier. Between 1964 and 1966, 11 schools were opened. Joint programs between technical schools and junior colleges began in 1973, and two additional vocational-technical schools opened in 1984 (State Board of Postsecondary Vocational Education, 1984a).

The State Board of Postsecondary Vocational Education (1984a) reported that the area vocational-technical schools typically had governance through a local or independent (i.e. city) board. The other alternative for local governance was an area board, which was authorized in 1960 by the Woodall Amendment (State Board of Postsecondary Vocational Education, 1984a). Six schools were established by this amendment. In 1966 the amendment was repealed and made inoperable. The amendment was then deleted from the Constitution (State Board of Postsecondary Vocational Education, 1984a).

Joe Frank Harris, then Governor of Georgia, issued an Executive Order on December 28, 1983, establishing the Board of Postsecondary Vocational Education based on the recommendation of the Governor's Vocational Education Task Force. The board consisted of two members from the State Board of Education, two members from the Board of Regents of the University System, Commissioner of the Department of Industry and Trade, State Superintendent of Schools, Chancellor of the University System, and three representatives of business and industry appointed by the Governor (The State of Georgia, 1983). The mission of the Board was to plan for, coordinate, and evaluate the State's public vocational-technical education institutions and programs in a manner which meets the needs of the citizenry, business, and industry to the highest possible degree and in the most cost effective and efficient manner and which best facilitates the economic development of the state (Board of Postsecondary Vocational Education, 1984). Governor Joe Frank Harris swore the Board into duty on January 17, 1984, at the State Capital in Atlanta, Georgia. The Governor looked upon the new Board members to provide leadership for postsecondary vocational education as one of great importance to Georgia's future. The Board's role was to be one of providing leadership and coordination. The Governor urged close cooperation between the Board of Postsecondary Vocational Education and Boards of Education and Regents, who continued to have direct administrative responsibility for the K-12, colleges and universities (State Board of Postsecondary Vocational Education, 1984a). The Board was to bring the 27 area vocational-technical schools together administratively. Tom Perdue, the Governor's Chief Administrative Officer, pointed out that the creation of the Board was just a first step for postsecondary vocational education and that it did not

necessarily represent the long-term resolution of the governance issue (State Board of Postsecondary Vocational Education, 1984a).

The State Board of Postsecondary Vocational Education (1984a) announced that Dr. Kenneth Breeden was selected as the Executive Director of the Board at the February 3, 1984, meeting. Also at the February meeting, the Board authorized the vocational-technical schools to charge matriculation fees of $1.00 per instructional hour (average of 88 hours per student) to operate short-term courses for industry employees during the winter and spring quarters in 1984 (State Board of Postsecondary Vocational Education, 1984a). K. Breeden (personal communication on December 19, 2000) reported that a Vocational Needs Assessment Project was launched in February 1984 to develop a matrix model that would indicate what programs should be offered to meet the needs of business and industry.

Joint enrollment programs were approved between several junior colleges and area technical schools in February 1984, and committees were formed to discuss salary and tuition, and certification and evaluation of instructors. Dr. Breeden moved toward the development of an organizational structure for the staff, job descriptions, and tentative board policies (State Board of Postsecondary Vocational Education, 1984a).

The State Board of Postsecondary Vocational Education was designated by law (Article 5, Chapter 4 of Title 20, Official Code of Georgia SB-436) to develop and implement procedures for the charging of tuition in technical schools (State Board of Postsecondary Vocational Education, 1984b). The tuition policy established the tuition rates for diploma programs at 10% of the cost of the programs ($62 per quarter paid by the student for full-time enrollment) and associate degree programs at 15% of the cost of

the programs ($93 per quarter paid by the student per full-time enrollment) in June 1984

(State Board of Postsecondary Vocational Education, 1984b).   According to K. Breeden

(personal communication on December 19, 2000), the tuition fees began during the fall

1984 quarter. Scholarship funds were set up at the area schools with a portion of the

tuition collected funding the scholarships because the board felt that no student should be

denied an education due to lack of funds (State Board of Postsecondary Vocational

Education, 1984a).

As 1984 passed, the Board began to discuss issues of governance and the need for

an industry-based advisory council that would consist predominantly of people from the

Business Council of Georgia with liaisons from the Postsecondary Board and others from

industry. The potential role of the Board would be promoting area schools and soliciting

donations from business, industry, and foundations (State Board of Postsecondary

Vocational Education, 1984a).

According to the October 4, 1984, State Board of Postsecondary Vocational

Education (1984a) meeting minutes, 18 of the area vocational-technical schools were

under the governance of a city or county school superintendent. Area boards of

education governed seven of the area vocational-technical schools. The four joint junior

college programs were under the jurisdiction of a college academic dean, the two state

vocational-technical schools reported to the associate state superintendent, and four adult

centers reported to a local system. The purpose of the state board according to the Board

of Postsecondary Vocational Education (1984b) read:

The purpose of the State Board of Postsecondary Vocational

Education is to provide leadership, coordination, planning,

policies and standards for vocational programs in postsecondary

area vocational-technical schools and certain institutions of the

University System of Georgia. The Board will promote the

economic development of the State and the economic well being

of adult citizens through the planning, coordination and

evaluation of education and training programs designed to prepare

adults for employment, supplement or upgrade existing skills, or

retrain for a new occupation. (p. 4)

As of April 4, 1985, the coordinating board known as the State Board of

Postsecondary Vocational Education never again met on an official basis because on

April 16, 1985, the Quality Basic Education Act (QBE) was signed (State Board of

Postsecondary Vocational Education, 1985). In 1985 the Georgia General Assembly

passed QBE; and as part of the act, a new board was established to manage and govern all

aspects of postsecondary vocational technical education at the state level (personal

communication with K. Breeden on December 19, 2000). QBE went into effect on July

1, 1986.

House Bill 487 was designed to allow a mechanism for area vocational schools to

go from local to state level control. It allowed the legal framework for the state level

governance with a local board of directors and an executive director. The bill went into

effect on July 1, 1987 (Coosa Valley Tech, 1986).

Governor Harris had a vision to develop a unified system for vocational-technical

education that was filled with checks and balances so excellent vocational-technical

education could be provided to the people of Georgia. This system would need to be

linked to the economic development of the State of Georgia and driven by the needs of business and industry locally and at the State level (K.Breeden, personal communication on December 19, 2000). By connecting education and economics of the State of Georgia and business and industry, the Department of Technical and Adult Education (DTAE) has continued to be successful to this day.

According to K. Breeden (personal communication on December 19, 2000) DTAE contracted with the University of Georgia in 1986-87 to manage the program to develop standards and guides with the assistance of instructors from the technical schools for each program offered in the technical institutes in Georgia. Dr. Breeden further explained that the standards are used in each school so that minimum standards can be met and the level of education can be consistent at each school. The core curriculum, English, math, and psychology, was added to each diploma program.

According to K. Breeden (personal communication January 16, 2001) state legislation in 1988 (sections 20-4-16 and 20-4-11) allowed the name change from the State Board of Postsecondary Vocational Education to the Board of Technical and Adult Education. It also established the Department of Technical and Adult Education along with the role of the Commissioner. The legislation allowed the adult literacy department to be moved from the Georgia Department of Education to the DTAE.

According to Drummond and Youtie (2000), since 1995, 17 DTAE satellite centers were constructed to better meet the needs of the people in Georgia and business and industry. Satellite centers are buildings built within the service areas of existing technical colleges. Another method to meet the needs of the people in Georgia was to develop online courses through the Internet. The Georgia Virtual Technical College

began servicing students in 1997, offering course work through the Internet (Georgia Department of Technical Adult Education, 2000b).

According to K. Breeden (personal communication on December 19, 2000) the A+ Education Reform Act of 2000 (House Bill 1187) passed by the General Assembly and signed by Governor Roy Barnes allowed four major changes in the technical institutes. House Bill 1187 allowed technical institutes to change their name to technical colleges. The bill allowed the technical colleges to obtain funding through formula funding according to student enrollment. The education reform bill made a few changes concerning HOPE Scholarships. Before this bill, students were only allowed funding to complete two programs of study at the technical colleges. As a result of the bill, students can obtain HOPE Grant funds to complete as many programs as they choose. The other change was concerning HOPE and Pell Grant funds. Pell Grant is a federally funded program that gives economically disadvantaged students money while attending postsecondary education. The bill allowed students to obtain HOPE funds for tuition, fees, and books while the remainder of the Pell Grant funds is issued to the student in the form of a check.

According to the Georgia Department of Technical and Adult Education (2000b), the mission of the agency is to contribute to the economic, educational, and community development of Georgia by providing quality technical education, public library services, adult literacy education, continuing education, and customized business and industry training.

The total fall 2000 quarter enrollment for the 33 technical colleges and 17 satellite centers was 64,539 (an increase of 15% from the previous year) in credit programs with

42% being male and 58% being female (Georgia Department of Technical and Adult Education, 2000a). The number of students attending full-time in the fall 2000 quarter was 27,501 and the number attending part-time was 37,038. There was a 20% increase in part-time students from fall 1999 and a 10% increase in full-time students from fall 1999. During the fall 2000 quarter, 11,702 students were enrolled in certificate programs, 32,681 in diploma programs and 6,545 in associate degree programs. Also during this time, 3% of the students were disabled and 40% were disadvantaged (single parents, economically, etc.) (Georgia Department of Technical and Adult Education, 2000a).

During the fall 2000 quarter, 56.9% of the students were white, 37.7% were black, 2% were Asian, 1.7% were Hispanic, 1% were multi-racial, and less than one% were American Indian and non-resident alien. During the same quarter, 27% of the students were between the ages of 16 and 20, 23% were between 21 and 25, 14% were between 26 and 30, 11% were between 31 and 35, 9% were between 36 and 40, and 16% were over 40 years old (Georgia Department of Technical and Adult Education, 2000a).

In the fall 2000 quarter, 24% of the students had less than a high school diploma, 9% had earned a GED, 53% had high school diplomas, 12% had completed one to three years of postsecondary education, 2% had bachelor's degrees, and less than 1% had completed more education than a bachelor's degree (Georgia Department of Technical and Adult Education, 2000a).

Of the 64,539 students enrolled during the fall 2000 quarter, 46,532 received financial aid through the HOPE Scholarship or Grant program, 16,639 received Pell Grant funds, 1,673 received funds through Veterans Administration, and 1,008 received funds through the Job Training Partnership Act. During this quarter, 5,847 students

enrolled in developmental studies for English/reading and 6,706 were enrolled in developmental studies for math (Georgia Department of Technical and Adult Education, 2000a).

According to Drummond and Youtie (2000), DTAE offers 160 diploma or degree programs and 167 technical certificate programs. In fiscal year 1998, the technical institutes graduated more than 8,500 students with nearly 80% of the these graduates employed in the field or a related field in which they were trained.

According to Georgia Department of Technical and Adult Education (1999) policies, associate degree programs have more than 90 credits of course work, diploma programs have between 60-90 quarter credits, and technical certificates have between 15-59 credits. The programs are divided into six divisions (a) agricultural/natural resource technologies, (b) business technologies, (c) engineering science technologies, (d) health technologies, (e) industrial technologies, and (f) personal/public service technologies. The economic development department at technical colleges offers continuing education courses for learning and upgrading new skills and personal enrichment courses (Georgia Department of Technical and Adult Education, 2000a).

Recruitment, Selection, and Advisement of Students in Georgia Technical Colleges

Recruitment in technical colleges is primarily based on providing a quality education that can be obtained in two years or less that will lead students to gain employment in a rewarding and dependable career (Georgia Department of Technical and Adult Education, 2000d). Progressive programming combined with good locations, recruitment efforts, and strong community support from business and industry has been the key to success for booming enrollment at the technical colleges and satellites.

Students are recruited from high schools, business and industry, and the general public.

Seidman (1989) explained that recruitment begins with retention, and retention begins

with recruitment. Many colleges publish the number of freshman students who return the

next year to the college to continue taking course work. Knowing this information may

influence a student's choice to attend a college.

Prosser and Quigley (1949) recommended that the decision to enter educational

programs be based on student's interest, aptitudes, and their potential to become a

successful employee following training. Lerwick (1979) proposed that according to the

philosophy of behavioral engineering, students are selected through valid, reliable, and

standardized test instruments. Georgia technical colleges have a nondiscriminatory

admissions policy. Any adult citizen of Georgia, 16 years of age or older, who seeks

access to quality instruction designed to develop or improve occupational competencies

is an eligible applicant (Georgia Department of Technical and Adult Education (2000c).

Admissions to a technical college will be (a) regular, (b) provisional, (c) developmental

studies, or (d) special. Program entry policies vary but at a minimum each student is

required to take an entrance exam (e.g. ASSET, Compass, SAT). Technical colleges

require standards to be met by programs in areas such as attrition, completers, graduates,

and placements in field. To help track students and how well the programs of studies are

doing with the measures set all technical colleges are using the Performance

Accountability System (PAS). The items to be measured such as attrition, completion,

graduation, and placement rates of students were chosen; and benchmarks were set for

each program. The programs are evaluated annually to determine if the benchmarks have

been met. If all individuals are allowed to enter programs, there is limited control over the number and the quality of students who will stay in school or graduate.

Miller (1985) recommended a strategy for advisement which is to give advisors assistance in helping students complete a self-analysis of needs and aptitudes, information regarding requirements of various occupations, and assistance in matching the information about self with that of occupations. The student should look to instructors for advice about career planning, course schedules, and mentoring. Many times students are offered and take jobs prior to finishing all course requirements for a program. The goal of technical education is to put people in the workforce (Georgia Department of Technical and Adult Education (2000d). Often the instructor will advise the student to take the job and continue taking courses part time in the days or evenings. In technical education, a completer is a student who has completed at least 50% of the program of study, has demonstrated the competencies required for a program, and has been awarded the appropriate credential or has acquired sufficient competencies through a program to become employed in the field of education/training pursued or a related field (Council on Occupational Education, 2000). Therefore, not all attrition is bad (Walleri, 1981) as completers have met their occupational goal and obtained employment.

Research Literature Regarding Attrition in Postsecondary Education

While attrition is a problem, colleges have struggled in their attempts to gather good information on attrition, and therefore are hampered in their efforts to launch successful retention programs. The attrition rate for nontraditional students is nearer to 60%, compared to 50% for traditional students (Lombard, 1992). In fact, of roughly

three million students who first enrolled in two-year (or less) postsecondary institutions

in 1995-96, 36% did not earn a degree or certificate and were no longer enrolled in

school, 6% did not earn a degree but were still enrolled in school, and 58% had attained a

degree or certificate after three years (Berkner, Carroll, Clune, & Horn, 2000). In the

same study with two-year institutions, 43% had not earned a degree or certificate and

were no longer enrolled in school, 39% had not earned a degree but were still enrolled in

school, and 18% had attained a degree or certification (Berkner et al.). With four-year

institutions, 18% of students had not earned a degree or certificate and were no longer

enrolled in school, 77% had not earned a degree but were still enrolled in school, and 4%

had attained a degree or certification (Berkner, et al.). According to the American

Medical Association (1999), data collected from 4,365 programs and 203,838 students

indicated that attrition rates ranged from a low 2% to a high of 33.3% and an average of

11.8% attrition in various medical programs in the United States. Medical assisting,

radiologic technology, and respiratory therapy are just a few of the programs included in

this study.

According to Tinto (1987), most college students leave voluntarily and their

decisions to withdraw stem most often from personal, social, and financial problems. To

understand attrition, Tinto (1982) suggested developing group-specific models of student

disengagement to include gender, race, age, and social status backgrounds. Models of

attrition that include descriptions/levels of social and academic interactions without

including gender, race, age, and social status tend to underestimate and even distort the

characteristics of dropouts among various groups of students, especially those from

disadvantaged backgrounds (Tinto, 1982). Tinto (1988) suggested that students are more

likely to be successful at college if they go through the so-called rites of passage that include separation of the individual from past associations, transition that begins when the person begins to interact with members of the new group, and the last phase, which is incorporation. Incorporation of new patterns of interaction with members of the new group and establishing competent membership in that group as a participant member are essential to being successful in college.

Tinto (1993) revisited theories on student attrition, particularly traditional and nontraditional student at two-year and four-year, public and private institutions. His major conclusion was that student attrition was most affected by a lack of social and academic integration with the community. The community is described as the school, faculty, and students. Tinto further suggested that students must be responsible for their own learning.

Hoffman (1998) tested Tinto's theoretical model of college withdrawal among developmental reading students at a two-year residential college. Students were asked questions about their social and academic integration into the institution after six weeks of class. At the end of the semester, persisters took the final exam in their developmental reading course, while dropouts did not take the final exam. The control group included 198 students enrolled in developmental reading. Using hierarchical regression additional precollege variables such as parent's income, highest education level, and the Nelson-Denny Pretest were compared. The Nelson-Denny Pretest is a test to illustrate the student's reading ability prior to entering college (Hoffman, 1998). Tinto's model of college withdrawal was not supported among developmental reading students at a two-year residential institution because the set of eight variables that study social integration

among developmental reading students did not significantly correlate with a student's decision to persist or withdrawal from the developmental reading course.

Bean and Metzner (1985) developed a model that stated that older students (nontraditional) drop out of school because of one or more of the following variables (a) academic performance, (b) intent to leave, (c) previous performance and educational goals, or (d) environmental variables. Bean and Metzner indicated that environmental variables (finances, hours or employment, outside encouragement, family responsibilities, and opportunity to transfer) have a greater impact on the decision of adult students to leave than academic variables (study habits, academic advising, absenteeism, major certainty, and course availability). The Bean-Metzner model suggested that making environmental factors conducive to completion could compensate for weak academic support (Bean & Metzner, 1985). Metzner and Bean (1987) proposed that dropout decisions for nontraditional students are based both singularly and interactively on six constructs including background and defining variables, academic variables, environmental variables, psychological outcomes, academic outcomes, and intent to leave. In contrast with Tinto's expectations, the social integration variable was not considered to have a significant effect on nontraditional student attrition (Metzner and Bean, 1987). The Bean and Metzner 1987 model indicated that the most significant variables influencing dropout decisions for nontraditional students were academic performance, intent to leave, background and defining variables, mainly high school performance and educational goals, and environmental variables.

Walleri (1981) suggested that there are different types of retention and attrition and that the problem is to identify under what circumstances attrition is harmful in terms

of institutional vitality and, more importantly, in terms of students' educational and vocational aspirations. Walleri explained that on-time graduation has even less relevance since the majority of students in the community college attended on a part-time basis. Walleri defined retention in terms of program completion since vocational students often obtain the skills needed to secure employment in their chosen field without acquiring the degree. In fact, much attrition in vocational-technical education can be explained simply by students leaving school due to job opportunities, especially where and when there is a shortage of skilled laborers (Walleri, 1981).

Barton (1997) suggested that several critical issues need to be examined to make higher education more obtainable. The issues are the formulas for financial aid, non-completion rates at postsecondary institutions, and improving graduation rates in high schools. Roslund (1998) completed a study of 600 non-returning students from Davenport College Career Center and found that financial aid problems were the number one reason for not returning. It appears that if financial aid concerns could be addressed, colleges could retain more students.

Catt (1998) completed a qualitative study consisting of interviews of community college students and employees in order to understand what obstacles existed to student persistence and whether the college provided any support services. Attrition rates and grades were compared between students who lived a reasonable commuting distance and those who lived an unreasonable commuting distance from the campus. Catt found the obstacles most likely to inhibit student persistence were loneliness, financial issues, housing problems, security concerns, and the inability to commit to the college or local community.

In a quantitative and qualitative study of 201 students at a public university in the Northeast who returned to the institution for a second year and 118 individuals who did not return, Higgins (1998) found the two groups differed on three variables. The two groups differed on self-reported first semester grades, student's sense of connection to the institution, and their strength of initial commitment to earn a bachelor's degree from the university. Higgins reported that the majority of the students who returned for a second year had reported higher first semester grades, a stronger sense of connection to the school, and verbalized a commitment to earning a bachelor's degree. After an extensive review of literature, Kalsner (1996) proposed that contrary to the common misconception that college students drop out due to academic failure, the decision to withdraw centers most often on the personal life of the students, uncertainty of college goals, financial resources, and degree of integration into the social and academic world of the college community.

Lucas and Meltesen (1993) conducted a study at William Rainey Harper College (WRHC) of 400 students who had attended the two-year college in fall 1990 but failed to enroll in the subsequent term. All students were surveyed regarding their employment status, educational achievement, reasons for leaving, and evaluation of various aspects of their experience at the college. The results included the following: (a) 83% of students who left with less than 16 credit hours had attended the college for general interest or refresher courses, while more than half of those who had 16-48 credit hours had enrolled for transfer purposes or to enter a career program; (b) students with more coursework rated the courses almost twice as beneficial as did those students with less coursework; (c) roughly 10% of the stopouts were currently full-time students and another 15% were

attending school part-time, while both groups reported receiving higher grades than those received at WRHC; and (d) nearly three-fourths of the stopouts with fewer than 16 credit hours worked over 30 hours per week while attending WRHC.

According to the National Center on Education Statistics (1999a), for students whose parents never attended college, going to college may signify an attempt to improve their social, economic, and occupational standing. Among those students who began postsecondary education in 1989-90, first-generation students were more likely than those whose parents had higher levels of education, to be (a) 25 years or older, (b) married, (c) supporting dependents, (d) financially independent of their parents, and (e) enrolling initially at public two-year institutions. By 1994, 55% of the 1989-90 first-generation beginning students had earned a degree or were still enrolled in college (National Center for Education Statistics, 1999b).

In 1989-90, 29% of undergraduates left college during their first year or failed to re-enroll the following year (National Center on Education Statistics, 1999b). A greater percentage left public two-year institutions (42%) than four-year colleges and universities (16%). About one-half of those leaving public two-year institutions and about two-thirds of those leaving four-year institutions returned to college by 1994. By 1994, stopouts from private, not-for-profit four-year institutions who returned to their original institution were more likely than their counterparts from public four-year institutions to have a earned a degree or certificate (63% versus 20%) and less likely to not be enrolled in college (22% versus 49%) (National Center for Education Statistics, 1999b).

Student characteristics are one of the most complicated issues in student retention (College Board Online, 1995). Students with the following characteristics are more

likely to eventually earn a college degree (a) higher test scores, (b) higher grades, (c) families with higher incomes, and (d) families with college-educated parents. However, research has consistently demonstrated that these are not good predictors of persistence at individual institutions because experiences in and out of the classrooms have a much more pervasive effect than background on persistence. The amount of parental encouragement and support for a child to attend a specific institution is associated with persistence. Neither grades nor test scores are reliable predictors of retention for returning adult students (College Board Online, 1995).

Schwartz and Washington (1999) conducted a study of new, first-year, female students attending a private, historically black liberal arts college. The best combination to predict academic performance and success in college was high school rank, personal emotional adjustment, and availability of a strong support person, high school grade point, and social adjustment. Social adjustment was the best predictor of persistence.

Tom (1999) studied students who did not return to the college in the fall 1996 semester and who were not on academic probation in their last semester of attendance at the College of Business Administration, California State University-Sacramento. The average GPA of the students was 2.7, and 79% of the respondents had not been on academic probation. Forty-seven percent of the respondents reported that they had interrupted their education previously and 45% planned to or were currently attending college. Forty-three percent planned to return to the same institution the next year. Tom suggested that stop-out rather than dropout is the more appropriate descriptor for this sample of students. Fifty-nine percent had been at the same institution for two or more years before their attrition, suggesting their decision to leave was not evident at the

beginning of their attendance at the institution. Attrition was not the result of the unavailability of majors, non-transferred credits, unchallenging classes, dissatisfaction with academic advising, courses too difficult, insufficient learning, lack of jobs in the field, or the cost of commuting. Tom reported the following reasons as contributing to attrition (a) 27% reported that loss of income was a major reason, (b) 30% cited conflict of job and school as a major reason, and (c) 21% mentioned the untimeliness of course offerings. These findings suggested that finances and conflict of job and school are related to student attrition. An overwhelming majority of respondents indicated they did not participate in university-related extracurricular activities, suggesting that a contributing factor to their decision to leave may have been an insufficient integration into the university's social system (Tom, 1999). Tom suggested that his findings relate closer to the Bean-Metzner model than to the Tinto model concerning student attrition.

MacLennan (1998) explained the retention of adult students attending a rural community college by understanding the meaning they attach to their interaction within the college environment and its affect on their respective attendance decisions. The qualitative study revealed five key themes: (a) Adult students saw themselves as consumers of a product, and they evaluated their level of satisfaction in terms of their own complex needs and the college's ability to meet them, (b) adult student's integration with the campus appeared to be very important to their early experiences, (c) the early experiences of adult students were marked by a need for information, structure, and certainty, (d) adult students struggled to balance multiple demands and commitments, and (e) the relative importance adult students placed on being at the college seemed to significantly influence their continued movement towards goals (MacLennan, 1998).

Factors Affecting Attrition in Colleges

College Board Online (1996) described four distinct factors influencing student attrition (a) student experience factors, (b) finances, (c) cost and external factors, and (d) institutional variations. It was further explained that enrollment managers need to realize that financial aid lowers the net cost of attendance and increases the probability of persistence.

Horton (1998) conducted a study to determine if a specific set of factors could be used to predict whether a student would successfully complete various courses in the general education curriculum. The sample included 1,737 students enrolled at a small rural college. Variables studied included (a) prerequisites for the courses, (b) student age, (c) enrollment status at the time the courses were taken, (d) ACT subscores and composite scores, (e) type of high school diploma, (f) type of high school attended, and (g) gender. Discriminant analysis found that the model identified the following variables could predict successful course completion (a) specific prerequisites, (b) ACT subscores and composite scores, (c) type of high school attended, and (d) gender.

Pardee (1992) conducted a study at a medium-sized California community college to identify the characteristics of students who had previously dropped out of college and then returned to the community college and the influences on their decision to re-enroll for college credit. Surveys were mailed to 396 stopouts, asking them to rate the significance of various factors on their decision to return to college, to identify the one or two events that triggered their decision at the specific time, and to provide information on their personal decisions. Study findings included the following: (a) The typical returning student was a white female between the ages of 28 and 32, taking less than six units

during the evening and working in excess of 40 hours per week, (b) 30% of the students had been out of school for 5 years or longer, 23.7% for one year, and 10% for two or three years, (c) "desire to learn" was the most important influence to return to college for both men and women and for all ethnicities, except black students, (d) other significant influences were "improved earning potential," "increased value on education," "improved emotional outlook," "occupation requires," and "dissatisfaction with job," (e) the six top-ranked influences corresponded closely to the top-ranked "trigger influences" that trigger the first thoughts of a student to drop out of school, and (f) 73% were returning to the college they had left originally (Pardee,1992).

Phillippe and Valiga (2000) reported the top five problems associated with taking college classes were (a) personal financial problems, (b) cost of books/materials, (c) job-related responsibilities, (d) cost of computer, and (e) cost of childcare. The information was obtained through a study conducted in credit and noncredit classrooms in fall 1999. More than 100,000 students at 245 community colleges in 41 states responded. The study was completed on the level of computer skills, characteristics of the student population, student growth in academic and workplace skills, and satisfaction with community colleges (Phillippe & Valiga, 2000).

Nippert (2000) conducted a study examining the effects of background, academic and social integration, external influences, and institutional satisfaction of the educational degree attainment of students who began their college experience at two-year colleges. The conclusion of the study was that women are somewhat more likely to complete their degrees than men and academic activities, college GPA, and choosing to re-enroll have a positive effect on educational attainment. The work-for-pay variable did indicate that

increased hours of employment adversely impacted degree attainment. A negative effect

of high school academic record on degree attainment confirmed and suggested that two-

year colleges offered an environment in which students, with appropriate academic

integration, can be successful (Nippert, 2000). This study found no significant

relationship between social integration with persistence behavior of two-year college

students. Therefore, Nippert recommended that administrators of two-year colleges

should consider focusing their retention efforts on a greater emphasis on academic

integration rather than social integration through increased opportunities for faculty and

student interaction.

Drummond and Youtie (2000) reported the persons most likely to become future

DTAE students for the Georgia Department of Technical and Adult Education (DTAE)

institutions would be from the following segments (a) young adults entering the

workforce for the first time, (b) persons changing jobs and entering jobs for which DTAE

provides training, (c) chronically unemployed whose best stable job prospects are those

occupations for which DTAE provides training, and (d) employees who need or desire

skill-enhancement training in their current jobs. Factors that may affect these segments

of the population are Georgia's unemployment rates, DTAE's commitment to programs

such as New Connections to Work, Georgia Fatherhood Program Interagency

Partnerships, Welfare-to-Work, and the name change from technical institute to technical

college.

K. Breeden (personal communication on December 19, 2000) suggested that

typically, when unemployment rates decline, school enrollment and retention decreases

because it is easier to find employment. An expanding economy will likely produce

greater attrition (Walleri, 1981). However, DTAE has set new enrollment records every quarter for more than 35 consecutive quarters (Georgia Department of Technical and Adult Education, 2000b). According to the DTAE Statistical Information FY 2000, 46,076 students were enrolled in credit programs in fiscal year 1990 with 6,227 graduates; and 101,194 students were enrolled in credit programs in fiscal year 2000 with 15,304 graduates. According to the Bureau of Labor Statistics Data (2000), the unemployment rate for Georgia in November 1990 was 6.1% and the unemployment rate was 3.0% for November 2000.

In contrast, the Alabama Department of Postsecondary Education (2000) reported 87,941 students enrolled in credits programs at Alabama Community, Junior, and Technical Colleges in the 1994-95 fiscal year, and 73,345 students enrolled in credit programs during the 1998-99 fiscal year with 7,931 graduates. The decrease was rationalized by reporting that between 1998 and 1999 more than 9.4 million new jobs were created in the Southern Regional Education Board region with 362,000 new jobs created in Alabama and the 1998 and 1999 unemployment rates of 4.2% and 4.4% (respectively) (Alabama Department of Postsecondary Education, 2000).

According to the Bureau of Labor Statistics (2000) nearly 40% of the 1999 college freshmen enrolled in four-year institutions participated in the labor force through either work or an active job search. In contrast, the Bureau of Labor Statistics reported that 63.5% of the youth enrolled in two-year colleges during the same time were in the labor force. Eighty-five percent of students enrolled in Georgia's technical colleges are employed in the labor force (Georgia Department of Technical and Adult Education, 2000d). A common reason for withdrawal from college is a conflict between work and

school schedules (Nippert, 2000; Walleri, 1981). Thus attrition rates in technical colleges may be affected by the large percentage of students who are employed.

Bennett, Wesley, and Wesley, (1999) reported that recent trends in American higher education point to imminent change in the way students are reviewed for admission into institutions. By examining the degree of intercorrelation, school officials can begin to understand that the inclusion of a variety of predictors yield admission models that account for similar portions of variability and predict college GPA to virtually the same degree as more traditional models. Many of Georgia's technical colleges have changed admission standards to a selective admissions practice in the last ten years. Correlation studies need to be completed to see if these changes in admissions have produced positive or negative affects on attrition rates.

A college with a selective admissions and or a quality image will have higher student persistence rates (Walleri, 1981). Salzer (2000) reported that as part of Governor Roy Barnes' education reform plan, about 20 "technical institutes" changed their names to "technical college," a move state officials hoped would make the campuses more attractive to teens coming right out of high school. As of December 15, 2000, all 33 technical colleges have changed their names with the hopes of adding prestige and credibility to the schools (K. Breeden, personal communication on December 19, 2000). Future studies at Georgia's technical colleges concerning attrition may find that the name change is a factor affecting attrition rates.

If Drummond and Youtie (2000) are correct and the technical colleges' critical customers are employees changing occupations who need qualifying training and employees remaining in present occupations who need skill improvement, then a growing

number of students are likely to be part-time students. In fact, the trends from GDTAE

Statistical Information FY 2000 reflect the growing number of part-time students with

21,195 part-time students in 1990 and 49,027 part-time students in 2000. This growing

number of part-time students could cause attrition rates to increase. The most prevalent

characteristic among studies of non-presisters is part-time attendance (Brawer, 1996).

Part-time students are the least likely to become intimately involved in campus and

academic life and generally education is low on their list of priorities, trailing family,

work, and other responsibilities and obligations (Walleri, 1981). Colleges have limited

capabilities for influencing the external factors such as family and work.

In August 1996, the Personal Responsibility and Work Opportunity

Reconciliation Act reformed the nation's welfare laws (U.S. Department of Labor, 2000).

It created a new system of block grants to the states for Temporary Assistance for Needy

Families (TANF). The Balanced Budget Act of 1997 authorized the U.S Department of

Labor to provide Welfare-to-Work Grants (WtW) to States and local communities to

create additional job opportunities for the hardest-to-employ recipients of TANF. These

grants provide many welfare recipients with job placement services, transitional

employment, and other support services they need to make successful progression into

long-term unsubsidized employment. TANF recipients are eligible for pre-employment

job training or vocational educational training. Bellotti, Hershey and Perez-Johnson

(2000) reported that the population targeted to receive assistance through WtW grants

have the following characteristics (a) 18.2% have no high school diploma or GED and

low math/reading skills, (b) 16.7% have a poor work history, (c) 17.1% have substance

abuse problems, (d) 17.7% have been long-term recipient of public assistance, (e) 38.5%

are noncustodial parents, (f) 14.1% are people with disabilities, and (g) 11.2% have limited English proficiency. Attrition rates may increase at technical colleges as a result of an increase in students having these characteristics. As suggested by Drummond and Youtie, the chronically unemployed who need qualifying training will be customers of technical colleges. Georgia Department of Technical and Adult Education (2000a) has a Special Services-Workforce Development division that supports programs such as New Connections to Work, Georgia Fatherhood, Equity Services, and Adult Training and Technology/Joint Training Partnership Act.

<div align="center">Programs Established to Negate the Factors Causing Attrition</div>

Evidence suggests that successful student retention occurs at the local institutional level because of student-institution interaction after admission rather than individual student characteristics (Tinto, 1987, 1993). Because of this, Colton, Conner, Shultz, and Easter (1999) suggested that each institution examine its unique interaction processes to develop appropriate, need-based programming that supports and prepares first-year students for the arduous, demanding process of completing school. Colton, et al. (1999) implemented a program that has improved retention and is designed to serve high-risk students possessing one or more of the following characteristics (a) first-generation college student, (b) educationally under-prepared, (c) economically disadvantaged, or (d) learning or physically disabled. The five-component program called Student Support Services Freshman Year Program includes (a) academic advising/counseling, (b) freshman colloquium, (c) student mentor program, (d) academic skills training, and (e) social support activities. Colton et al. suggested a longitudinal comprehensive evaluation utilizing outcome-based research in four specific areas to determine the program's overall

influence on student academic progress and retention to include (a) demographic background, (b) student satisfaction with programming, (c) academic grade and cumulative point averages, and (d) retention rates.

College Board Online (1996) inferred that the primary focus of enrollment management has been on new student recruitment but sustained and systematic efforts to retain students as part of enrollment management activities are rare. One primary problem is who will be assigned the responsibility of the retention efforts at colleges. The responsibility for retention of students stretches across several departments such as financial aid, housing, and employment. As noted in the article, faculty interaction with students can have a large impact on student retention and additionally a retention officer is suggested.

Rendon (1994) reported that students will be more likely to persist in a community college if institutions help the students be successful at negotiating the transition to college, becoming involved in campus academic and social life, and developing positive attitudes about their learning ability. Simply offering opportunities for involvement is not enough, and the key to involving students is to create validating academic and social communities in and out of class. What students remembered most that helped them was when faculty, staff, friends, or family members actively reached out to them and affirmed them as capable of being successful. Rendon proposed that colleges can create in-class validating communities by personalizing the atmosphere, offering one-on-one feedback, fostering diverse curricula, and positive classroom environments. Out-of-class validating requires creating an institutional climate that connects the cognitive and social dimensions of the college.

Tinto (1993) offered three principles that underlie effective retention programs. Effective retention programs should demonstrate a commitment to the welfare of students above other institutional goals, exhibit a commitment to the education of all students, and show a commitment to the formation of supportive social and educational communities that strive to integrate all students as full members into such communities. Tinto suggested that research and development center on policies and programs pertaining to the processes of recruitment and admissions to college, orientation, and various policies and programs pertaining to the first year of college. Policies and programs pertinent to the first year of college should include transition assistance, early contact and community building, monitoring and early warning, and counseling and advising (Tinto, 1993).

Baker and Pomerantz (2000) recommended using the Learning Community (LC) model that is used at Northern Kentucky University (NKU). NKU is primarily a commuter institution where 85% of the students work with increasing numbers of students working in excess of 20 hours while carrying course loads of 12 or more semester hours. The model simply clusters three courses together under one registration number that are normally taken by freshmen. Students enrolled in the LC had higher grade point averages, earned more hours, were more satisfied with their college experiences, and were less likely to be placed on academic probation than non-LC students (Baker & Pomerantz, 2000).

Walleri (1981) suggested that from an institutional perspective, the best research on retention and attrition is that conducted at that particular college and any research program designed to measure rate and causes of attrition must incorporate the notion that not all attrition is bad or can be prevented be the institution. By completing more studies

of student attrition at technical colleges, information gained can be shared and retention programs can be developed.

<p align="center">HOPE Scholarship Program</p>

The Helping Outstanding Pupils Educationally (HOPE) Scholarship program was created to encourage academic achievement, to assist Georgia students with the expenses of postsecondary education, and to keep the highest-achieving students in the state. The HOPE scholarship provides financial assistance to Georgia students who meet eligibility requirements, including enrollment in a degree, diploma, or certificate program at a Georgia public or private college, university, or technical institute/college. The HOPE program has four primary components (a) Technical Institution/College, (b) Public College Scholarship, (c) Private College Tuition Equalization Grant and Scholarship, and (d) General Education Development (GED) (Brackett, Henry & Weathersby, 1999). The PROMISE Teacher Scholarship Program, PROMISE II Scholarship, Georgia HOPE Teacher Scholarship Program, and Georgia Public Safety Memorial Grant are other Georgia HOPE Scholarship programs (Georgia Student Finance Commission, 2000d).

The mission of the Georgia Student Finance Commission (1999) reads

The Georgia Student Finance Commission is a State agency that has been helping students since 1965. Our mission is to promote and increase access to education beyond high school for Georgians by delivering student financial aid information, services, and funding in a way that is fiscally responsible and understandable. (p.2)

According to the Georgia Student Finance Commission (2000c) the HOPE scholarship program became a possibility when Zell Miller was inaugurated January 14,

1991, as Georgia's 79th Governor. Governor Miller introduced legislation to the General

Assembly to establish a lottery. The Georgia House of Representatives and Senate voted

to put a lottery amendment before the voters on January 31, 1991. Georgia voters passed

the lottery amendment to the Georgia Constitution on November 3, 1992. Immediately

after this, Governor Miller established the HOPE Scholarship Program. On September 1,

1993, Georgia's first HOPE Scholarship was awarded to Matthew Miller of Snellville,

Georgia to attend Gwinnett Technical Institute (Georgia Student Finance Commission,

2000c).

> Major milestones have been reached in HOPE history beginning July 1, 1994,

with HOPE expanding to cover four rather than two years of tuition (Georgia Student

Finance Commission, 2000c). In addition, mandatory fees and a $100 per quarter book

allowance were paid for the first time. On July 1, 1995, the $100,000 family income-

eligibility cap for HOPE was abolished; and Governor Miller recommended that students

who lose there HOPE Scholarships after their freshman year be given a second chance. If

students complete the sophomore year with a cumulative "B" average, they receive

HOPE their junior year. During this time, non-traditional students (who graduated before

the HOPE program began in 1993) qualified for HOPE after their sophomore year.   On

July 11, 1995, Amy Bradley of Stockbridge, Georgia, freshman and art education major

at the State University of West Georgia was congratulated by Governor Zell Miller as

Georgia's 100,000th HOPE Scholarship recipient (Georgia Student Finance Commission,

2000c).

> The HOPE scholarship program became such a huge success (Georgia Student

Finance Commission, 2000c), that President Clinton initiated the America's Hope

program, which began June 5, 1996. It includes a tax credit for the cost of two years of education beyond high school.

Beginning July 1, 1996, private college students for the first time had to earn and maintain a "B" average to receive HOPE. As a result, the previous $1,500 grant was changed to a $3,000 scholarship. At the same time, entering freshman high school students (Class of 2000) must now earn a "B" average in the core curriculum courses of English, math, social studies, foreign language and science to receive the HOPE Scholarship upon graduation (Georgia Student Finance Commission, 2000c).

Beginning July 1, 1997, non-traditional students qualified for HOPE after their freshman or sophomore years (Georgia Student Finance Commission, 2000c). On November 18, 1997, the Georgia Student Finance Commission adopted a policy to allow home school students who maintained a "B" average during their first year in college to retroactively qualify for a HOPE Scholarship during the 1997-98 school year (Georgia Student Finance Commission, 2000c).

In April 1998, the National Association of State Student Grant and Aid Programs (NASSGAP) released a study that ranked Georgia number one among the 50 states in academic-based student financial aid because of the HOPE Scholarship (Georgia Student Finance Commission, 2000c). On June 29, 1998, the Council on School Performance released a study that concluded Georgia's HOPE Scholarship students are more likely to remain enrolled in college, have higher college grade point averages, and have earned more credit hours than students without the scholarship. On September 1, 1998, the Georgia Student Finance Commission released data illustrating that five years after the inception of the HOPE Scholarship 319,000 students had earned the scholarship, totaling

more than $580 million. On November 3, 1998, Georgia voters elected to create a

constitutional amendment protecting the HOPE Scholarship Program from legislative and

political tampering (Georgia Student Finance Commission, 2000c).

In 1999, the National Association of State Student Grant and Aid Programs

ranked Georgia number one among the 50 states in academic-based student financial aid

because of the HOPE Scholarship for the second year in a row (Georgia Student Finance

Commission, 2000c). On September 29, 1999, Yomaris Figueroa of McDonough, a

freshman at Georgia State University in Atlanta, was congratulated by Governor Roy E.

Barnes as Georgia's 400,000th HOPE Scholarship recipient.

In March 2000, for the third year in a row, the National Association of State

Student Grant and Aid Programs ranked Georgia number one among the 50 states in

academic-based student financial aid because of the HOPE Scholarship (Georgia Student

Finance Commission, 2000c). Beginning July 1, 2000, students received the full benefits

of Georgia's HOPE Scholarship and the federal Pell Grant at the same time, making a

college education for Georgia students more affordable (Georgia Student Finance

Commission, 2000c). Seven years after the inception of the HOPE Scholarship program

more than 500,000 scholarships have been awarded totaling $1 billion (Georgia Student

Finance Commission, 2000c).

Each fiscal year the GSFC produces a manual explaining the regulations for the

HOPE Scholarship program. According to Georgia's HOPE Scholarship Program

Regulations for the 2000-2001 Academic Year produced by the Georgia Student Finance

Commission (2000b), the categories for obtaining the HOPE Scholarship and Grant are

as degree-seeking students attending public institutions and private colleges and

universities, diploma/certificate-seeking students attending public institutions, and GED recipients seeking postsecondary education. Degree-seeking students who qualify for the merit-based scholarship program utilize HOPE scholarship funds, and qualified students who are seeking a certificate or diploma utilize HOPE Grant funds. Students eligible for the HOPE program may receive funds to attend any of the 34 Georgia University System colleges and universities, one of 35 private colleges and universities, or one of the 33 technical colleges.

The program regulations include four components (Georgia Student Finance Commission, 2000b). Students with a "B" average who are seeking a degree at a Georgia public postsecondary institution may obtain a HOPE scholarship to cover tuition, mandatory fees, and a book allowance. Students with a "B" average who are seeking a degree at an eligible private college may obtain a HOPE scholarship in the amount of $3,000 per academic year. All legal residents of Georgia, regardless of their grade average, may receive a HOPE Grant to cover tuition, mandatory fees, and a book allowance to seek a technical certificate or diploma at a Georgia public institution/college. GED recipients may receive $500 toward their educational costs at eligible postsecondary institutions.

To be HOPE Scholarship eligible as a degree-seeking student attending a public institution, students must meet requirements concerning residency, citizenship, enrollment, grade point averages (GPA), selective service registration, student loan status, and the Drug-Free Act (Georgia Student Finance Commission, 2000b). To establish residency for the HOPE Scholarship program through the Georgia University System or the Department of Technical and Adult Education (DTAE), he or she would

have met the requirements to be classified as a legal resident of Georgia for in-state tuition, under Board of Regents/DTAE policy at the time of his or her high school graduation and at the time of enrollment at a public institution (Georgia Student Finance Commission, 2000b). Residency in Georgia for one year is a general requirement. The student may also meet residency requirements as a freshman if he or she receives an out-of-state tuition waiver from the Georgia University System or DTAE institution he or she is attending and the student graduated from a Georgia high school in 1993 or later. A student attending a Georgia University System institution as a sophomore, junior, or senior meets the residency requirements if he or she met the requirements to be classified a legal resident of Georgia, under the Board of Regents or DTAE policy, at the time he or she first enrolled at a Georgia postsecondary institution, or if the student graduated from a Georgia high school in 1993 or later (Georgia Student Finance Commission, 2000b). To meet the citizenship requirements a student must be an U.S. citizen or a Permanent Resident Alien who meets the definition of an eligible non-citizen under federal Title IV requirements (Georgia Student Finance Commission, 2000b). There is no minimum number of hours of enrollment to meet HOPE Scholarship eligibility (Georgia Student Finance Commission, 2000b). The student must be attending a branch of the University System of Georgia or DTAE and must be admitted, enrolled, and classified as an undergraduate student in matriculated status (Georgia Student Finance Commission, 2000b).

　　To be eligible for the HOPE Scholarship program as an entering freshman, a student must be a 1993 or later high school graduate and have graduated as a HOPE Scholar (Georgia Student Finance Commission, 2000b). All eligible Georgia high

schools are requested to submit annually a list of students who graduated with a 3.0 GPA.

The list calls for the student's name, social security number, address, grade average, and

curriculum track (Georgia Student Finance Commission, 2000b). For the class of 1993

through the class of 1999, HOPE Scholars must graduate from an eligible high school

with a minimum of a 3.0 cumulative grade point average (GPA) on a 4.0 scale or an 80

numeric average meeting the college preparatory curriculum, or a 3.2 average or 85

numeric average in the general or career/technical curriculum tracks. All course work

taken in high school (9th through 12th grades) is used to calculate the grade point

average. For the class of 2000 and beyond, the GPA requirements are the same but the

subjects and the number of units to be used to calculate the GPA for the college

preparatory curriculum are four units of English/language, three units of mathematics,

three units of social studies, three units of science, and two units of foreign language.

The subjects and units used for GPA calculations are the same for the career/technical

curriculum minus the two units of foreign language. Home study students and students

who graduated from an ineligible school who completed their home study requirements

in 1997 or later may receive HOPE retroactively for the freshman year if they earn a 3.0

GPA after attempting 30 semester or 45 quarter college credit hours and meet all other

HOPE eligibility requirements (Georgia Student Finance Commission, 2000d).

If a student has attempted 30 semester/45 quarter credit hours but not more than

60 semester/90 quarter credit hours, he or she must have a cumulative GPA of at least 3.0

at the end of the school term to be eligible for a HOPE Scholarship as a sophomore in a

degree program at a Georgia University System or DTAE institution (Georgia Student

Finance Commission, 2000b). Eligibility requirements concerning the GPA from high

school is not required. A non-traditional student may enter the HOPE Scholarship Program beginning with the sophomore year if he or she meets all other requirements. According to the Georgia Student Finance Commission, a non-traditional student is any student attending a postsecondary institution who graduated from high school prior to 1993, or any other student who did not meet the requirements to receive the HOPE Scholarship immediately after high school graduation (Georgia Student Finance Commission, 2000b).

If a student has attempted 60 semester/90 quarter credit hours but not more than 90 semester/135 quarter credit hours, he or she must have a cumulative GPA of at least 3.0 at the end of the school term to be eligible for a HOPE Scholarship as a junior in a degree program at a Georgia University System institution (Georgia Student Finance Commission, 2000b). Eligibility as a freshman or sophomore is not a factor. A non-traditional student may enter the HOPE Scholarship Program at any point if he or she meets all other requirements. A student who was a HOPE recipient seeking a degree during his or her freshman year, but failed to earn a 3.0 cumulative GPA at the end of the term he or she attempted at least 30 semester/45 quarter credit hours, can regain HOPE eligibility if his or her cumulative GPA is a 3.0 at the end of the term in which he or she attempted at least 60 semester/90 quarter credit hours.

If a student has attempted 90 semester/135 quarter credit hours but not more than 127 semester/190 quarter credit hours, he or she must have a cumulative GPA of at least 3.0 at the end of the school term to be eligible for a HOPE Scholarship as a senior in a degree program at a Georgia University System institution (Georgia Student Finance Commission, 2000b). Eligibility as a freshman, sophomore, and junior is not a factor. A

non-traditional student may enter the HOPE Scholarship Program at this point if he or she meets all other requirements. A student who was a HOPE recipient seeking a degree during his or her freshman or sophomore year, but failed to earn a 3.0 cumulative GPA at the end of the term he or she attempted at least 30 semester/45 quarter or 60 semester/90 quarter credit hours, can regain HOPE eligibility if his or her cumulative GPA is a 3.0 at the end of the term in which he or she attempted at least 90 semester/135 quarter credit hours.

A student must meet Federal Title IV Selective Service registration requirements for males who were born on or after January 1, 1960, are at least 18, are citizens, and are not currently on active duty in the armed forces to meet eligibility requirements for the HOPE Scholarship program (Georgia Student Finance Commission, 2000b). One must also not be in default of any student loans. A student is ineligible if, in accordance with the Drug-Free Postsecondary Education Act of 1990, he or she has been convicted for committing certain felony offenses involving marijuana, controlled substances, or dangerous drugs. A student is ineligible to receive a HOPE Scholarship from the date of conviction to the completion of the next academic term (Georgia Student Finance Commission, 2000b). A new student must not have had any drug convictions 90 days prior to receiving HOPE Scholarship.

According to the Georgia Student Finance Commission (2000b), the HOPE Scholarship for degree-seeking students attending private colleges and universities began with the fall term in 1996. Students meeting eligibility requirements can receive $3,000 per academic year. Eligibility requirements for degree-seeking students at private schools are similar to the requirements for degree-seeking students at public institutions.

Students can meet the Georgia residency requirements by being classified as a legal resident of Georgia through the Tuition Equalization Grant (TEG) at the time of his or her high school graduation and at the time of enrollment at an eligible institution. Students must also be a Georgia high school graduate in 1996 or later (Georgia Student Finance Commission, 2000b). A student must be admitted, enrolled, and classified as an undergraduate student in a matriculated status and as a full-time student (12 credit hours or more). The freshman, sophomore, junior, and senior year requirements are the same as for the public institutions except the student must be a 1996 or later high school graduate to be eligible as an entering freshman. All other requirements for the degree-seeking students at private institutions are the same as degree-seeking students at public institutions (Georgia Student Finance Commission, 2000b).

According to Georgia's HOPE Scholarship Program Regulations for the 2000-2001 Academic Year produced by the Georgia Student Finance Commission (2000b), non-traditional students, GED recipients, recent high school graduates, and home study students are eligible to receive a HOPE Grant to cover tuition, HOPE-approved mandatory fees, and a book allowance to seek a technical diploma or certificate at a public postsecondary institution in Georgia if he or she meets the requirements for the HOPE Grant. All legal residents of Georgia, regardless of their grade average or high school graduation date, may receive a HOPE Grant. The residency, citizenship, enrollment, selective service registration, student loan status, and Drug-Free Act requirements are the same for the HOPE Grant program as they are for the HOPE Scholarship program. Students who receive the HOPE Grant must maintain satisfactory academic progress in a course of study in accordance with the standards and practices

used in Federal Title IV programs by the postsecondary institution at which the student is

enrolled (Georgia Student Finance Commission, 2000b). According to the United States

Department of Education (2000), satisfactory academic progress is defined as a C

average or its equivalent or academic standing consistent with the requirement for

graduation from the program.

The following information was compiled by the Georgia Student Finance

Commission (2000c) and illustrates the number of students served by the HOPE

Scholarship program and the amount of HOPE scholarship money used during each fiscal

year that the program has been in existence: (a) In fiscal year 1993-1994, 42,807students

received $21.4 million in HOPE Scholarships; (b) in fiscal year 1994-1995, 98,439

students received $83.8 million in HOPE scholarships; (c) in fiscal year 1995-1996,

123,132 students received $133.9 million in HOPE scholarships; (d) in fiscal year 1996-

1997, 128,452 students received $153.4 million in HOPE scholarships; (e) in fiscal year

1997-1998, 136,725 students received $173.3 million in HOPE scholarships; (f) in fiscal

year 1998-1999, 141,174 students received $189.2 million in HOPE scholarships; and (g)

in fiscal year 1999-2000, 148,618 students received $209.2 million in HOPE

scholarships.

According to the Georgia Student Finance Commission (2000a) in the summary

report, two-year public colleges had 55,978 students receiving $69,175,117.67 in HOPE

awards from September 1, 1993, through December 9, 2000. Four-year public colleges

and universities had 174,929 students receiving $599,528,540.68 in awards from the

HOPE scholarship during the same time frame. Two-year private colleges received

$35,059,362.73 awarded to 20,585 students and four-year private colleges and

universities received $185,923,563.37 for 61,538 students from the HOPE Scholarship

through December 9, 2000. Public technical institutes served 243,000 students receiving

the HOPE scholarship funds with awards totally $216,050,609.21 from September 1,

1993, through December 9, 2000.

Mesimer (1999) reported that from November 2, 1992, to June 30, 1999, the

income from the Georgia lottery was $9,396,024,805 and the utilization of lottery income

for prizes, operating expenses, retailing expenses, and administrative expenses totaled

$6,136,295,360. The lottery appropriations totaled $2,988,442,625 during this time.

Mesimer further reported that for every dollar generated from all sources by the Georgia

lottery 51.8 cents were distributed for prizes, 12.1 cents for retailing expenses, 1.4 cents

for administrative expenses, and 34.7 cents to the Georgia State Treasury for appropriated

programs. Of the 34.7 cents, 9.8 cents was appropriated for pre-kindergarten for 4-year-

olds, 7.4 cents for HOPE financial aid, 5.0 cents for capital outlay projects, and 9.6 cents

for all other lottery funded programs.

Brackett, Henry, and Weathersby (1999) explained that the Georgia Lottery for

Education Act specifies how the lottery proceeds may be spent. Georgia law states that,

as nearly as practical, for each fiscal year, net proceeds shall equal at least 35% of the

lottery proceeds. Georgia Code (O.C.G.A. 50-27) specifies that lottery receipts be used

for educational purposes and programs only, defined as (a) tuition grants and

scholarships, (b) construction of educational facilities, (c) technology for educational

facilities, and (d) pre-kindergarten for four year-olds. Brackett, Henry, and Weathersby

reported that during fiscal year 1999, of the lottery funds designated for educational

purposes, 37% was budgeted for HOPE Scholarships programs, 36% was budgeted for

pre-kindergarten programs, 15% was budgeted for technology programs, and 12% was budgeted for construction programs. Georgia Lottery Corporation (1999) reported for fiscal year 1999 that the Georgia lottery net revenues totaled $1,953,044,000, gaming and operating expenses totaled $1,309,876,000, and $648,092,000 was deposited into the Lottery for Education Account for educational purposes and programs.

Bugler and Henry (1997) completed a study of the fiscal year 1994-95 HOPE scholars who had finished two years of college with a high school GPA between 3.0 and 3.16 compared with non-HOPE students with similar characteristics. Students were described as "borderline" because the GPA range for the study was set just above the allowed 3.0 GPA to maintain HOPE funds. After two complete years of college, the "borderline" HOPE students had earned about 48 credits hours, compared with 35.3 credits hours by the non-HOPE students. Overall, 1994-95 HOPE scholars had earned 64 credit hours in the two years of study (Bugler & Henry, 1997). Bugler and Henry further reported that in the fall of 1996, 60.8% of the borderline HOPE scholars started their third year of postsecondary education, compared with 51.1% of the non-HOPE students. Bugler and Henry studied the impact of HOPE on institutional choice. Non-HOPE students were more likely to attend state two-year colleges (42.7%) than HOPE students (23.5%). HOPE students were more likely to attend state universities (37% for HOPE vs. 33% for non-HOPE), as well as regional universities (26.7% for HOPE vs. 12% non-HOPE) (Bugler & Henry).

Bugler and Henry (1998) reported that of all degree-seeking HOPE recipients from 1994-1997 attending Georgia's public colleges and universities, 58% were female and just over 19% were African American. From 1994 to 1997, the number of African

American HOPE scholars increased by 32%. In the same study, Bugler and Henry

reported that 75% of HOPE students who are on track to graduate in four years (those

having at least 135 quarter credit hours in their first three years of college) kept their

scholarship. For HOPE students with fewer than 135 credits in their first three years of

college, only 27% were maintaining the 3.0 GPA to retain the HOPE scholarship and

overall, 31% of 1994 HOPE scholars had kept their scholarships (Bugler & Henry).

Bugler, Henry and Rubenstein (1999) reported that since 1993, the number of

Georgia residents enrolled in University System of Georgia institutions increased by

1,465 students, slightly increasing the percentage of first-year in-state students.

Enrollments of first-year African Americans increased by 32.8% since HOPE began. All

minority groups have had greater enrollment increases than have white students. At

Georgia's most competitive institutions, all minority groups had larger percentage

enrollment gains than did white students (Bugler, Henry & Rubenstein, 1999). As

reported by Bugler, Henry and Rubenstein after 4 years of study, over three-fourths of all

HOPE scholars lose the scholarship; and of those who lose HOPE, over 40% leave

college and only 4 to 5% regain HOPE. Just over 6% of students who lose HOPE after

two years gain it back in the third year. In this same study, on average 58.9% of African

American, 45.5% of Hispanic students, 44.6% of white students, and 42.5% of Asian

students lose HOPE during their first two years of college. Of those students who lost

HOPE Scholarship support, 36.8% of African American, 35.1% of Hispanic, 40.9% of

White, and 27.7% of Asian students leave college (Bugler, Henry & Rubenstein).

According to DeSalvatore and Hughes (2000), 77.9% of Georgia's undergraduate

students received state-financed grants and scholarships to attend Georgia's public and

private colleges and universities during the 1998-1999 academic year and is ranked number one in the nation for the number of undergraduate students receiving state-financed grants and scholarships with New Mexico ranked as number two with 52.7%. The State of Georgia is also ranked as number one for awarding more students financial aid not based on family income by distributing $220.9 million while the second ranked state, Florida, distributed $133.3 million (DeSalvatore & Hughes, 2000). The average full-time undergraduate student in Georgia received $1,236 in state funded non-family income-based student financial aid followed by New Jersey undergraduates at $1,092, and New York at $1,077. Only 11 states distributed more than $500 per student in state funded non-family income-based student financial aid for undergraduate students (DeSalvatore & Hughes).

<div align="center">Disadvantages of Merit-Based Scholarships Funded by the Lottery</div>

Financial aid programs have traditionally been need-based to promote greater access to higher education by targeting individuals who face constraints that would prevent them from attending college and to expand college "choice" by enlarging the set of affordable institutions (Cornwell, Mustard, & Sridhar, 2001). In the past decade, 13 states have established merit-scholarship programs aimed at a broader range of students than some existing merit-based scholarships such as the National Merit Scholars program (Selingo, 2001). The 13 states are Alaska, Arkansas, Florida, Georgia, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nevada, New Mexico, South Carolina, and Washington. In Florida, Georgia, Kentucky, and New Mexico, merit-based programs are funded by state lotteries. Selingo (2001) explained that the 13 states plan to spend $709.4

million on awards to about 320,000 students in 2001. Need-based aid in the 13 states,

including federal matching dollars, totaled just $325.2 million in 1998-99 (Selingo).

Increased academic achievement is related to family income (Cornwell, Mustard,

& Sridhar, 2001; St. John, 1991). As a family's income increases, academic achievement

increases since increased income facilitates the development of a student's ability and

motivation, thus merit-based scholarships disproportionately go to children of the

wealthy (Cornwell, Mustard, & Sridhar, 2001). Criticism of the HOPE Scholarship

program as a middle-class entitlement has increased as the program has expanded;

dropping income caps for participants and need-based funding was phased out as the

HOPE scholarship funds increased in 1999-2000 (Stroer, 2001). Beginning July 1, 2000,

students can receive the full benefits of Georgia's HOPE Scholarship and the federal Pell

Grant at the same time making a college education for students more affordable (Georgia

Student Finance Commission, 2000c).   Of the 64,559 students during the fall 2000

quarter at technical colleges in Georgia, 46,532 received financial aid through the HOPE

Scholarship or Grant program and 16,639 received Pell Grant funds (Georgia Department

of Technical and Adult Education, 2000a). The Georgia Student Finance Commission is

seeking one million dollars in seed money in 2001 to restart the Student Incentive Grant

for low-income students (Stroer, 2001). Critics of the merit-based scholarship program in

New Mexico contend that students who financially need the most help are not receiving

scholarships (Selingo, 2001). In New Mexico, 64% of the scholarship funds go to

students whose families make $50,000 a year or more and only 15% of the money goes to

those earning $20,000 or less. In Michigan, low-income and minority students are suing

the state because its scholarship program relies heavily on a standardized test on which whites tend to score higher than do black or Hispanic students (Selingo).

In Louisiana, the price tag of its merit-based scholarship program rose from $53.8 million in 1998-99 to $91 million in 2001 (Selingo, 2001). The legislature in Louisiana is reluctant to raise tuition because when tuition goes up, lawmakers must find more money for the merit awards (Selingo). Colleges may not get increased funding because the state's budgets may not be able to fund the increased amount of money that broad merit-based scholarships cost. Merit-based scholarships funded by the lottery have a negative reputation because reports show that poorer players spend more than twice as much on the lottery as wealthier players (Stroer, 2001). Thus the spending of the poor on the lottery is funding scholarships for many students who could afford to pay for their education.

<div align="center">Influences of Grant Programs on Student Attrition</div>

Based on a review of sociological research on year-to-year persistence, Tinto (1993) concluded that student aid had little influence on persistence. Several studies exist (e.g. Hoffman, 1998; Voorhees, 1987) that have used the Tinto model and have had conflicting results. Nora (1990) found that campus and noncampus aid (Pell Grants) had a positive impact on Hispanic community college student retention.

Schuh (1999) found that fine arts college students who received larger merit scholarships were more likely to graduate from the university. The larger the award, the greater the rate of graduation, and the lower the award the lower the rate of graduation (Schuh, 1999). Somers (1996) found a negative correlation between amount of the scholarships and persistence. For every $100 in aid, the student was 22.3% less likely to

persist. These findings were correlated with background variables, achievement, and

college experiences. Somers suggested that the funds for scholarships should be used

toward loans and work-study programs to better serve a community need of mid-to low-

income students that perhaps could act as a reward to those who persist.

St. John (1991) reported that evidence exists from econometric studies concluding

that student financial aid is an effective means of promoting equal opportunity and in

promoting persistence in higher education. In St. John's review of research he found that

some studies concluded that aid is effective, while others concluded that it has no

significance. Because of this conflict, St. John (1992) recommended models for

evaluating the effects of financial aid, which he referred to as Basic Attendance Model

and Workable Persistence Model. The challenge remains to make better use of research

in the formulation of public and institutional student aid policies (St. John, 1991). Many

views exist on the effects of financial aid and how it should be researched.

<div align="center">Summary</div>

Federal legislature affected the development of vocational education throughout

its history. In 1961, in response to the National Defense Education Act of 1958, the first

area vocational-technical schools were opened in Georgia. Recruitment in technical

colleges is primarily based on providing a quality education that can be obtained in two

years or less and that will lead students to gain employment in a rewarding and

dependable career (Georgia Department of Technical and Adult Education, 2000d). The

attrition rate for nontraditional students is nearer to 60%, compared to 50% for traditional

students (Lombard, 1992). College Board Online (1996) described four distinct factors

influencing student attrition (a) student experience factors, (b) finances, (c) cost and

external factors, and (d) institutional variations. Evidence suggests that successful

student retention occurs at the local institutional level because of student-institution

interaction after admission rather than individual student characteristics (Tinto, 1987,

1993).

The Helping Outstanding Pupils Educationally (HOPE) Scholarship program was

created to encourage academic achievement, to assist Georgia students with the expenses

of postsecondary education, and to keep the highest-achieving students in the state. In

March 2000, for the third year in a row, the National Association of State Student Grant

and Aid Programs ranked Georgia number one among the 50 states in academic-based

student financial aid because of the HOPE Scholarship. According to Georgia's HOPE

Scholarship Program Regulations for the 2000-2001 Academic Year non-traditional

students, GED recipients, recent high school graduates, and home study students are

eligible to receive a HOPE Grant to cover tuition, HOPE-approved mandatory fees, and a

book allowance to seek a technical diploma or certificate at a public postsecondary

institution in Georgia if he or she meets the requirements for the HOPE Grant. Merit-

based scholarships funded by the lottery have a negative reputation because reports show

that poorer players spend more than twice as much on the lottery as wealthier players

(Stroer, 2001). Thus the spending of the poor on the lottery is funding scholarships for

many students who could afford to pay for their education. Many views exist on the

effects of financial aid and how it should be researched. While attrition is a problem,

colleges have struggled in their attempts to gather good information on attrition, and

therefore are hampered in their efforts to launch successful retention programs.

CHAPTER 3

METHOD

Introduction

Attrition, completion, and graduation rates of students in Georgia technical

colleges before and after the initiation of the HOPE Grant were studied. The HOPE

Grant program is significant because it provides students with funding for tuition,

mandatory fees, and per quarter book allowance fees while enrolled in diploma programs

in Georgia's technical colleges. This chapter describes the sample of students used, the

variables included, the use of a causal comparative research design, the source of the

data, the research procedure, and the analysis of data collected.

Purpose of the Study

The purpose of this causal-comparative study was to determine the attrition,

completion, and graduation rates of students in Georgia technical college diploma

programs (less than 90 quarter credits) before and after the initiation of the HOPE Grant

in 1993 and to explain the relationship between selected dependent and independent

variables. The HOPE Grant was initiated in September 1993, therefore two groups of

students were included in the study: one group matriculated in 1992 the year before the

initiation of the HOPE Grant program, a second group matriculated in 1997 five years

after the initiation of the HOPE Grant program. This study compared the dependent

(response) variables, attrition, completion, and graduation rates of students based on the

independent (explanatory) variables (a) full-time and part-time enrollment status, (b) age,

(c) gender, (d) ethnicity, (e) program divisions, and (f) need-based financial aid. Attrition, completion, and graduation rates of students who received Pell Grant and/or JTPA funds (need-based financial aid) were compared with students who received only HOPE Grant funds.

Research Questions

Specific questions for this study include:

1. Is there a significant difference in attrition rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

2. Is there a significant difference in completion rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

3. Is there a significant difference in graduation rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division?

4. Is there a significant difference in attrition rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?

5. Is there a significant difference in completion rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?

6. Is there a significant difference in graduation rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need based financial aid?

7. What are the strengths of the relationship between the dependent variable, attrition, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

8. What are the strengths of the relationship between the dependent variable, completion, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

9. What are the strengths of the relationship between the dependent variable, graduation, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division?

10. Controlling for all of the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division, what is the relationship of the initiation of the HOPE Grant and attrition, completion, and graduation rates?

<div align="center">Population and Sample</div>

The population for this study was students who were enrolled in diploma programs (less than 90 quarter credits) at Georgia's technical colleges during the fall 1992 and fall 1997 academic quarters. The 33 technical colleges and 17 satellite campuses in the state of Georgia are units of the Georgia Department of Technical and Adult Education (GDTAE). In fiscal year 1992, 53,302 students were enrolled in credit courses at Georgia technical institutes; during fall quarter, 19,018 were full-time students

and 12,845 were part-time students. In fiscal year 1997, 76,300 students were enrolled in credit courses at Georgia technical institutes; during fall quarter, 21,715 were full-time students and 25,889 were part-time students (Department Technical and Adult Education, 2000). Student data selected for inclusion in the study were limited to those enrolled in diploma programs requiring less than 90 quarter credits for the program of study. Full-time students normally complete diploma programs requiring between 60-90 quarter credits of course work in four quarters. During fall 1992, 12,486 students were enrolled in diploma programs with less than 90 quarter credits in the program of study. During fall 1997, 15,840 students were enrolled in diploma programs with less than 90 quarter credits in the program of study. These two groups of students served as the population for the study. Students with non-numeric characters in the social security numbers in the data base system were considered invalid and were not included in the study. If the student did not have an exit status such as, graduate, completer, or leaver recorded, they were also excluded from the study. The remaining number of students in fall 1992 was 9,593 and fall 1997 was 12,734. The data files were further reviewed and those students with incomplete records were excluded (i.e. date of birth, gender, age, or program of study). The number of eligible students to be selected in the sample for research questions 1, 2, and 3 of this study was 9,463 students in fall 1992 and 12,467 students in fall 1997. For research questions, 4, 5, and 6 only the 12,467 students in fall 1997 were included. Of the 12,467 students, 4,667 students received need-based financial aid, 5,879 students received HOPE funding, and 1,921 students received no financial aid. For research questions seven, eight, nine, and ten, the number of eligible students to be selected in the sample of students included all 21,930 students.

The diploma programs are categorized into six divisions by the GDTAE (a) agricultural/natural resource technologies, (b) business technologies, (c) engineering science technologies,(d) health technologies, (e) industrial technologies, and (f) personal/public service technologies. No students from the engineering science technologies division were included in the study because programs in this division contain more than 90 quarter credits in the program of study. Table 1 identifies the programs in each of the six divisions.

Table 1

Programs of Study Divided by the Six Divisions as Designated by the Georgia Department of Technical and Adult Education

Division	Programs
Agricultural/natural	Agricultural technology, environmental horticulture, and forestry technology
Business	Accounting, business and office technology, computer information systems, computer programming, construction management, distribution and materials management, fashion merchandising, hotel/restaurant/travel management, information and office technology, management and supervisory development, marketing management, and microcomputer specialist
Engineering science	Automated manufacturing technology, biomedical engineering, civil engineering technology, electromechanical engineering technology, electronics engineering technology, environmental engineering technology, mechanical engineering and research laboratory technology
Health	Dental assisting, dental laboratory technology, medical assisting, medical transcription, ophthalmic dispensing, paramedic technology, pharmacy technology, practical nursing, respiratory therapy technology, and surgical technology
Industrial	Air conditioning technology, aircraft structural technology, appliance servicing, applied manufacturing technology auto collision repair, automotive technology, aviation maintenance technology, avionics technology, building and facilities maintenance, cabinet making, commercial photography, drafting, electronics technology, heavy equipment mechanics, industrial electrical technology, industrial maintenance, interiors, machine tool technology, marine engine technology, masonry, plumbing, printing/graphics technology, residential and commercial wiring, telecommunications technology, truck repair technology, visual communications, and welding and joining technology
Personal/public service	Barbering, child development and related care, Cosmetology, culinary arts, law enforcement, and paralegal studies

Note. From Georgia Department of Technical and Adult Education. (2000c). *Policy manual of the state board of technical and adult education*. Retrieved May 3, 2001 from http://www.dtae.org/policy/policy.html

Research Design

The causal-comparative method is the simplest quantitative approach to exploring cause-and-effect relationships between phenomena. The design allows researchers to discover possible causes and effects of a behavior pattern or personal characteristic by comparing individuals in whom it is present with individuals in whom it is absent or present to a lesser degree (Gall, Borg, & Gall, 1996). Fraenkel and Wallen (1993) add that causal-comparative research attempts to determine the cause or consequence of differences that already exist between or among groups of individuals. Another name for this type of research is ex post facto, denoting that data is collected "after the fact." The advantages of causal-comparative studies include that the studies can be time and cost effective. This study used data based on students' records held by the Georgia Department of Technical and Adult Education. The major advantage of the causal-comparative design, as described by Gall et al., is that it allows for the study of cause-and-effect relationships under conditions where experimental manipulation is difficult and that many relationships can be studied in a single research project. The dependent or independent variables in the study were not manipulated.

The major disadvantage of the causal comparative design as described by Gall et al. (1996) is that determining causal patterns with any degree of certainty is difficult. Fraenkel and Wallen (1993) added that another serious limitation is the lack of control over threats to internal validity. Fraenkel and Wallen note that two weaknesses in causal-comparative research are the lack of randomization and inability to manipulate an independent variable. The major threat to the internal validity of this design was the possibility of subject characteristic threat: However, since all qualified participants in the

study were used that threat was addressed in the study. Since the researcher using a causal comparative design has no influence in the selection in the makeup of the comparison groups, there is always the likelihood that the groups are not equal on one or more important variables other than the identified group membership variable (Fraenkel & Wallen, 1993). Rojewski (1999) noted that many studies are found in education that have overlooked or failed to control important variables that can lead to misleading results because the influence of uncontrolled variables upon the dependent variable cannot be assessed.   In the absence of randomization, matching subjects, finding homogeneous subgroups, and statistical matching are suggested to deal with the chance of subject characteristics threat (Fraenkel & Wallen).

<p style="text-align:center">Data Source</p>

When working with archival data, the researcher seeks to maximize the fit between the research questions and the data (Elder, Pavalko, & Clipp, 1993). The steps in the research process when using archival data include (a) problem specification, (b) search for appropriate data, (c) preparation of research proposal, (d) analysis of archival data, (e) decision to recast data, and (f) sequence of analysis (Elder, Pavalko, & Clipp, 1993).   Most uses of archival data involve a mix of adjusting the research questions and recasting the archival data to eventually produce an acceptable goodness to fit.

Data used in this study was acquired from information available in BANNER, a computer software program used as a student management system by all public Georgia technical colleges. The Georgia Department of Technical and Adult Education (GDTAE) first used BANNER in 1991. By 1992-93, all of the Georgia technical colleges (institutes at the time) were utilizing BANNER as the student management system. Individual

technical colleges have the ability to input and maintain data concerning student records. The standard operating procedure for obtaining information about students at technical colleges is collected from the Management Information System (MIS), Free Application for Federal Student Aid (FAFSA), and the Georgia's HOPE Scholarship and Grant Application forms.

The student completes the MIS form at the time of application for admission. On the MIS form, the student chooses a program of study and type of program (i.e. degree, diploma, or technical certificate), and indicates date of birth, ethnicity, and gender. Information from the MIS form was used to obtain the data related to the student age, ethnicity, and gender for this study. Students choose from the following categories to indicate ethnic origin (a) American Indian, (b) Asian, (c) Black, (d) Hispanic, (e) White, or (f) nonresident alien. For analytic purposes, the ethnic designations include White, Black, and Others. An admissions specialist in the student services department at the technical college inputs the information supplied by the student on the MIS form into the BANNER system. Each program of study is assigned an eight-digit code referred to as a classification of instructional programs (cip) code. The eight-digit code is arranged as two digits then a decimal point followed by six digits. The last two digits of the cip code indicate the length and type of program. The cip code is used to identify programs of study in BANNER and was the basis for categorizing students by program of study and type of program. For this study the programs coded with "02" at the end of the cip code indicated a diploma program with 90 quarter credits or less in the program of study.

To determine if there was a significant difference in attrition, completion, and graduation rates based on the type of financial aid received, comparisons were made

between students receiving HOPE Grant funds and those receiving need-based financial

aid. The comparison was limited to students enrolled in fall 1997 only, as the data related

to financial aid in 1992 was not available. For this study, need-based financial aid was

defined as funds received from Pell Grant and/or Job Training Partnership Act (JTPA). If

a student wants to be considered for financial aid at Georgia technical colleges, the

student must complete a FAFSA and/or the Georgia's HOPE Scholarship and Grant

Application form annually. Financial aid applications are available in the admissions

office at Georgia technical colleges. If the student wants to be considered for the HOPE

Grant only, the Georgia's HOPE Scholarship and Grant Application form must be

completed. The FAFSA form is used to apply for need-based federal and state grants,

work-study, and loans such as the Pell Grant and JTPA. There are three ways the form

can be submitted to the U. S. Department of Education. The completed FAFSA form can

be returned to the financial aid office to be submitted electronically by a financial aid

specialist at the technical college, the student can complete the FAFSA form over the

Internet at www.fafsa.ed.gov, or the student can follow directions on the FAFSA form for

submitting the application by mail. The technical college and the student receive

notification of need-based financial aid eligibility within two to four weeks. The student

must enter the school code number of each school where the student wants to be

considered for financial aid. The financial aid specialist at each technical college

downloads the results into the BANNER system.

According to the U.S. Department of Education (2001), data from the FAFSA

form is used to calculate the expected family contribution (EFC) that is needed for the

Pell Grant. The EFC is calculated according to a specified formula and measures the

family's financial strength on the basis of the family's income and assets. The EFC

formula also takes into account the family's expenses relative to the number of persons in

the household and how many members of the family will be attending college during the

award year (U.S. Department of Education, 2001). Three different formulas are provided

to calculate the EFC: (a) one for dependent students, (b) one for independent students

without dependents other than a spouse, and (c) one for independent students with

dependents other than a spouse. A dependent student qualifies for the simplified

calculation if neither the student nor his/her parents were required to file an Internal

Revenue Service (IRS) Form1040 and the parent's adjusted gross income (AGI) or

income earned from work was less than $50,000. An independent student qualifies for

the simplified calculation if neither the student nor his/her spouse was required to file an

IRS Form 1040 and the student and spouse's combined AGI or income earned from work

was less than $50,000. A zero EFC is assigned to a dependent student if neither the

parents nor the student were required to file an IRS Form 1040 and the parents' combined

AGI or combined income earned from work is $13,000 or less. A zero EFC is assigned

to an independent student with dependents other than a spouse if neither the student nor

spouse was required to file an IRS Form 1040 and the student's and spouse's combined

AGI or combined income earned from work is $13,000 or less (U.S. Department of

Education, 2001).

JPTA eligibility is divided into two basic categories: the dislocated worker and

the economically disadvantaged. A dislocated worker is defined as a person who is

unemployed due to plant and business closings, receives unemployment, and is unable to

find work in his/her previous occupation. An economically disadvantaged person is

someone who is living at or below the poverty line and usually receives public assistance (Big Bend Jobs and Education, 1999). JTPA provides for a variety of employment and training programs and services designed for economically disadvantaged adults and youth. General JTPA eligibility requires that individuals belong to any of the following groups: (a) economically disadvantaged youths (ages 14-21), adults (22 years or older), or older persons (55 years of age or older) receiving cash public assistance or food stamps, (b) applicant for JTPA programs who is not economically disadvantaged but has specific barriers to employment, such as limited English language proficiency, displaced homemakers, handicap, age, criminal record, alcoholism or drug addiction, or (c) displaced worker laid off or terminated due to plant closures or long term unemployment (Hub Cities Consortium, 2000). Through the BANNER system, the financial aid specialist codes JTPA recipient student records. JTPA pays for tuition and fees for courses at technical colleges.

The standard operating procedure for designating students as leavers, completers, and graduates began with the director of the student services department at Georgia technical colleges. Biannually the director of student services reviews students' records and with the input of technical college instructors designates in the BANNER system whether a student is a leaver, completer, or a graduate from a program. Students who quit attending school prior to completing requirements for graduation from a diploma program were considered a leaver. Those students who returned to school after being in nonattendance for one quarter were not counted leavers. Students completing at least 50% of the program of study and then gaining employment in the field of study (Council on Occupational Education, 2000) were designated as completers. Students who

completed all of the courses in the diploma program and met all other graduation requirements were considered graduates.

The Assistant Commissioner for Information Technology and Planning and a computer analyst from GDTAE were used as resources to access BANNER data related to all Georgia technical college students. The data collected provided information concerning students enrolled in diploma programs (with less than 90 quarter credits) in fall 1992 and fall 1997. Students enrolled in fall 1992 were followed through fall 1994 and students enrolled in fall 1997 were followed through fall 1999 to classify each student as a leaver, completer, or graduate. Full-time students normally complete diploma programs requiring between 60-90 quarter credits of course work in four quarters or one year. Students who attend school on a part-time basis take longer to complete the diploma programs. Students were tracked for a two-year period to allow ample time for them to complete their chosen program of study. The Integrated Postsecondary Education Data System (IPEDS) (1999) rules allow completers of programs to be counted for a length of time within 150% of the normal time it takes full-time students to complete a program. To account for the large number of part-time students in this study, the length of time for follow-up was extended another 50%, equaling a period of two years.

<div align="center">Procedure</div>

In May 2001, Dr. Kenneth Breeden, Commissioner of GDTAE was contacted to request endorsement of this study and permission to obtain the student records needed. Dr. Breeden provided written endorsement and permission. During July 2001, Debbie Dlugolenski, GDTAE Assistant Commissioner for Information Technology and Planning,

was contacted to obtain the BANNER query protocol and procedures. It was determined

that the BANNER query could provide the following information, (a) full-time and part-

time enrollment status, (b) age, (c) gender, (d) ethnicity, (e) program divisions, and (f)

financial aid received to describe each student enrolled in diploma programs (with less

than 90 quarter credits) in fall 1992 and fall 1997. A generic, unique identification

number for each student was established by GDTAE. The actual identity of the

participants was anonymous to the researcher.

On June 15, 2001, the application for approval of research with human subjects

participants was submitted to the office of the Vice President for Research, Institutional

Review Board/Human Subjects Office at the University of Georgia. A human subject

consent form was not necessary with research involving the collection or study of

existing data, documents, records, pathological specimens, or diagnostic specimens, if

these sources are publicly available or the information is recorded by the investigator in

such a manner that subjects cannot be identified, directly or through identifiers linked to

the subjects. This study involved research of existing data from established educational

records in such a manner that subjects were not identified thus an individual human

subject consent form was not be required. The Institutional Review Board proposal was

approved on June 26, 2001.

Full-time and part-time students enrolled in fall 1992 were tracked until fall 1994

and students enrolled in fall 1997 were tracked until fall 1999 to allow sufficient time for

students to complete their programs of study. Full-time students were students enrolled

in 12 credits of course work or more and part-time students were students enrolled in

fewer than 12 credits or course work. The query from BANNER provided data to

establish exit status (leaver, completer, or graduate) for fall 1994 for each student

enrolled in diploma programs in fall 1992 and for fall 1999 for each student enrolled in

diploma programs in fall 1997. The data were used to establish if there was a significant

difference in attrition, completion and graduation rates before and after the initiation of

the HOPE Grant based on full-time and part-time enrollment status as stated in the first

three research questions for the study. For the remaining BANNER queries full-time and

part-time students were considered as one group. The next query provided data to

establish exit status based on age, gender, ethnicity, and program divisions for each

student in fall 1994 for the students enrolled in diploma programs in fall 1992 and for

each student in fall 1999 for students enrolled in diploma programs in fall 1997. For this

study, need-based financial aid was determined by whether students had received a Pell

Grant or JTPA funds. The next BANNER query provided data that designated exit status

(leaver, completer, or graduate) for students who had received Pell Grant or JTPA and

HOPE Grant funds for each student in fall 1999 for students enrolled in diploma

programs (with less than 90 quarter credits) in fall 1997. Students who received Pell

Grant or JTPA funds were compared with students who received only HOPE Grant

funds. The data was input into SAS for analysis.

Data Analysis

An analysis using z scores and logistic regression was used to determine

differences in attrition, completion, and graduation rates before and after the initiation of

the HOPE Grant. A z score is a standard score frequently used in educational research

that is derived from standard deviation units. Also, z-scores are continuous and have

equality units. Thus, a person's relative standing on two or more measurements can be

compared by converting the raw scores to z scores (Gall et al., 1996; Huck, 2000). The z distribution is used if the sample is large and is used to determine the level of statistical significance of an observed difference between the groups (Gall et al., 1996). According to Huck (2000), logistic regression deals with the relationship among variables where one variable is the dependent variable while the other(s) is/are the independent variables. The independent variable can be continuous or categorical. In this study, all independent variables are categorical.

The purpose of logistic regression can be either prediction or explanation (Huck, 2000). Logistic regression revolves around a core concept called the odds ratio. The odds ratio measures the strength of association between an independent variable and dependent variable. A subset of independent variables in a typical logistic regression is referred to as "control" variables. Such variables are included to assess the relationship between dependent and independent variables. The primary focus is on the noncontrol independent variables, with the goal being to identify the extent to which each one plays a role in explaining why changes exist with the dependent variable. Most researchers utilize logistic regression so they can discuss the explanatory power of each independent variable using the concept of odds. By using the estimates in logistic regression, researchers also try to find a "good" set or model of independent variables that can help predict or explain group membership on the dependent variable. Huck used an example of logistic regression by referring to a pair of dice having 36 possible combinations, with six of these representing a pair (e.g. two 1's, two 2's, etc.). The probability of getting a pair would be 6/36 or .167, or the probability of not rolling a pair would be .833.

Researchers could say that the odds are five to one favoring a non pair, or that a person is five times more likely to roll a nonpair than a pair.

The dependent (response) variables in this study were attrition, completion, and graduation rates of students at Georgia technical colleges before and after the initiation of the HOPE Grant. A summary of the data analysis is presented in Table 2. The nominal independent (explanatory) variables in the study included (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, (e) program divisions, and (f) financial need to describe each student enrolled in diploma programs in fall 1992 and fall 1997. The age categories were consistent with the categories used in data collection from GDTAE. The ethnic categories included in the initial query included American Indian, Asian, Black, Hispanic, White, Non resident alien, and Multi-racial. For analytic purposes, I recoded the ethnic designation into White ($n = 6406$ for fall 1992, $n = 7428$ for fall 1997), Black ($n = 2809$ for fall 1992, $n = 4552$ for fall 1997), and Others $n = 248$ for fall 1992, $n = 487$ for fall 1997) groups. The others group included American Indian, Asian, Hispanic, Non Resident Alien, and Multi-Racial students. Results of the analysis are presented in Chapter Four.

Table 2

Data Analysis

Questions of the Study?	Independent Variables	Dependent Variable	Statistical test
1.Is there a significant difference in attrition rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on, (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, and (e) program divisions?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Attrition rates	*Z* scores
2.Is there a significant difference in completion rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on, (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, and (e) program divisions?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Completion rates	*Z* scores
3.Is there a significant difference in graduation rates in Georgia technical colleges before and after the initiation of the HOPE Grant based on, (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, and (e) program divisions?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Graduation rates	*Z* scores
4.Is there a significant difference in attrition rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?	HOPE Grant and need-based financial aid	Attrition rate	*Z* scores
5.Is there a significant difference in completion rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?	HOPE Grant and need-based financial aid	Completion rate	*Z* scores

Table 2-Cont.

Data Analysis

Questions of the Study?	Independent Variables	Dependent Variable	Statistical Tests
6.Is there a significant difference in graduation rates in Georgia technical colleges between those students who received the HOPE Grant and those students who received need-based financial aid?	HOPE Grant and need-based financial aid	Graduation rate	*Z* scores
7.What are the strengths of the relationship between the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program divisions and the dependent variable, attrition?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Attrition rate	Logistic regression
8.What are the strengths of the relationship between the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program divisions and the dependent variable, completion?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Completion rate	Logistic regression
9.What are the strengths of the relationship between the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program divisions and the dependent variable, graduation?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Graduation rate	Logistic regression
10. Controlling for all independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program divisions, what is the influence of the initiation of the HOPE Grant on attrition, completion, and graduation rates?	Full-time and part-time enrollment status, age, gender, ethnicity, and program divisions	Attrition, completion, and graduation rates	Logistic regression

Summary

While attrition is a problem, colleges have struggled in their attempts to gather good information on attrition, and therefore are hampered in their efforts to launch successful retention programs. Previous studies have suggested that financial aid issues are a major problem for students and are a reason that students give when dropping out of school. A large percentage (72% in fall 2000) of students at Georgia's technical colleges utilize HOPE Scholarship and Grant funds (Georgia Department of Technical and Adult Education, 2000a). The results of this study provides evidence of the relationship between HOPE Grant funding and attrition, completion, and graduation rates of students in diploma programs at Georgia technical colleges.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this causal-comparative study was to determine the attrition,

completion, and graduation rates of students in Georgia technical college diploma

programs (less than 90 quarter credits) before and after the initiation of the HOPE Grant

in 1993 and to explain the relationship between selected dependent and independent

variables. The HOPE Grant was initiated in September 1993, therefore two groups of

students were included in the study: one group matriculated in 1992 the year before the

initiation of the HOPE Grant program, a second group matriculated in 1997 five years

after the initiation of the HOPE Grant program. This study compared the dependent

(response) variables, attrition, completion, and graduation rates of students based on the

independent (explanatory) variables (a) full-time and part-time enrollment status, (b) age,

(c) gender, (d) ethnicity, (e) program divisions, and (f) need-based financial aid.

Attrition, completion, and graduation rates of students who received Pell Grant and/or

JTPA funds (need-based financial aid) were compared with students who received only

HOPE Grant funds.

The research questions are the basis for the presentation of the findings found in

this chapter. The description of percentages for the attrition, completion, and graduation

rates, as the dependent variables for the study before and after the initiation of the HOPE

Grant based on each independent variable are presented. An analysis using z scores,

probability, and logistic regression was completed with a .05 alpha level to compare the

data in categories concerning students enrolled in diploma programs before and after the

initiation of the HOPE Grant. The presentation of the data is displayed in a series of

tables complimented by a written narrative.

Population and Sample

The population for this study was students who were enrolled in diploma

programs (less than 90 quarter credits) at Georgia's technical colleges during the fall

1992 and fall 1997 academic quarters. The 33 technical colleges and 17 satellite

campuses in the state of Georgia are units of the Georgia Department of Technical and

Adult Education (GDTAE). In fiscal year 1992, 53,302 students were enrolled in credit

courses at Georgia technical institutes; during fall quarter, 19,018 were full-time students

and 12,845 were part-time students. In fiscal year 1997, 76,300 students were enrolled in

credit courses at Georgia technical institutes; during fall quarter, 21,715 were full-time

students and 25,889 were part-time students (Department Technical and Adult Education,

2000). Students selected for inclusion were limited to those enrolled in diploma

programs with less than 90 quarter credits for the program of study. Full-time students

normally complete diploma programs requiring between 60-90 quarter credits of course

work in four quarters. During fall 1992, 12,486 students were enrolled in diploma

programs with less than 90 quarter credits in the program. During fall 1997, 15,840

students were enrolled in diploma programs with less than 90 quarter credits in the

program. These two groups of students served as the population for the study. Students

with non-numeric characters in the social security numbers in the BANNER system were

considered invalid and were not included in the study. If a student did not have an exit

status, such as graduate, completer, or leaver recorded, they were also excluded. The

remaining number of students in fall 1992 was 9,593 and fall 1997 was 12,734. The data

files were further reviewed and those students with incomplete records were excluded

(i.e., date of birth, gender, age, or program of study). The number of eligible students to

be selected in the sample for this study was 9,463 students in fall 1992 and 12,467

students in fall 1997.

To have a thorough understanding of the sample, demographic data were

compiled (see Table 3). The percent of full-time students from 1992 was 70% and in

1997 the percent was 58%. This change is reflected in the percentage of part-time

students, which increased in 1997 by over 11%. A smaller percentage of students, ages

16-20, came to technical colleges to take diploma programs in 1997 than in 1992 but the

percentage of students, over age 40, increased in 1997 from 1992. The percentage of

female students changed by an increase of 3% in 1997 from 1992 and the male

population decreased accordingly. The percentage of Black students increased by 6% in

1997 from 1992 and the percentage of White students decreased by 7% from 1992 to

1997. More students entered health programs (4%) in 1997 than in 1992 and the number

of student enrollments in industrial programs decreased by 3% from 1992 to 1997.

Table 3

Demographic Characteristics of Student Samples for Fall 1992 and Fall 1997

	1992 Frequency	%	1997 Frequency	%
Status				
Full-time	6626	70.02	7292	58.49
Part-time	2837	29.98	5175	41.51
Age				
16-20	2763	29.20	3039	24.38
21-25	2693	28.46	3342	26.81
26-30	1397	14.76	1939	15.55
31-35	974	10.29	1387	11.13
36-40	666	7.04	1069	8.57
Over 40	970	10.25	1691	13.56
Gender				
Male	3845	40.63	4700	37.70
Female	5618	59.37	7767	62.30
Ethnicity				
Black	2809	29.68	4552	36.51
White	6406	67.70	7428	59.58
Others	248	2.62	487	3.91
Programs divisions				
Agri/natural	173	1.83	232	1.86
Business	3605	38.10	4683	37.56
Health	892	9.42	1676	13.44
Industrial	3357	35.48	4074	32.68
Personal/pub	1437	15.19	1902	14.45

Note. Fall 1992, N = 9463; Fall 1997, N = 12467.

Research Findings

Table 4 presents the overall attrition and completion rates which were greater after the HOPE Grant than before, while the graduation rate was greater before the HOPE Grant by nearly 10%.

Table 4

Summary of Attrition, Completion, and Graduation Rates Before and After HOPE Grant

	Exit Status					
Independent variables	Before HOPE: 1992		After HOPE: 1997			
	n	%	n	%	z	*p*
Attrition	2907	30.72	4442	35.63	-7.62	<.0001
Completion	1442	15.24	2507	20.11	-9.29	<.0001
Graduation	5114	54.04	5518	44.26	14.35	<.0001

Note. N for the 1992 group = 9,463; N for the 1997 group =12,467.

Research Question One

The first question sought to determine if there were statistically significant differences in attrition rates before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, and (e) program divisions.

Differences in attrition rates before and after the initiation of HOPE were determined using z scores. The z scores in all categories were statistically significant at p <.05 except in the age categories 31-35 and 36-40, ethnicity category Others, and the program categories of agriculture/natural program and business. Attrition rates for full-time students increased by 5%, z (4349) = -6.12, p = <.0001. The largest attrition rate increase in the age category was seen in the 16-20 year olds category with an increase of nearly 7%, $z(2173) = -5.36$, p = <.0001. Male students had a larger increase in attrition than did female students. Black students attrition rate increased by 7%, $z(2895) = -6.20$, p = <.0001 from 1992 to 1997. The attrition rates of students basically stayed the same in the business division, $z(3179) = -1.03$, p = .1515 but increased in health, industrial and personal/public divisions (see Table 5).

Table 5

Attrition Rates Before and After HOPE Based on Full-time and Part-time Enrollment

Status, *Age, Gender, Ethnicity, or Program Division*

Independent	Before HOPE: 1992			After HOPE: 1997				
variables	N	n	%	N	n	%	z	*p*
Status								
Full-time	6626	1903	28.72	7292	2446	33.54	-6.12	<.0001
Part-time	2837	1004	35.39	5175	1996	38.57	-2.81	.0025
Age								
16-20	2763	936	33.88	3039	1237	40.70	-5.31	<.0001
21-25	2693	867	32.19	3342	1257	37.61	-4.38	<.0001
26-30	1397	405	28.99	1939	655	33.78	-2.93	.0017
31-35	974	279	28.64	1387	438	31.58	-1.52	ns
36-40	666	183	27.48	1069	323	30.22	-1.22	ns
Over 40	970	237	24.43	1691	532	31.46	-3.76	<.0001
Gender								
Male	3845	1109	28.84	4700	1609	34.23	-5.32	<.0001
Female	5618	1798	32.00	7767	2833	36.47	-5.36	<.0001
Ethnicity								
Black	2809	941	33.50	4552	1854	40.73	-6.20	<.0001
White	6406	1878	29.32	7428	2421	32.59	-4.14	<.0001
Others	248	88	35.48	487	167	34.29	.32	ns
Programs divisions								
Agri/natural	173	49	28.32	232	42	18.10	2.43	ns
Business	3605	1360	37.73	4683	1819	38.84	-1.03	ns
Health	891	228	25.59	1676	574	34.25	-4.50	<.0001
Industrial	3357	934	27.82	4074	1432	35.15	-6.75	<.0001
Personal/pub	1437	336	23.38	1802	575	31.91	-5.36	<.0001

Note. *N* designates the number of members in the total sample and *n* designates the number of members in the independent variables categories.

Research Question Two

The second question sought to determine if there were differences in the completion rates of students before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, or (e) program division. Students completing at least 50% of the program of study and then gaining employment in the field of study were considered completers (Council on Occupational Education, 2000).

Difference in completion rates before and after the initiation of HOPE was determined using z scores. The z scores in all categories were statistically significant at p <.05 except in the ethnicity category, Others. The largest increases in completion rates were for the variable categories full-time, $z(1842) = -6.71$, $p<.0001$, male, $z(2161) = -7.32$, $p = <.0001$, white, $z(2900) = -8.45$, $0 = p <.0001$, and business division, $z(1560) = -7.56$, $p =<.0001$. The percentage of increase in completion rates ranged from 4% to 5% in all age categories. Completion rates were lowest in the health and personal/public divisions (see Table 6).

Table 6

Completion Rates Before and After HOPE Based on Full-time and Part-time Enrollment

Status, *Age, Gender, Ethnicity, or Program Division*

	Completion rates							
Independent	Before HOPE: 1992			After HOPE: 1997				
variables	*N*	n	%	*N*	n	%	z	*p*
Status								
Full-time	6626	743	11.21	7292	1099	15.07	-6.71	<.0001
Part-time	2837	699	24.64	5175	1408	27.21	-2.49	.0064
Age								
16-20	2763	396	14.33	3039	567	18.66	-4.42	<.0001
21-25	2693	391	14.52	3342	641	19.18	-4.77	<.0001
26-30	1397	231	16.54	1939	404	20.84	-3.12	.0009
31-35	974	154	15.81	1387	291	20.98	-3.16	.0008
36-40	666	100	15.02	1069	234	21.89	-3.52	<.0001
Over 40	970	170	17.53	1691	370	21.88	-2.68	.0038
Gender								
Male	3845	826	21.48	4700	1335	28.40	-7.32	<.0001
Female	5618	616	10.96	7767	1172	15.09	-6.93	<.0001
Ethnicity								
Black	2809	264	9.40	4552	664	14.59	-6.51	<.0001
White	6406	1141	17.81	7428	1759	23.68	-8.45	<.0001
Others	248	37	14.92	487	84	17.25	-0.80	ns
Programs divisions								
Agri/natural	173	57	32.95	232	110	47.41	-2.92	.0018
Business	3605	545	15.12	4683	1015	21.67	-7.56	<.0001
Health	891	45	5.05	1676	127	7.58	-2.44	.0073
Industrial	3357	715	21.30	4074	1123	27.57	-6.23	<.0001
Personal/pub	1437	80	5.57	1802	132	7.33	-2.01	.0222

Note. *N* designates the number of members in the total sample and *n* designates the

number of members in the independent variables categories.

Research Question Three

The third question sought to find the percentage of students who exited Georgia technical colleges labeled as graduates and if there was a significant difference before and after the initiation of the HOPE Grant based on (a) full-time and part-time enrollment status, (b) age, (c) gender, (d) ethnicity, and (e) program divisions. A student must complete all graduation requirements and complete all course requirements for the program of study to be considered a graduate.

Difference in graduation rates before and after the initiation of HOPE was determined using z scores. The z scores in all categories were statistically significant at p <.05 except in the ethnicity category, Others, and the agriculture/natural program. The age category that had the largest decrease was age 16-20 years old with 9%, z(2666) = 8.51, p = <.0001. The largest decreases in graduation rates were seen by students who were full-time, z(7727) = 10.29, p = <.0001, male, z(3666) = 11.43, p = <.0001, Black, z(3648) = 10.35, p = <.0001), and enrolled in industrial programs, z(3227) = 11.76, p = <.0001 (see Table 7).

ment

Status, Age, Gender, Ethnicity, or Program Division

	Graduation rates							
Independent	Before HOPE: 1992			After HOPE: 1997				
variables	*N*	n	%	*N*	n	%	*z*	*p*
Status								
Full-time	6626	3980	60.07	7292	3747	51.39	10.29	<.0001
Part-time	2837	1134	39.97	5175	1771	34.22	5.11	<.0001
Age								
16-20	2763	1431	51.79	3039	1235	40.64	8.51	<.0001
21-25	2693	1435	53.29	3342	1444	43.21	7.79	<.0001
26-30	1397	761	54.47	1939	880	45.38	5.18	<.0001
31-35	974	541	55.54	1387	658	47.44	3.87	<.0001
36-40	666	383	57.51	1069	512	47.90	3.89	<.0001
Over 40	970	563	58.04	1691	789	46.66	5.65	<.0001
Gender								
Male	3845	1910	49.67	4700	1756	37.36	11.43	<.0001
Female	5618	3204	57.03	7767	3762	48.44	9.81	<.0001
Ethnicity								
Black	2809	1604	57.10	4552	2034	44.68	10.35	<.0001
White	6406	3387	52.87	7428	3248	43.73	10.72	<.0001
Others	248	123	49.60	487	236	48.46	0.29	ns
Programs divisions								
Agri/natural	173	67	38.73	232	80	34.48	0.87	ns
Business	3605	1700	47.16	4683	1849	39.48	7.00	<.0001
Health	891	618	69.36	1676	975	58.17	5.56	<.0001
Industrial	3357	1708	50.88	4074	1519	37.29	11.76	<.0001
Personal/pub	1437	1021	71.05	1802	1095	60.77	6.10	<.0001

Note. *N* designates the number of members in the total sample and *n* designates the

number of members in the independent variables categories.

Demographics Based on Type of Financial Aid

Of the total sample of 12,467 students in fall 1997, 4,667 students received need-based financial aid, 5,879 students received HOPE funding, and 1,921 students received no financial aid. The analysis in research questions 4, 5, and 6 applied only to the fall 1997 students since HOPE was initiated in September 1993. For the purpose of this study, need-based financial aid was defined as receiving Pell Grant and/or Joint Training Partnership Act (JTPA) funding. Students may receive HOPE, Pell Grant, and JTPA funding at the same time. In fact, 4,010 students in this study received HOPE Grant funds while also receiving Pell Grant or JTPA funds. Students who received need-based financial aid were compared with students who received only HOPE Grant funding. Of the 4,667 students, 4,342 received Pell Grant and 725 received JTPA funding. Students can receive both Pell Grant and JTPA simultaneously.

Research Question Four

The question sought to determine if there were a statistically significant difference in attrition rates based on type of financial aid received; between those who received need-based financial aid and those students who received HOPE Grant funds.

Difference in attrition rate between those students who received need-based financial aid and those students who received HOPE Grant funds was determined using a z score. The z score for attrition was statistically significant, $z(3591) = -11.75$, $p = <.0001$ (see Table 8) with a higher attrition rate for HOPE Grant recipients.

Research Question Five

The question sought to determine if there was a statistically significant difference in completion rates based on type of financial aid received, i.e., between those who received need-based financial aid and those students who received HOPE Grant funds.

Difference in the completion rate before and after the initiation of HOPE was determined using a z score. The z score was statistically significant $z(2041) = -7.51$, p <.0001. The completion rate was nearly 5% higher for those students who received need-based financial aid compared to students who received only the HOPE Grant in 1997 (see Table 8).

Research Question Six

The question sought to determine if there were a statistically significant difference in completion rates based on type of financial aid received, i.e., between those who received need-based financial aid and those students who received HOPE Grant funds.

The difference in graduation rate between those students who received need-based financial aid and those students who received HOPE Grant funds was determined using a z score. The z score for graduation was statistically significant $z(4914) = 17.10$, $p = $ <.0001. The graduation rates were nearly 17% more for those students who received need-based financial aid compared to students who received only the HOPE Grant in 1997 (see Table 8).

Table 8

Attrition, Completion, and Graduation Rates Based on Those Receiving Need Based-Financial Aid and Those Students Receiving HOPE Grant

	Exit status					
Independent variable	Need based		HOPE grant			
	n	%	n	%	*z*	*p*
Attrition	1305	27.96	2286	38.88	-11.75	<.0001
Completion	752	16.11	1289	21.93	-7.51	<.0001
Graduation	2610	55.92	2304	39.19	17.10	<.0001

Note. Of the total sample of 12,467 from fall 1997, 4,667 students received need-based financial aid, 5,879 students received HOPE funding, and 1,921 students received no financial aid.

Research Question Seven

The question sought to determine the strengths of the relationship between the dependent variable, attrition, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division through the use of logistic regression ($p = <.05$). The noncontrol variables were used to predict and explain the relationships.

In the type III analysis of effects, there were statistically significant relationships between attrition and all of the independent variables with age, $X^2(5, N = 21930) =$

168.43, p = .05 having the largest effect (see Table 9). In the analysis of maximum

likelihood estimates using the intercept −0.8463, the parameters that would best predict a

leaver include being female (.0434), Black (.1610), between the age of 16-20 (.3334),

part-time (0), and enrolled in a business program (.3306) in 1997(0). The student with

these characteristics would have a 50.5% chance of dropping out of school (see Table

10). The results of logistic regression analysis using the odds ratio for students who were

considered to be leavers compared to students who were not shows that the odds ratio for

students ages 16-20 was OR = 1.68 as compared to students who were over the age of 40.

Thus, the odds ratio is 68% higher for 16-20 year olds. A student was less likely to be a

leaver in 1992 OR = .821 as compared to a student in 1997 (see Table 11).

Table 9

A Type III Analysis of Effects Using Logistic Regression of Students Who Are Considered to be Leavers From Fall 1992 and Fall 1997

Effects	DF	Wald chi-square	*p*
Gender	1	3.70	.05
Ethnicity	2	120.19	<.0001
Age	5	168.43	<.0001
Status	1	85.61	<.0001
Program divisions	4	150.49	<.0001
Entry year	1	43.70	<.0001

Note. Categories in the table are gender (male and female), ethnicity (Black, White, and Others), age (16-20, 21-25, 26-30, 31-35, 36-40, and over 40), status (full-time and part-time), program division (agriculture/natural, business, health, industrial, and personal public), and entry year (fall 1992, fall 1997).

Table 10

An Analysis of Maximum Likelihood Estimates Using Logistic Regression for Students

Who Are Considered to be Leavers From Fall 1992 and Fall 1997

Parameter	DF	Estimate	Standard error	p
Intercept	1	-.8463	.0380	<.0001
Status				
Full-time	1	-.1424	.0154	<.0001
Part-time	1	0	-	-
Age				
16-20	1	.3334	.0283	<.0001
21-25	1	.1476	.0278	<.0001
26-30	1	-.0272	.0349	.4355
31-35	1	-.0961	.0405	.0175
36-40	1	-.1747	.0466	.0002
Over 40	1	0	-	-
Gender				
Male	1	0	-	-
Female	1	.0434	.0225	.0544
Ethnicity				
Black	1	.1610	.0317	<.0001
White	1	-.1831	.0302	<.0001
Others	1	0	-	-
Programs divisions				
Agri/natural	1	-.3035	.0976	.0019
Business	1	.3306	.0347	<.0001
Health	1	.0186	.0446	.6777
Industrial	1	.1308	.0411	.0014
Personal/public	1	0	-	-
Entry year				
1992	1	-.0988	.0149	<.0001
1997	1	0	-	-

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Table 11

The Odds Ratio Estimates Using Logistic Regression of Students Who Are Considered to be Leavers From Fall 1992 and Fall 1997

Effects	Point estimate (OR)	95% Confidence limits (CI)
Status		
Full-time	.752	(.708, .799)
Part-time	1	-
Age		
16-20	1.676	(1.514, 1.855)
21-25	1.392	(1.258, 1.540)
26-30	1.169	(1.044, 1.308)
31-35	1.091	(.965, 1.234)
36-40	1.008	(.881, 1.154)
Over 40	1	-
Gender		
Male	1	-
Female	1.091	(.998, 1.191)
Ethnicity		
Black	1.149	(.978, 1.350)
White	.815	(.695, .954)
Others	1	-
Programs divisions		
Agri/natural	.881	(.684, 1.134)
Business	1.660	(1.516, 1.818)
Health	1.215	(1.083, 1.364)
Industrial	1.360	(1.209, 1.529)
Personal/public	1	-
Entry year		
1992	.821	(.774, .870)
1997	1	

Note. The control variables are part-time status, age over 40, male, Other ethnicity, personal/public program division, and entry year 1997.

Research Question Eight

The question sought to determine the strengths of the relationship between the dependent variable, completion, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division through the use of logistic regression ($p = <.05$). The noncontrol variables were used to predict and explain the relationships.

In the type III analysis of effects, there were statistically significant relationships between completion and all of independent variables with program divisions having the largest effect, $X^2(4, N = 21930) = 377.32, p = <.0001$ (see Table 12). In the analysis of maximum likelihood estimates, using the intercept -1.666, the parameters that would best predict a completer includes being male (0), White (.2712), between the ages of 26-30 (.0937), part-time (0), and in an agricultural program (1.0705) in 1997 (0). The student with these characteristics would have a 44% chance of being a completer (see Table 13). The results of logistic regression analysis using the odds ratio for students who were considered to be completers compared to students who were not shows that the odds ratio for students who were part-time OR $= .512$ as compared to students who were attending school full-time. Thus, full-time students are 50% less likely to be completers as compared to part-time students. A student was less likely to be a completer in 1992 OR $= .709$ as compared to a student in 1997 (see Table 14).

Table 12

A Type III Analysis of Effects Using Logistic Regression of Students Who Are Considered

to be Completer From Fall 1992 and Fall 1997

Effects	DF	Wald chi-square	*p*
Gender	1	97.95	<.0001
Ethnicity	2	111.15	<.0001
Age	5	13.56	<.0001
Status	1	316.93	<.0001
Program divisions	4	377.33	<.0001
Entry year	1	80.87	<.0001

Note. Categories in the table are gender (male and female), ethnicity (Black, White, and Others), age (16-20, 21-25, 26-30, 31-35, 36-40, and over 40), status (full-time and part-time), program division (agriculture/natural, business, health, industrial, and personal public), and entry year (fall 1992, fall 1997).

Table 13

An Analysis of Maximum Likelihood Estimates Using Logistic Regression for Students

Who Are Considered to be Completers From Fall 1992 and Fall 1997

Parameter	DF	Estimate	Standard error	p
Intercept	1	-1.6660	.0459	<.0001
Status				
Full-time	1	-.3343	.0188	<.0001
Part-time	1	0	-	-
Age				
16-20	1	-.0783	.0366	<.0001
21-25	1	-.0368	.0354	<.0001
26-30	1	.0937	.0426	.0279
31-35	1	.0797	.0491	.1045
36-40	1	.0193	.0555	.7272
Over 40	1	0	-	-
Gender				
Male	1	0	-	-
Female	1	-.2720	.0275	<.0001
Ethnicity				
Black	1	-.1701	.0428	<.0001
White	1	.2712	.0393	<.0001
Others	1	0	-	-
Programs divisions				
Agri/natural	1	1.0705	.0876	<.0001
Business	1	.2660	.0407	<.0001
Health	1	-.8455	.0699	<.0001
Industrial	1	.2180	.0468	<.0001
Personal/public	1	0	-	-
Entry year				
1992	1	-.1717	.0191	<.0001
1997	1	0	-	-

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Table 14

The Odds Ratio Estimates Using Logistic Regression of Students Who Are Considered to

be Completer From Fall 1992 and Fall 1997

Effects	Point estimate (OR)	95% Confidence limits (CI)
Status		
Full-time	.512	(.467, .552)
Part-time	1	-
Age		
16-20	.999	(.884, 1.130)
21-25	1.042	(.923, 1.175)
26-30	1.187	(1.038, 1.356)
31-35	1.170	(1.012, 1.354)
36-40	1.102	(.941, 1.290)
Over 40	1	-
Gender		
Male	1	-
Female	.580	(.521, .646)
Ethnicity		
Black	.933	(.753, 1.156)
White	1.451	(1.181, 1,783)
Others	1	-
Programs divisions		
Agri/natural	5.926	(4.588, 7.655)
Business	2.651	(2.276, 3.087)
Health	.872	(.706, 1.077)
Industrial	2.527	(2,121, 3.009)
Personal/public	1	-
Entry year		
1992	.709	(.774, .870)
1997	1	

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Research Question Nine

The question sought to determine the strengths of the relationship between the dependent variable, graduation, and the independent variables, full-time and part-time enrollment status, age, gender, ethnicity, and program division through the use of logistic regression (p = <.05). The noncontrol variables were used to predict and explain the relationships.

In the type III analysis of effects, there were statistically significant relationships between graduation and all of independent variables with enrollment status X^2(1, N = 21930) = 534.12, p = <.0001, having the largest effect (see Table 15). In the analysis of maximum likelihood estimates, using the intercept –0.0405, the parameters that would best predict a graduate includes being female (.1270), White (.0149), between the ages of 36-40 (.1526), full-time (.3486), and in a health program (.4322) in 1992 (.1924). The student with these characteristics would have a 77% chance of being a graduate (see Table 16). In the analysis of maximum likelihood estimates, a trend is evident that the older the student the more likely that the student will graduate. The results of logistic regression analysis using the odds ratio for students who were considered to be graduates compared to students who were not shows that the odds ratio for students in an agricultural program OR = .347 as compared to students in personal/public programs. Thus, agricultural students are one-third less likely to be graduates as compared with students in personal/public programs. A student is more likely to be a graduate in 1992 OR = 1.469 as compared to a student in 1997 (see Table 17).

Table 15

A Type III Analysis of Effects Using Logistic Regression of Students Who Are Considered to be Graduates From Fall 1992 and Fall 1997

Effects	DF	Wald chi-square	p
Gender	1	34.10	<.0001
Ethnicity	2	7.36	.0252
Age	5	131.32	<.0001
Status	1	534.16	<.0001
Program divisions	4	516.31	<.0001
Entry year	1	178.53	<.0001

Note. Categories in the table are gender (male and female), ethnicity (Black, White, and Others), age (16-20, 21-25, 26-30, 31-35, 36-40, and over 40), status (full-time and part-time), program division (agriculture/natural, business, health, industrial, and personal public), and entry year (fall 1992, fall 1997).

Table 16

An Analysis of Maximum Likelihood Estimates Using Logistic Regression for Students

Who Are Considered to be Graduates From Fall 1992 and Fall 1997

Parameter	DF	Estimate	Standard error	p
Intercept	1	-.0405	.0357	.2570
Status				
Full-time	1	.3486	.0151	<.0001
Part-time	1	0	-	-
Age				
16-20	1	-.2690	.0277	<.0001
21-25	1	-.1185	.0270	<.0001
26-30	1	-.0287	.0334	.3899
31-35	1	.0446	.0383	.2442
36-40	1	.1526	.0437	.0005
Over 40	1	0	-	-
Gender				
Male	1	0	-	-
Female	1	.1270	.0218	<.0001
Ethnicity				
Black	1	-.0652	.0311	.0361
White	1	.0149	.0295	.6145
Others	1	0	-	-
Programs divisions				
Agri/natural	1	-.5236	.0865	<.0001
Business	1	-.3185	.0324	<.0001
Health	1	.4322	.0419	<.0001
Industrial	1	-.1261	.0385	.0011
Personal/public	1	0	-	-
Entry year				
1992	1	.1924	.0144	<.0001
1997	1	0	-	-

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Table 17

*The Odds Ratio Estimates Using Logistic Regression of Students Who Are Considered to
be Graduates From Fall 1992 and Fall 1997*

Effects	Point estimate (OR)	95% Confidence limits (CI)
Status		
Full-time	2.008	(1.893, 2.130)
Part-time	1	-
Age		
16-20	.614	(.557, .676)
21-25	.714	(.648, .785)
26-30	.781	(.702, .868)
31-35	.840	(.748, .943)
36-40	.936	(.825, 1.061)
Over 40	1	-
Gender		
Male	1	-
Female	1.289	(1.184, 1,404)
Ethnicity		
Black	.891	(.761, 1.043)
White	.965	(.827, 1.126)
Others	1	-
Programs divisions		
Agri/natural	.347	(.277, .434)
Business	.425	(.390, .464)
Health	.901	(.807, 1.007)
Industrial	.516	(.461, .577)
Personal/public	1	-
Entry year		
1992	1.469	(1.389, 1.555)
1997	1	

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Research Question Ten

The question sought to determine the influence of the initiation of the HOPE Grant on full-time and part-time enrollment status, age, gender, ethnicity, and program divisions through the use of logistic regression. The noncontrol variables were used to illustrate the relationships.

In the analysis of maximum likelihood estimates the intercept for graduates (.0407) and the intercept for completers and graduates (.8209) were used to calculate the percentage changes in distribution among leavers, completers, and graduates (see Table 18). Controlling for all independent variables the percentage of leavers changed from 27.5% in 1992 to 30.6% in 1997 after the initiation of the HOPE Grant. Controlling for all independent variables, the percentage of completers changed from 17.8% in 1992 to 18.3% in 1997 after the initiation of the HOPE Grant. Controlling for all independent variables, the percentage of graduates changed from 54.7% in 1992 to 51% in 1997 after the initiation of the HOPE Grant (see Table 19). Not controlling for any of the independent variables there was a 6% increase in attrition overall, 5% increase in completion rates overall, and 10% decrease in graduation rates overall after the initiation of the HOPE Grant in 1997 (see Table 4). Controlling for all of the independent variables in the study, 50% of the total change in attrition rates is attributed to after the initiation of the HOPE in 1997. Controlling for all of the independent variables in the study, 37% of the total change in graduation rates is attributed to after the initiation of the HOPE in 1997.

Table 18

An Analysis of Maximum Likelihood Estimates Using Logistic Regression for Students

Who Are Considered to be Leavers, Completers, and Graduates

Parameter	DF	Estimate	Standard error	*p*
Intercepts grad	1	.0407	.0329	.2156
Comp & grad	1	.8209	.0333	<.0001
Status				
Full-time	1	.2496	.0138	.0120
Part-time	1	0	-	-
Age				
16-20	1	-.2946	.0255	<.0001
21-25	1	-.1260	.0249	<.0001
26-30	1	-.0007	.0309	.9817
31-35	1	.0673	.0356	.0591
36-40	1	.1593	.0407	<.0001
Over 40		0	-	-
Gender				
Male	1	0	-	-
Female	1	.0504	.0200	<.0001
Ethnicity				
Black	1	-.1135	.0287	<.0001
White	1	.0932	.0272	.0006
Others	1	0	-	-
Programs divisions				
Agri/natural	1	-.1847	.0774	<.0170
Business	1	-.3402	.0295	<.0001
Health	1	.2570	.0390	<.0001
Industrial	1	-.1514	.0351	.0011
Personal/public	1	0	-	-
Entry year				
1992	1	.1488	.0133	<.0001
1997	1	0	-	-

Note. The control variables are part-time status, age over 40, male, Others ethnicity, personal/public program division, and entry year 1997.

Table 19

Controlling for all Independent Variables the Exit Status Distribution After the Initiation of the HOPE Grant Using Logistic Regression

			Exit status distribution		
IV	Control	Noncontrol	L	C	G
Gender	Male	Female	.295	.182	.523
Ethnicity	Other	Black	.330	.185	.482
Ethnicity	Other	White	.286	.181	.533
Age	26-30	16-20	.371	.192	.437
Age	26-30	21-25	.333	.188	.479
Age	26-30	31-35	.292	.181	.527
Age	26-30	36-40	.273	.177	.550
Status	Part-time	Full-time	.254	.175	.572
Division	Pers/public	Agri/nat	.346	.190	.464
Division	Pers/pblic	Business	.382	.192	.426
Division	Pers/public	Health	.254	.172	.574
Division	Pers/public	Industrial	.338	.189	.472
Year	1997	1992	.275	.178	.547

Note. Controlling for all independent variables the exit status distribution baselines are L = .306, C = .183, and G = .510 after the HOPE Grant in 1997.

Summary

A large percentage of students (72 % in fall 2000) at Georgia's technical colleges utilize HOPE Scholarship and Grant funds (Georgia Department of Technical and Adult Education, 2000a). The sample for this study was 9,463 students in fall 1992 and 12,467 students in fall 1997. Overall, attrition and completion rates were greater after the HOPE Grant than before, while the graduation rate was greater before the HOPE Grant by nearly 10%. The z distribution is used if the sample is large and is used to determine the level of statistical significance of an observed difference between the groups (Gall, et al., 1996). The z scores in all categories for attrition rates were statistically significant with p <.05 except in the age categories, 31-35 and 36-40, ethnicity category, Other, and the agriculture/natural program and business division. The z scores in all categories for completion rates were statistically significant with p <.05 except in the ethnicity category, Other. Completion rates were lowest in the health and personal/public divisions. The z scores in all categories for graduation rates were statistically significant with p<.05 except in the ethnicity category, Other, and the agriculture/natural program.

Of the total sample of 12,467 students from fall 1997, 4,667 students received need-based financial aid, 5,879 students received HOPE funding, and 1,921 students noted receiving no financial aid. The z score for the attrition rate between students who received need-based financial aid and those that received the HOPE Grant was statistically significant, $z(3591) = -11.75$, $p = <.0001$. There was a statistically significant difference in z score for the completion rate between students who received need-based financial aid and those that received the HOPE Grant significant, $z(2041) = -7.51$, p <.0001. The completion rate increased by nearly 5% for those students who received

need-based financial aid as compared to students who received only the HOPE Grant in 1997. There was a statistically significant z score for the graduation rate between students who received need-based financial aid and those who received the HOPE Grant, $z(4914)$ = 17.10, p = <.0001. The graduation rates decreased by nearly 17% for those students who received need-based financial aid compared to students who received only the HOPE Grant in 1997.

According to Huck (2000), logistic regression deals with the relationship among variables with one variable being the dependent variable while the other(s) is/are the independent variable. The purpose of logistic regression can be either prediction or explanation. The odds ratio measures the strength of the association between the independent variable and the study's dependent variable (Huck, 2000). In the type III analysis of effects using logistic regression, there was a statistically significant relationship between the dependent variable, attrition, and all of the independent variables. A student was less likely to be a leaver in 1992 compared to a student in 1997. In the type III analysis of effects using logistic regression, there was a statistically significant relationship between the dependent variable, completion, and all of the independent variables. The results of logistic regression analysis using the odds ratio for students who were considered to be completers compared to students who were not illustrates that the odds ratio for students that were part-time compared to students who were attending school full-time. Thus, full-time students are 50% less likely to be completers compared to part-time students. A student was less likely to be a completer in 1992 compared to a student in 1997. In the type III analysis of effects using logistic regression, there was a statistically significant association between the dependent

variable, graduation, and all of the independent variables. The results of logistic

regression analysis using the odds ratio for students who were considered to be graduates

compared to students who were not illustrates that the odds ratio for students in an

agricultural program was OR = .347 compared to students in personal/public programs

with an OR = 1. Thus, agricultural students were one third less likely to be graduates

compared to students in personal/public programs. A student was more likely to be a

graduate in 1992 compared to a student in 1997. Controlling for all of the independent

variables in the study, 50% of the total change in attrition rates was attributed to after the

initiation of the HOPE in 1997. Controlling for all of the independent variables in the

study, 37% of the total change in graduation rates was attributed to after the initiation of

the HOPE in 1997. The results of this study has provided evidence of the association of

the HOPE Grant to the dependent variables, attrition, completion, and graduation and

how the independent variables illustrate this association relationship.

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

The purpose of this causal-comparative study was to determine the attrition, completion, and graduation rates of students in Georgia technical college diploma programs (less than 90 quarter credits) before and after the initiation of the HOPE Grant in 1993 and to explain the association between dependent and independent variables. Two groups of students were included in the study, one group matriculated in 1992 before the initiation of the HOPE Grant program and one group matriculated in 1997, after the initiation of the HOPE Grant program. I compared the dependent (response) variables - attrition, completion, and graduation rates - of students based on the independent (explanatory) variables full-time and part-time enrollment status, age, gender, ethnicity, program divisions, and need-based financial aid. Attrition, completion, and graduation rates of students who received Pell Grant or JTPA funds (need-based financial aid) were compared with students who received only HOPE Grant funds.

The population for this study included students who were enrolled in diploma programs at Georgia's technical colleges during fall 1992 and fall 1997 academic quarters. The 33 technical colleges and 17 satellite campuses in the state of Georgia are units of the Georgia Department of Technical and Adult Education (GDTAE). In fiscal year 1992, 53,302 students were enrolled in credit courses at Georgia technical institutes; during fall quarter 1992, 19,018 were full-time students and 12,845 were part-time students. In fiscal year 1997, 76,300 students were enrolled in credit courses at Georgia

technical institutes; during fall quarter 1997, 21,715 were full-time students and 25,889 were part-time students (Department Technical and Adult Education, 2000). Students selected for inclusion in this study were limited to those enrolled in diploma programs with less than 90 quarter credits for the program of study. Full-time students normally complete diploma programs requiring between 60-90 quarter credits of course work in four quarters. During fall 1992, 12,486 students were enrolled in diploma programs with less than 90 quarter credits in the program. During fall 1997, 15,840 students were enrolled in diploma programs with less than 90 quarter credits in the program. These two groups of students served as the population for the study. Students with non-numeric characters in their social security numbers in the BANNER system were considered invalid and were not included. If a student did not have an exit status such as graduate, completer, or leaver recorded they were also excluded. The remaining number of students in fall 1992 was 9,593 and fall 1997 was 12,734. The data files were further reviewed and those students with incomplete records were excluded (i.e. date of birth, gender, age, or program of study). The final sample for this study included 9,463 students in fall 1992 and 12,467 students in fall 1997.

Summary

Attrition rates increased from 1992 to 1997 for all independent variables except ethnicity, Others category, and the agricultural/natural program division. Completion rates increased from 1992 to 1997 in all independent variables except ethnicity, Others. Graduation rates decreased from 1992 to 1997 for all independent variables except ethnicity, Others, and the agricultural/natural program division. Attrition rates were higher for students who received the HOPE Grant compared to students who received

need-based financial aid for students in 1997. Completion rates in 1997 were higher for students who received the HOPE Grant compared to students who received need-based financial aid. Graduation rates were lower in 1997 for students who received the HOPE Grant compared to students who received need-based financial aid. All independent variables - full-time and part-time enrollment status, age, gender, ethnicity, and program divisions had an effect on attrition, completion and graduation rates. The parameters that best predicted a leaver included being female, Black, between the ages of 16-20, part-time, and enrolled in a business program in 1997. The parameters that best predicted a completer were being male, White, between the ages of 26-30, part-time, and in an agricultural program in 1997. The parameters that best predicted a graduate included being female, White, between the ages of 36-40, full-time, and in a health program in 1992. Controlling for all independent variables the percentage of leavers changed from 27.5% in 1992 to 30.6% in 1997. Controlling for all independent variables the percentage of completers changed from 17.8% in 1992 to 18.3% in 1997. Controlling for all independent variables the percentage of graduates changed from 54.7% in 1992 to 51% in 1997. Controlling for all independent variables in the study 50% of the total change in attrition rates is contributed after the initiation of the HOPE. Controlling for all independent variables in the study 37% of the total change in graduation rates is contributed after the initiation of the HOPE.

Conclusions

In conclusion, overall attrition and completion rates were greater after the HOPE Grant than before, while the graduation rate was greater before the HOPE Grant by nearly 10%. Attrition rates were less and graduation rates were higher for students

receiving need-based financial aid compared to students that received the HOPE Grant. The program divisions, health and personal public services, had the highest graduation rates, 58% and 61%, respectively. The results of this study should be compared with other studies of attrition, completion, and graduation rates to note if similar changes reported in this study were apparent in other schools.

Discussion

The study of student attrition in postsecondary education is an endeavor that takes on much importance as colleges work to retain students. Historically, approximately one-half of all traditional freshmen entering college ultimately graduate, conversely the attrition rate for nontraditional students is close to 60% (Lombard, 1992). In fact, of roughly three million students who first enrolled in two-year postsecondary institutions in 1995-96, 36% did not earn a degree or certificate and were no longer enrolled in school, 6% did not earn a degree but were still in enrolled in school, and 58% had attained a degree or certificate after three years (Berkner, Carroll, Clune, & Horn, 2000).

According to Tinto (1987), student's decisions to withdraw stem most often from personal, social, and financial problems. Nippert (2000) concluded that women are somewhat more likely to complete their degree than men and that academic activities, college GPA, and choosing to re-enroll have a positive effect on educational attainment. Bean and Metzner (1985) concluded that older students (nontraditional) drop out of school because of one or more of the following variables academic performance, intent to leave, previous performance and educational goals, and environmental variables.

In this study 9,463 students from fall 1992 were included with 2,907 designated as leavers a 30.7% attrition rate. In the comparison cohort from fall 1997, 12,467

students were studied with 4,442 students designated as leavers for an attrition rate of

35.6%. If the attrition rate were the same in 1997 as in 1992, an additional 612 students

would have been completers or graduates in the group of students studied from 1997.

The attrition rate of 35.6% is a 5% increase from 1992 to 1997 and is similar to that

stated in the study of more than three million students in two-year postsecondary

institutions. Tom (1999) reported the following reasons could be interpreted as

contributing to attrition: 27% reported that loss of income was a major reason, 30% cited

conflict of job and school as a major reason, and 21% mentioned the untimeliness of

course offerings. Tom's findings suggest that finances and conflict of job and school are

related to the attrition of the student. K. Breeden (personal communication on December

19, 2000) suggested that typically, when unemployment rates decline, school enrollment

and retention decreases because it is easier to find employment. An expanding economy

will likely produce greater attrition (Walleri, 1981). However, DTAE has set new

enrollment records every quarter for more than 35 consecutive quarters (Georgia

Department of Technical and Adult Education, 2000). According to the DTAE Statistical

Information FY 2000, 46,076 students were enrolled in credit programs in fiscal year

1990 with 6,227 graduates; and 101,194 students were enrolled in credit programs in

fiscal year 2000 with 15,304 graduates. According to the Bureau of Labor Statistics Data

(2000), the unemployment rate for Georgia in November 1990 was 6.1% and the

unemployment rate was 3.0% for November 2000.

It is difficult to compare attrition, completion, and graduation rates in Georgia's

technical colleges from year to year because there is limited data published from the

Department of Technical and Adult Education. However, there are other sources of

discussion of attrition, completion and graduation rates. According to the American

Medical Association (2000), data collected from 4,365 programs and 203,838 students

indicated that attrition rates range from a low 2% to a high of 33.3% and an average

11.8% attrition in various medical programs in the United States. Attrition rates in the

health division at Georgia's technical colleges were 28% in 1992 and 34% in 1997. The

attrition rates are higher than the national average. Completion rates were lowest in the

health and personal/public divisions. This may be because students in health and

personal/public divisions must complete the entire program of study to qualify to sit for

state and national certification exams. The program divisions, health and personal/public

services, had the highest graduation rates, 58% and 61%, respectively. Programs in the

health and personal/public services divisions have measurable outcomes such as

certification exams for the graduates. In the other program divisions, there are few

measurable outcomes, such as certification exams. Therefore students are not required to

be certified or licensed before employment and that may attribute to their lower

graduation rates and higher completion rates compared to the health and personal/public

divisions. Completion rates were higher for part-time students than for full-time students.

This could be due to the fact that students who attend school on a part-time basis are

likely to be employed. Eighty-five percent of students enrolled in Georgia's technical

colleges are employed in the labor force (Georgia Department of Technical and Adult

Education, 2000). In fact, much attrition in vocational-technical education can be

explained simply by students leaving school due to job opportunities, especially where

and when there is a shortage of skilled laborers (Walleri, 1981). Bean and Metzner

(1985) indicated that environmental variables (finances, hours or employment, outside

encouragement, family responsibilities, and opportunity to transfer) have a greater impact on decisions of adult students to leave than academic variables (study habits, academic advising, absenteeism, major certainty, and course availability).

Attrition and completion rates were lower and graduation rates were higher for students who received need-based financial aid compared to students who received the HOPE Grant. Attrition rates increased by 5% after the initiation of the HOPE Grant, while the graduation rate was greater before HOPE by 10%. Roslund (1998) completed a study of 600 non-returning students from Davenport College Career Center and found that financial aid problems were the number one reason for not returning.

I found that parameters that best predict a *leaver* include being female, Black, between the ages of 16-20, part-time, and enrolled in a business program in 1997. Parameters that best predict a *completer* includes being male, White, between the ages of 26-30, part-time, and in an agricultural program in 1997. The parameters that best predict a *graduate* includes being female, White, between the ages of 36-40, full-time, and in a health program in 1992. Knowing these predictors is valuable to the management of all technical colleges. By recognizing characteristics of students and their programs that can predict a student leaving prior to graduation, interventions can be put into place to help the student succeed in school. Students can be identified who need additional assistance once the programs and the characteristics of students who have a tendency to not succeed are recognized.

Overall attrition rates increased by 6% and completion rates increased by 5% after the HOPE Grant, while the graduation rate was greater before the HOPE Grant by nearly 10%. All of these rate changes were statistically significant. The sample size for the

study was 9,463 student in 1992 and 12,467 in 1997. To compare students who received

HOPE Grant funds to students who received need-based financial aid the sample size was

5,879 students who received HOPE funding and 4,667 students who received need-based

financial aid. Large sample sizes can produce statistically significant result even though

there is limited practical significance associated with the findings (Huck, 2000). All of

the independent variables had an affect on attrition, completion, and graduation rates. In

a practical sense, controlling for all of the independent variables in the study, 50% of the

total change in attrition rates was attributed to after the initiation of the HOPE in 1997

and controlling for all of the independent variables in the study 37% of the total change in

graduation rates is attributed to after the initiation of the HOPE Grant program in 1997.

Changes in attrition, completion, and graduation rates reported in this study, should be

further researched to confirm the results in this study and recommendations put into place

to increase graduation rates and decrease attrition rates.

<div align="center">Recommendations for Practice</div>

1. Knowing the parameters for best predicting leavers, completers, and graduates
   should be communicated to all Georgia technical colleges so that if a student has
   all or some of the parameters that describes a leaver, additional assistance can be
   offered to help that student become a graduate.

2. Communicate the results of this study to the Georgia Student Finance
   Commission. The commission may need to review the guidelines and practices of
   the HOPE Grant program because much money is being spent on scholarships
   that have not increased the graduation rates at Georgia technical colleges,
   although student enrollments have increased.

3. Work towards improving the graduation rates and reducing attrition rates at Georgia's technical college. Student retention plans need to be established and implemented at all Georgia technical colleges. Recognition of student characteristics that predict success or failure in school is essential to any retention plan. By retaining more students graduation rates increase and more students are able to be employed and can contribute the economic development of Georgia.

4. Develop measurable outcome instruments, such as certification exams, for programs in the agriculture/natural, business, and industrial programs divisions. The state standards will need to be revised to be able to prepare the student to pass the newly developed certification exams. The certification exams must be developed and accepted as a standard of quality in business and industry.

Recommendations for Further Research

1. Replication studies should be conducted to determine the attrition, completion, and graduation rates of students at each technical college in certificate, diploma, and degree programs since the name change to technical colleges.

2. Research should be conducted on an annual basis to determine the attrition, completion, and graduation rates of students at Georgia technical colleges. The study should include demographics and what type of financial aid, if any, is used by each student. The results will assist in establishing a retention plan. The results of the retention plan could be one measure to establish the efficacy of the HOPE Grant.

3. Quantitative and qualitative research should be conducted with the students that exited prior to graduation to determine reasons why students did not complete

their educational goals. Determining the reasons why students leave school prior to graduation will help identify any areas that the school could assist the students while in attendance.

4. A longitudinal study should be conducted to determine the relationships and the attrition, completion, and graduation rates of students at each technical college in certificate, diploma, and degree programs. This information is currently not available and is essential to identify areas of concern and to have continuous quality improvement.

5. More studies concerning issues surrounding the HOPE Grant should be completed. The studies should include the economic impact that the HOPE Grant has made in Georgia, enrollment trends in Georgia by HOPE Grant recipients, and new methods to award and distribute HOPE Grant funds.

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